# A Reappraisal of the Link between External Debt and Domestic Investment in Nigeria

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**Abstract**

This study explores external debt and economic growth nexus in Nigeria. Although external borrowing is targeted to put an economy on the pedal of growth cycle, provided such resources obtained are utilized efficiently in a well-directed manner. This has not been the case with Nigeria due to lack of optimally utilizing this contracted loans for its original goal hence making repayment a burden which has culminated a lot of contention among scholars, policy makers, and government agencies to mention a few. This study was carried out to investigate the nexus between external debt and domestic investment via economic growth in Nigeria between the periods 1980 to 2014. The study employed OLS regression method to ascertain the said relationship. The results shows that external debt exerts a negative and significant effect on private in Nigeria, while domestic debt had a positive and significant influence on private investment in Nigeria during the study periods, indicating that external debt impedes private investment in Nigeria. So the study concludes that external debt is inversely related to private investment, meaning that an increase in external debt goes a long way in reducing private investment which slows down economic growth in the country. Owing from the above, the study recommends there is the need for the government to focus more on domestic investment and lessen the concentration on private investment. In addition, the government should enforce appropriate macroeconomic policy that will foster private investment couple with an enabling environment that will attract foreign investors to invest in the country by addressing the security challenges, providing investment friendly environment, by improving regulatory framework, introduction of some legal framework which should be met to apprehend any contractor, agencies, public office holders found to have embezzle funds stipulated for any developmental project; and encourage domestic investment. Future study should be conducted on effective management of resources for achieving the desired economic growth in Nigeria.

**Keywords:** domestic investment, economic growth, external debt, foreign investment, OLS.

## 1. Introduction
### 1.1 Background of the study

To meet the demand accrued to budget deficit, the government of most developing countries which Nigeria is inclusive, result to borrowing from sources which includes; financial institutions, general public and external sources to offset the acclaimed budget deficit which may also be a source of funding private businessmen/investors. Expectedly, when evaluated from the crowding

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out perspective borrowing and public expenditure are often seen as been synonymous since borrowing is mostly embraced for financing expenditures as observed by (Khan, Gill, 2009).

As indicated by Sheik et al. (2010) three noteworthy reasons behind acquire public domestic debt. Initially, it is utilized to back spending shortfall (budget deficit). Second, it is used to execute monetary policy through open market operations. Third, when there is the need to develop and deepen the financial market via instrument of domestic debt. Particularly, Alam and Taib (2012) observed in their study that financing expenditure through debt is a significant tool the government can use to catalyse economic growth and development in infrastructural development of the country as opined by (Kalu, 2015).

In this manner, external debt is a wellspring of government/public financing/investment (emanating from the overabundance of expenditure over arranged income/revenue; and whether public financing (coming from external debt) and making private sectors investment to be substitutes or complements which have made the a ground for solid contention in monetary hypothesis and policy. For instance, free markets scholars contend that government intervention in the economy ought to be minimized. As per this perspective, state sector activity competes with private sector for scarce resources and drives their prices up. Particularly if public sector investment is financed by borrowing, this can prompts an expansion in market interest rate raising the cost of capital for the private sector resulting to project of private sector becoming unprofitable. Hence, making the private investments to be crowded out by public sector investments. Since it is generally accepted that private sector investments contribute more to economic growth, an increase in the size of the public sector at the expense of the private sector also hinders economic growth and well-being (Abdullatif, Emad, 2006).

The private sector may benefit from the spill over from such public sector projects during and after completing the project. A better developed infrastructure in roads and railways, for example reduces transportation costs, and hence facilitates a better business environment. Public investments in education and health care facilities help improve the level and the quality of human capital in an economy.

Then again, some contend that public debt may be gainful for the improvement of the private part. The government sector, for instance, can bear to put resources into base activities that include substantial sunk expenses and need long lead times to wind up beneficial. The private sector may profit by the overflows from such public sector amid and after the fruition of the task. Public investments in education and health care facilities help improve the level and the quality of human capital in an economy. Besides, open interests in instruction and social insurance offices enhance the level and the nature of human capital in an economy. In addition, as an aggregate demand management tool, government investments might be a counter-cyclical economic policy measure to smooth the business cycle and revitalize the private sector activity – at least in the short run (Abdullatif, Emad, 2006).

Taking a halfway position, Addullatif and Emad (2006) contended that public debt may not automatically rival the private sector for scarce resources. Taking an intermediate position, Addullatif and Emad (2006) argued that public debt may not necessarily compete with the private sector for scarce resources. Some private division speculations may likewise not be financed if money related markets are shallow. In such circumstances, open part ventures may without a doubt assume an impetus part in giving the economy required and generally difficult to attempt speculations. The private sector and the economy in general may benefit from public sector investment. Albeit, public debt can be categorized into internal (domestic) and external (foreign) debt, this study would be focusing on the external debt by examining its relationship with private investment in Nigeria for the period 1980 to 2014.

## 1.2. Statement of the Research Problem

Due to narrow tax base, increasing budgetary expenditures and falling crude oil price at the international oil market; the Nigerian economy has been confronted with declining growth of revenue for several decades; forcing the Nigerian government to rely on continuous borrowing both from internal and external sources to finance the budgetary deficit. The enormous debt stock and huge debt service payments of Nigeria has retarded the country from embarking on large volume of domestic investment, with the tendency to boost economic growth and development as observed by Clement et al. (2003). This has made external debt a burden to most African countries including Nigeria owing to contracted loans' being not optimally utilized; therefore returns on investment were

not adequate to meet maturing obligations and left no favourable balance to support domestic economic growth. For instance, due to recurrent borrowing, the Nigerian economy is burdened with public debt. For instance, in the fiscal years of 2010-11 to 20014-15 the Nigerian total domestic debt borrowing were $ 17,735,015.78, $ 17,782,334.39, $ 22454258.68 and $ 24,933,753.94 respectively while the country's external debt during these periods were $ 28,264,984.23, $ 3,236,593.06, $ 4,331,230.29 and $5,145,110.41 respectively. Cumulatively the country's total public debt rose from $20,564,668.77 in 2010-11 fiscal year to $ 30,078,864.36 in 2014-15 fiscal year.

Importantly, it is worthy to note that excessive public debt may discourage investment. Akujuobi (2012) for instance, observes that it is a problem to borrow heavily from internal and external sources to fund different sectors of Nigerian economy with doubtful corresponding gains. Such unsustainable public debt is a potential threat to investment in physical capital and foreign investment. When external debt reaches a high level, investors lower their expectations on investment returns with the possibility of progressively more distorted taxes by the government for debt repayment. In this way, high debt discourages domestic and foreign investment incentive and also slows down physical capital accumulation (Kalu, 2015). Public debt is an issue of much debate and historical division between the two main schools of economic thought classical and Keynesian. While classical economists take a much conservative stance on public debt, the Keynesians are flexible towards the same. One may have the clear idea about the position of the classical regarding public debt from their basic belief "that government is the best which governs the least".

The classical economists suggest keeping public undertakings such as debt minimum. In their view government debt accumulates resources for its own use leaving private sector with less. This phenomenon is popularly termed as crowding-out of private investment. According to the classical economists, as public expenditure resulting from government debt financing is less productive than private expenditure, the increased output because of the debt-financed public expenditure does not offset the negative impact of the crowding-out of investment on output reducing investment and economic growth (Majumder, 2007). As against the classical view, the Keynesians see no harm in government debt if necessity occurs. Their argument is based on the principle of the multiplier that explains how a change in the public expenditure resulting from debt can generates a greater change in output. The Keynes, however, was not unaware of the crowding-out effects of government debt (Majumder, 2007).

Regarding the focus of this study, external debt is noted to have contributed significantly to a decline in investment. This is because external debt creates disincentives to investment, and also, the decline in investment in heavily indebted developing countries is not due to the debt problem but the high level of indebtedness. For instance, in the 1980's external debt escalated rapidly in the 1980s owing to falling oil export revenue consequent on the collapse of world oil prices, with oil revenue accounting for over 90 percent of total foreign exchange earnings, the collapse of oil prices had devastating effects on the Nigerian economy, one of which was the rising debt. The mounting external debt and rising debt servicing appeared to have delivered a devastating effect on Nigeria economy in these ways:

First, high debt servicing in the face of declining foreign exchange earnings reduced the resources that could have been devoted to the importation of essential goods to promote rapid economic growth and development and also complemented for the investment needs of the country resulting from low savings as observed by Adofu and Abula (2010). The dampening effect of the high debt service payments on investment is often called the "crowding out" effect. Second, the high debt burden may have acted to discourage investment by the public sector which probably viewed the accumulated stock of debt as a tax on future income and production. This disincentive effect of a country's external debt burden on investment is the "debt overhang" effect. Observably, these two effects apparently explain to a large extent the reason for the low investment in the Nigeria economy during the periods of high or rising debt. So as the external debt of the Nigerian economy escalated over the years so also is the burden associated with it. So an increasing proportion of domestic resources were transferred abroad for debt servicing at the expense of domestic investment.

Besides the above, literature is also divided and mixed at answering the question of what is the role of external debt in influencing private investment in Nigeria. On the hand, studies by Oke and Suliaman (2012), Osuji and Ozurumba (2013), Suliaman and Azeez (2012) and; Yagoob and Zhemgming (2013) stressed that external debt positive influenced private investment while studies

by Kalu (2015), Umaru et al (2013), Uma et al., (2013) and Edo (2002) noted that external debt negatively influenced private investment. Taking an intermediate position, Amassoma (2011) and Ajisafe et al., (2006) argued there is no significant relationship between external debt and private investment in Nigeria. The findings of the above studies showed that the relationship between external debt and private investment is still controversial. Distinctive results are found for various countries and for different time periods within the same country due to these controversial findings, hence it is erroneous to make any generalization on the relationship between external debt and domestic investment regarding Nigeria. Along these lines, there is the need to re-evaluate this issue which is the core of this paper.

In re-evaluating the issue this paper seeks to proffer answers to some questions like; What is the effect of external debt on domestic investment in Nigeria? What are the causes of external debt in Nigeria? How has been the trend of external debt in Nigeria? So the objective of this study is to unveil the unraveled fact between external debt and domestic investment nexus in Nigeria.

### 1.3. Significance of the Study

The need for this study cannot be overemphasized although studies on the relationship between public debt and foreign private investment, regarding Nigeria is scanty, with the enormous benefit sascribed to foreign investment vis-à-vis attracting scarce technology, creating employment and enhancing productivity to mention few. This paper contributes to fill this research gap by investigating the response of foreign private investment to public debt in Nigeria. This is because the empirical evidence of the exhibited relationship would have an important implication for foreign and domestic investment, formulation of public debt policies and development of the financial market in Nigeria. This will reveal the magnitude and nature of impact that external debt can exert on domestic investment, serving as a guide to the government borrowing policies, and likewise to foreign investors regarding making direct investment decisions. It will enrich the existing literature on external debt and domestic investment in developing economies and also to provide reference on the relationship for future studies as pinpointed by (Kalu, 2015). Over and above all, this study is also significant because external debt has been a major debate amongst economists in development mainly because directly or indirectly the relationship between external debt and investment has a great influence on the pace of growth in a country be it developing or developed one.

Consequent to the above, the remaining part of this study would be structured into these sections. Section B would review some relevant and related literatures with theories corresponding to this subject couple with some salient empirical evidence. This will be followed by section C which hope to address the methodology utilized by this study which include specification of model, description of variables, sources of data to mention a few. Section D will analyze empirically with discussion following up the analysis. Finally, section E would conclude and proffer policy recommendation for the study.

### 2. Theoretical Framework and Empirical Evidence
### 2.1. Theoretical Framework

This aspect will be subdivided into two parts namely the theories of government spending/public debt and the theories of investment.

### 2.1.1. Theories on Government Spending/Public Debt
### i.    Keynesians Theoretical Proposition on Government Spending

The Neoclassical considers individuals planning their consumption over their entire life cycles. By shifting taxes to future generation, budget deficits increases consumption. By assuming full employment of resources, neoclassical theorists argue that an increased consumption implies a decrease in saving. So interest rates must rise to bring equilibrium in the capital markets. Knowing well that high interest rate can cause a decline in private investment. Budget deficits could "crowd-out" private investment (Aschauer, 1989) provides empirical evidence showing that higher public capital spending lowers private investment.

The neoclassical considers people arranging their utilization over their whole life cycles. By moving expenses to future era, spending shortages build utilization. By accepting full occupation of assets, Neoclassical contend that expanded utilization suggests a diminishing in sparing. Financing costs must ascent to convey balance to capital markets. High financing costs, thusly, bring about a decrease in private speculation. In this manner, spending shortages could

"crowd out" private sector (Aschauer, 1989) gives observational proof demonstrating that higher open capital spending brings down private investment.

### ii. Ricardian Equivalence Theoretical Proposition on Government Spending

The Ricardian equivalence approach advanced by Barro (1989), argued that an increase in budget deficits, say, due to an increase in government spending must be paid either now or later, with the total present value of receipts fixed by the total present value of spending. Then a cut in today's charges must be coordinated by an expansion later on expenses, leaving financing costs, so private venture unaltered. In alternate words, in reckoning without bounds charge build, shoppers spare instead of spend the wage from the tax break, and the lessening in duty prompts an identical increment in sparing. A decrease in expense that basically substitutes obligation fund for assessment account of unaltered government spending would leave customer spending unaltered and would bring down it as an offer of (now higher) discretionary cash flow. If administration utilization is expanded and financed by obligation, private utilization ought to decrease balanced with every unit of cash of higher perpetual government spending.

### 2.1.2. Theories of Investment

The theories of investment date to Keynes (1936), who initially pointed out the presence of an independent investment function in the economy. A focal element of the Keynesian investigation is the perception that although savings and investment must be identical ex-post, savings and investment decisions are taken by different decision makers and there is no reason ex-ante savings should equal ex-ante investment. This stage in the advancement of investment theory gave rise to the accelerator theory, which makes investment a linear proportion of changes in output.

### a. The Accelerator theory

In the accelerator model, expectations, profitability and capital costs play no role. A more general form of the accelerator model is the flexible accelerator model. The basic notion behind this model is that the larger the gap between the existing capital stock and the desired capital stock, the greater a firm's rate of investment (Pekarski, 2010). The hypothesis is that firms plan to close a fraction of the gap between the desired capital stock, K*, and the actual capital stock, K, in each period. This gives rise to a net investment equation of the form of:

$$I = \delta (K^* - K_{-1})$$

where I = net investment, K* = desired capital stock, K-1 = last period's capital stock, and $\delta$ = partial adjustment coefficient.

Within the framework of the flexible accelerator model, output, internal funds, cost of external financing and other variables may be included as determinants of K*. The flexible accelerator mechanism may be transformed into a theory of investment behaviour by adding a specification of K* and a theory of replacement investment (Asante, 2000). Alternative econometric models of investment behaviour differ in the determinants of K*, the characterization of the time structure of the investment process and the treatment of replacement investment. In the flexible accelerator model, K* is proportional to output, but in alternative models, K* depends on capacity utilization, internal funds, the cost of external finance and other variables. This model identifies GDP (output), interest (cost of external financing) and capital (internal funds) as the major determinants of investment. Is the availability of excess production capacity which would allow for the increase in production from the actual production level to the desired level (Bayai, Nyangara, 2013).

### b. The Multiplier Investment Model

The Multiplier is the negligible impact of a change of one monetary variable upon another financial variable, of which the first is a part (Lange, 1943). The Investment Multiplier, presented by Keynes as a fundamental piece of his General Theory, built up an exact relationship between total salary and the rate of speculation, given the peripheral penchant to devour (Hasan, 1968). In financial matters, a multiplier is an element of proportionality that measures how much an endogenous variable changes, given an adjustment in some exogenous variable (Hegeland, 1954). The Multiplier model shows the aggregate salary making impacts of a self-ruling augmentation of speculation on the premise of certain very streamlining suppositions which include: the nonattendance of time slacks, no actuated venture, steady minimal inclination to devour, and a shut economy (Bayai, Nyangara, 2013).

Multiplier impacts can be seen when new venture and occupations are pulled in into a specific town, city or area. The last increment in yield and livelihood can be far more prominent than the underlying infusion of interest due to the between connections inside the roundabout stream. The Multiplier model of venture is in this manner construct mostly regarding the input impact that yield (generation) has on speculation. The fundamental thought is, total salary increments as the makers of the new speculation products appreciate higher deals and salaries. So an expansion in speculation sets off a ceaseless succession of ever-littler increments in utilization request that enlarge or "duplicate" the impact of venture on pay (Bayai, Nyangara, 2013).

### c. Tobin's Q

James Tobin, another Nobel-prize winner, formulated an investment theory based on financial markets. Tobin argued that firms' investment level should depend on the ratio of the present value of installed capital to the replacement cost of capital. This ratio is Tobin's q.

The q theory of investment argues that firms will want to increase their capital when q > 1 and decrease their capital stock when q < 1. If q > 1, a firm can buy one dollar's worth of capital (at replacement cost) and earn profits with present value over one dollar. Under those conditions, firms increase profits by investing in more capital, so investment will probably be high. If q < 1, then the present value of the profits earned by installing new capital is less than the cost of the capital and so more investment lowers profit. Investment is expected to be near zero if q < 1. When q < 1 someone seeking to enter a particular industry can acquire the capital assets more cheaply by buying an existing firm than by building a new one with new capital. This is true because the value of installed capital (that is, the cost of buying an existing firm) is less than the replacement cost (the cost of building a new firm) (Bayai, Nyangara, 2013; Hegeland 1954; Parker 1960).

Tobin's Q theory lays bare that, investment is a function of the cost of capital (interest) and profitability. Investment makes sense only when the cost of replacing and or acquiring capital assets is low. Low cost of capital magnifies profitability hence the viability of an investment. Impliedly, risk is also a factor considered by Tobin's model as it seeks to limit losses by making sure the q ratio is greater than one (Bayai, Nyangara, 2013).

McKinnon (1973) and Shaw (1973) also formulated neoliberal approach to investment which stresses the importance of financial deepening and high interest rates as drivers of economic growth. According to them, were economy free up from repressive conditions, this would induce savings, investment and economic growth. In their view, investment is positively related to the real rate of interest in contrast with the neoclassical theory. This is made possible because an increase in interest rates will lead to an increase in the volume of financial savings through financial intermediaries and raises investible funds, a phenomenon that McKinnon (1973) calls the "conduit effect" (Ajide, Lawanson, 2012).

### 2.2. Review of Empirical Evidence

This subsection seeks to project empirical evidences related to this subject to deduce the direction other researchers and authors have driven towards before undertaking this study. For instance, Okon et al. (2013) researched the relative impact or potency of both external and domestic debts on performing the Nigerian economy with accentuation on which of the debt type exert more impact on the major macroeconomic variables of per capita GDP and gross domestic investment. The study utilized time series data obtained from various sources from 1970 to 2011 and were further subjected to series of econometric analysis. The result revealed that external debt is superior to domestic debt in economic growth, external debt and not domestic debt crowd-out domestic investment in Nigeria. The direction and size of the coefficients of external and domestic debts in the investment model were (-) 0.245 and (+) 1.182 respectively. Other results showed that, real exchange rate is a positive and significant determinant of economic growth; Interest rate is a negative and significant determinant of domestic investment in Nigeria. The authors reasoned that government ought to have response to domestic market based borrowing remembering the end goal to activate domestic savings which stimulate domestic investment in Nigeria.

Oke and Suliaman (2012) examined the impact of external debt on the level of economic growth and the volume of investment in Nigeria between 1980 and 2008. The authors adopt the Debt Cum-Growth model with the Investment model while the econometrics analysis techniques of multiple regressions were employed. The result of the analysis indicates a positive relationship between external debt, economic growth and investment; this was confirmed by the coefficient of

determination ($R^2$) of about 79.8 %. The study recommends among others that government should ensure that measures are put in place to achieve optimal use of borrowed funds so servicing such funds will not invoke economic crises and erode the level of private investment which is central to the overall economic growth and development.

Kalu (2015) investigates the long-term relationship and dynamic short-term impact of public debt on foreign private investment for a developing country – Nigeria during the period 1962 to 2012. The paper deploys co-integration model to examine long term relationship between the variables. The study also examines dynamic short-term impact and causality between public debt and foreign private investment using the VECM and Granger causality test. The study further examines the response paths of foreign private investment variable due to public debts shocks using variance decomposition. The results confirm absence of long-term relationship between public debt and foreign private investment in Nigeria. The results also show that external debt has negative impact on foreign private investment in the short-term. Finally, the results show there is no causality between foreign private investment and public debt. The major economic implication of these findings is for debt management authorities to know of growing external debts as it discourages foreign private investments into Nigeria.

Also, Egbetunde (2012) examines the relationship between external debt and economic growth in Nigeria. Using a double-log equation within the context of Ordinary Least Square (OLS) framework and co-integration test, the study finds that economic growth is co-integrated with external debt, domestic debt and debt services in Nigeria. Within the OLS framework, the evidence of positive relationship between economic growth and external debt and domestic debt and economic growth was found at $p < 0.05$ in the economy, while debt services were negatively affected on economic growth at $p < 0.05$. Based on these results, the paper argues that the rate at which borrowings contribute to economic growth in Nigeria was low; it may be because of mismanagement of the resources obtained as loan. However, to stimulate the process of development in the economy when the borrowings are being obtained either domestically or internationally, government should have a specific purpose for the said loan before embarking on it, and it must be adequately used for the loan to effect positively on the process of economic development in the country.

Eravwoke and Oyovwi (2013) inspected the relationship between external debt burden and its impact on major macroeconomic variables in Nigeria. The econometric method of co integration technique was applied to establish the quantitative impact and relative significance of the explanatory variables. The study demonstrates that there exists a long run relationship among the major macro-economic variables. The results also show that external debt burden, foreign direct investment, inflation and Export have a positive relationship with economic growth. The study prescribes that the Nigerian government should not contract further ineffective obligation as it might be negative to the development and improvement of the economy.

ThankGod (2014) examined the impact of public debt on private investment in Nigeria over the period 1981–2012. Data were sourced from the CBN statistical Bulletin, 2012. Private investment as a ratio of GDP (PINV) was regressed on external debt (XD), external debt squared (XDsqr), Domestic debt (DB), domestic debt squared (DBsqr) and private consumption expenditure as a percentage of GDP (PCXR) using the instrumental variable technique of estimation and bootstrapping technique for the computation of normal based standard errors for the turning points. The results show that: DB has a linear and positive impact on PINV; XD has a U-shaped impact on PINV; and PCXR has a negative impact on PINV. All the variables were statistically significant at 1 % level except for the DB turning point statistically not significant. The XD turning point was estimated to be 124.69 percent and was statistically significant at the 1 % level. The study therefore concludes that: the impact of domestic debt on private investment in Nigeria is linear and positive; and (ii) the impact of external debt on private investment in Nigeria is U-shaped. The author recommended that, for Nigeria to benefit from government external borrowings such funds should be large enough compare to her GDP and should be invested in productive ventures.

Khan and Gill (2009) investigated the crowding-out effect of public borrowing on private investment in Pakistan. Time series data of 34 years, i.e. fiscal year of 1971-72 to 2005-06, taken from Federal Bureau of Statistics and Finance Division, Government of Pakistan was used. An investment function of three independent variables, i.e. public borrowing, GDP and lending rate was estimated

through unit root test, co-integration test and vector error correction model. The authors observed that the results do not corroborate the crowding-out hypothesis in Pakistan explaining the market imperfections and substantial excess liquidity. The results provide the evidence of crowding-in effect, which explains the direction of public expenditures towards private sector through contractors, politicians and bureaucrats, instead of public projects. The provision of subsidy, transfer payments, and substantial micro-credit also explain the phenomenon of crowding-in. The evidence has important implications for fiscal management. To avoid unnecessary inflation and external indebtedness associated with deficit financing, government should rely on domestic sources. As long as excess liquidity prevails in financial system, the domestic resources, other than State Bank of Pakistan may meet the deficit without hurting private investment.

Abdullatif and Emad (2006) examined the relationship between public sector investment and private sector investment through government expenditures financed by government bonds in the Japanese economy. This study hypothesizes that deficit financing by bond issues does not crowd out private sector investment, and this finance method may crowd in. The government increases bond issues and sells them in the domestic and international financial markets. This method does not affect interest rates because they are insensitive to government expenditures and they depend on interest rates levels in the international financial market more than in the domestic financial market because of globalization and integration among financial markets.

Clements et al. (2003) examined the channels through which external debt affects growth in low-income countries. The authors' findings suggest that the substantial reduction in the stock of external debt projected for highly indebted poor countries (HIPCs) would directly increase per capita income growth by about 1 percentage point per annum. Reductions in external debt service could also provide an indirect boost to growth through their effects on public investment. If half of all debt-service relief were channelled for such purposes without increasing the budget deficit, then growth could accelerate in some HIPCs by an additional 0.5 percentage point per annum.

Ahmed and Miller (1999) examine the effects of disaggregated government expenditure on investment using fixed- and random-effect methods. Using the government budget constraint, the authors explored the effects of tax- and debt-financed expenditure for the full sample, and for sub-samples of developed and developing countries. The authors observed that tax-financed government expenditure crowds out more investment than debt-financed expenditure. Also, the authors observed that expenditure on social security and welfare reduces investment in all samples while expenditure on transport and communication induces private investment in developing countries.

Obademi (2012) focuses on the impact of public debt on economic growth using Nigeria as a case study. An analysis of the long-run relationship and impact of debt from the perspective of the value impact and proportional impact was done. The value impact variables used include the external debt value, domestic debt value, total debt value and budget deficit figures. The proportional impact variables are ratios of the value impact to the gross domestic product (GDP). An augmented Cobb Douglas model was used and subsequently a dynamic version of the functional relationship was estimated using Co-integration technique to capture the long-run impact of debt variables on economic growth. The result showed that the joint impact of debt on economic growth is negative and significant in the long-run though in the short-run the impact of borrowed funds and coefficient of budget deficit is positive. In the study, the speed at which the short-run equation converges to equilibrium in the long-run as shown by the Error Correction Mechanism coefficient was slow. The conclusion from this study is that though in the short-run the impact of borrowed fund on the Nigerian economy was positive, the impact of debt in the long-run depressed economic growth because of incompetent debt management. Osuji and Ozurumba (2013) analysed the relationship between external debt financing and economic development in Nigeria. The data for the study is collected from CBN statistical staple 2012. The data covered 1969-2011. Time series variable properties of the study were stationary and co integration. The VEC model estimate showed that London debt financing possessed positive impact on economic growth while Paris debt, Multila and Promissory note were inversely related to economic growth in Nigeria. The study recommended debt service cancellation and global marketing participation to encourage survival of SMEs in Nigeria.

Bolanle et al (2015) evaluated the noteworthy financial effect of outer obligation and remote direct speculation on developing Nigeria for a period extending from 1990 to 2013. The model indicates GDP (financial development) as reliant on extraordinary estimation of outer obligation

and outside direct speculation inflows. Assessing the model utilizing the mistake revision displaying approach, the discoveries demonstrate that outer obligation is contrarily however unimportantly identified with monetary development while outside direct speculation is additionally adversely yet essentially related. Remote direct speculation is huge for financial development; thusly, inflows through outside direct venture have more effect on the Nigerian economy than inflows from outer obligation.

Ajisafe et al. (2006) investigates the causal relationship between External Debt and Foreign Private Investment in Nigeria between 1970 and 2003. The source of data for the study is the publication of the Central Bank of Nigeria Statistical Bulletin (volume 14, 2004) issued annually by the Research Department. The variables used in the study were tested for stationarity using the Augmented Dickey Fuller and Philip Perron test. The result shows that the variables are stationary at first differencing. Co-integration test was also performed and the result shows that the variables are not related eventually using the likelihood ratio as a measure of significance. The result of the co-integration determines the use of vector autoregressive model to test for causality, which resulted in a bi-directional relationship between external debt and foreign private investment in Nigeria.

Ijeoma (2013) assessed the Impact of Debt on selected macroeconomic indicators in Nigerian Economy. Time series such as external debt stock, external debt service payment and exchange rate as variables to determine their effect on Gross Domestic Product (GDP), and Gross Fixed Capital Formation (GFCF) for the period 1980-2010. The data were sourced from Debt Management Office, CBN Statistical Bulletin, and internet materials and analyzed with Linear Regression. The study found that Nigeria's external debt stock has a significant effect on her economic growth. It also revealed there is a significant relationship between Nigeria's Debt service payment and her Gross Fixed Capital Formation. The study recommend that government should avoid borrowing as much as possible however, since developing countries must borrow at one time to supplement internal savings, borrowing then should become an option only when high priority projects are being considered and borrowed funds should be strictly monitored and evaluated to ensure they are used for the purpose for which they are borrowed and government should make policies that will promote industrialization which will attract foreign direct investment.

### 3. Research methodology
### 3.1 Theoretical Framework
This study relies on the Keynesians theoretical proposition as the theoretical framework for this study. As emphasized above the Keynesian argued that budget deficits financed through debt financing result in an increase in domestic production, which makes private investors to become more optimistic about the future course of the economy and invest more. Given the present economic situation in Nigeria and the need not only to promote aggregate economic activities but the provision of infrastructural facilities capable of enhancing private investment; this study therefore support the Keynesian proposition that external debt promotes private investment in the short run.

### 3.2. Model Specification
The model specifying the relationship between external debt and domestic investment in Nigeria is presented by equation (1) below following the study by ThankGod (2014). The model is specified:

$$DINV = f(ED) \tag{1}$$

Introducing other explanatory variables into equation (1) we have:

$$DINV = f(ED, DD, GDP, INT, INF) \tag{2}$$

The estimating form of equation (2) above is represented as:

$$DINV = \beta_0 + \beta_1 ED_t + \beta_2 DD_t + \beta_3 GDP_t + \beta_4 INT_t + \beta_5 INF_t + \mu \tag{3}$$

From equation (3) DINV is domestic investment, ED is external debt, DD is domestic debt, GDP is gross domestic investment, INT is interest rate and INF is inflation rate.

### 3.3. A prior Expectation.
From equation 3, $\beta_0$ and $\mu$ are the constant and error term respectively; and it is expected from the theoretical framework that $\beta_1$, $\beta_2$, $\beta_3$, and $\beta_4$ are positively related to domestic investment while $\beta_5$ is expected to have a negative relationship with domestic investment.

### 3.4. Estimating Technique.

The ordinary least squares (OLS) or linear least squares estimating technique would be employed in examining the impact of external debt on private investment in Nigeria from the period 1980-2014.

### 3.5. Measurement of Variables

Domestic investment (DINV) would be measured by the volume of credit to the private sector; external debt (ED) would be measured by the volume of foreign debt, domestic debt (DD) would be measured by the volume domestic debt outstanding of the federal government, economic growth (GDP) would be measured by gross domestic product; interest rate (INT) would be measured by the monetary policy rate while inflation rate (INF) would be measured by annual year-on-year inflation rate.

### 3.6. Source of Data

Data on domestic investment (DINV), external debt (ED), domestic debt (DD), economic growth (GDP), interest rate (INT) and inflation rate (INF) would be sourced from central bank of Nigeria (CBN) statistical bulletin 2014 edition; to examine the impact of external debt on domestic investment in Nigeria from the period 1980 to 2014.

### 4. Data analysis and interpretation

### 4.1. Trend of External Debt and Private Investment in Nigeria

External debt has been a major source of external financing for the Nigerian government over the years particularly when the country faces financial crisis or when the country is plagued with decline in foreign exchange earnings due to decline international crude oil price. From the figure 1 below, some observe that external debt in Nigeria stood at ₦1.9b in 1980 and rose to ₦41.45b and further to ₦298.61b in 1986 and 1990 respectively. External debt rose to ₦716.87b and further to ₦2,577.37b in 1995 and 2000 respectively. The volume of external debt rose further to ₦4,890.07b in 2004 but declined slightly to ₦2,695.07b in 2005. In 2006, the volume of external debt declined majorly ₦451.46b due to the debt forgiveness granted to the Obasanjo's administration. However, external rose again to ₦689.84b in 2010 and further to ₦1,631.52b in 2014. A glance at the figure below showed that the trend of external debt in Nigeria has been rising except for the period of debt forgiveness during the Obasanjo's administration.
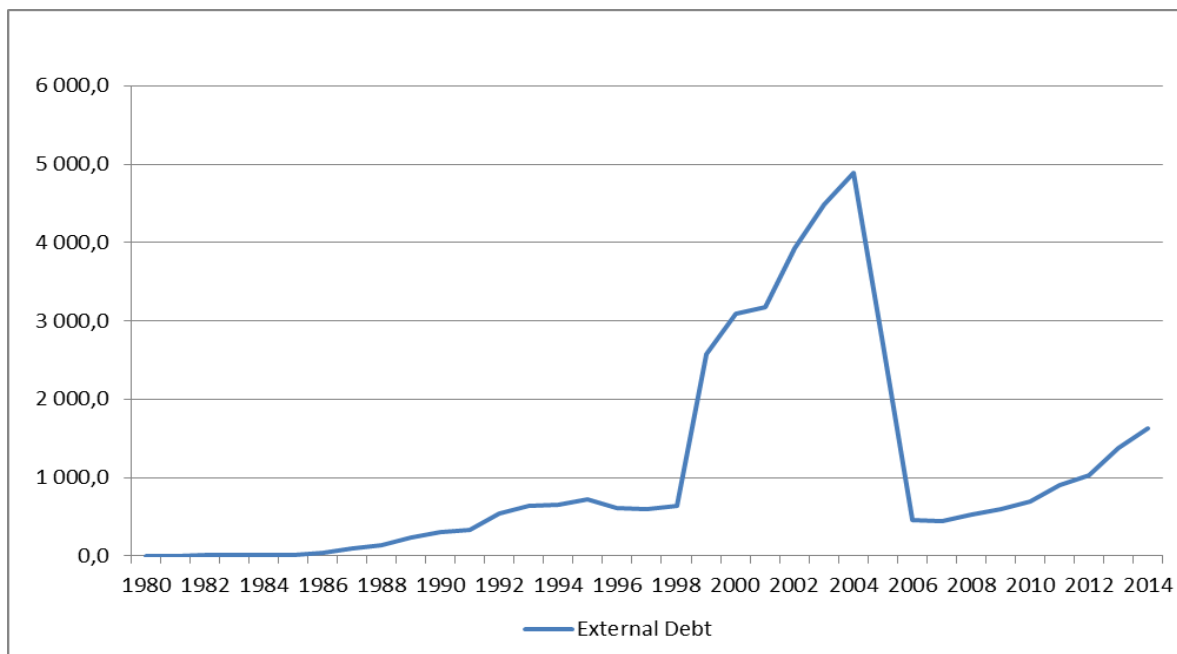


**Fig. 1.** Trend of External Debt in Nigeria 1980 to 2014

Figure 2 below showed the trend of private investment in Nigeria for the period 1980 to 2014. From the graph some observe that domestic investment was ₦6.23b in 1980 and rose to ₦13.07b and ₦33.55b in 1985 and 1990 respectively. In 1995, the value of domestic investment rose to ₦180.00b and further to ₦530.37b and ₦1,838.39b in 2000 and 2005 respectively. It rose further

to ₦10,157.02 in 2010 and further to ₦17,128.98b in 2014. From the information in figure 2 below, some observe that the trend of domestic investment in Nigeria has been progressive over the period of study.
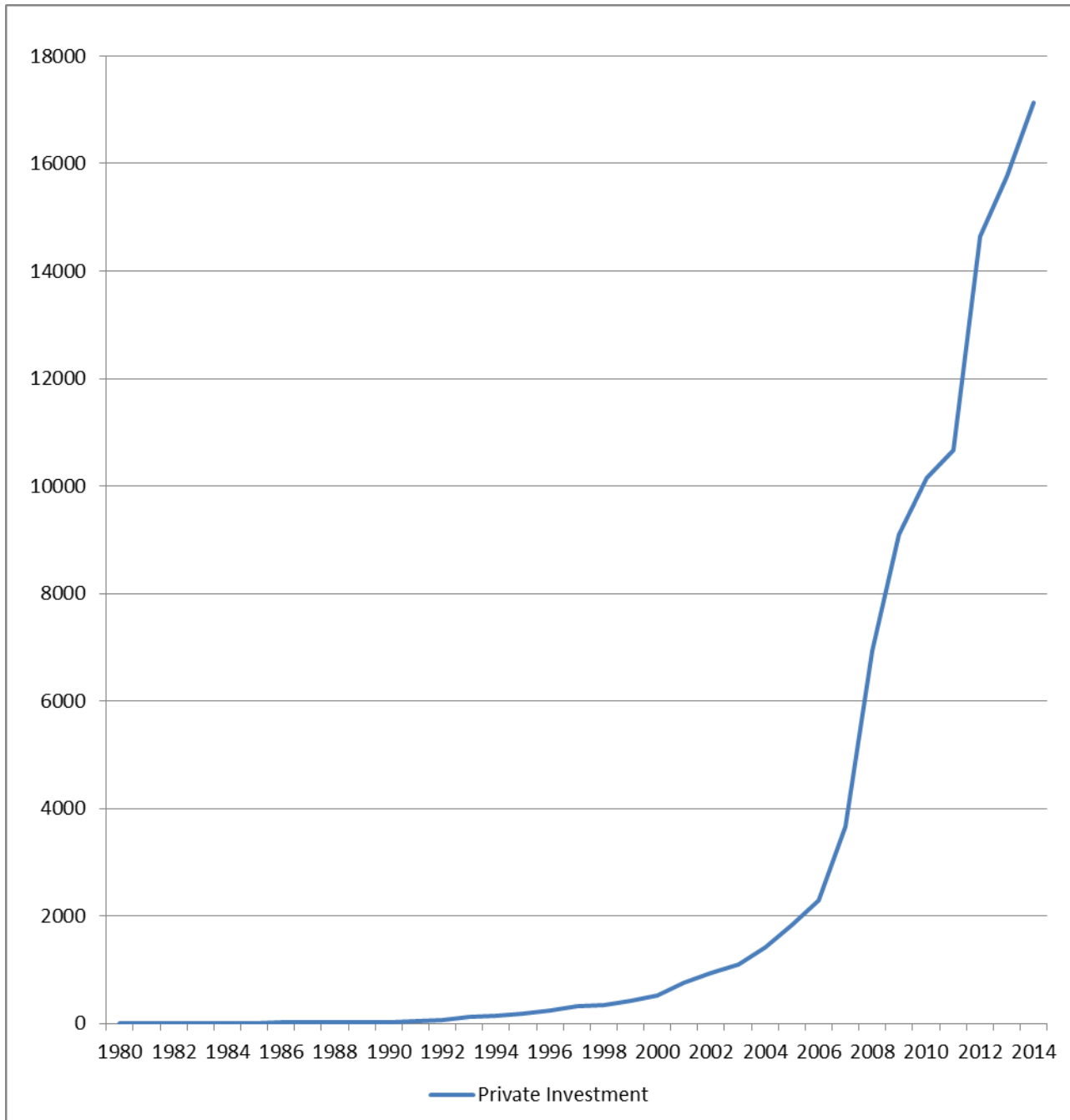


**Fig. 2.** Trend of Private/Domestic Investment in Nigeria 1980 to 2014

### 4.2 Empirical Analysis and Interpretation
### 4.2.1 Descriptive Statistics, Unit Root Test and Co-integration Estimate

This study commences its empirical analysis by examining the data features of the variables of estimate on table 1 below. The mean of the variables are 12.59, 5.82 and 5.89 for domestic investment (LDINV), external debt (LED) and domestic debt (LDD) respectively while the mean values for gross domestic product (LGDP), interest rate (INT) and inflation rate (INF) are 12.86, 12.71 and 20.33 respectively. Also, the standard deviation statistic from the table inflation rate (INF) (20.33) was the most volatile variable in the time series while external debt (LED) (1.94) was

the least volatile variable. The skewness statistic showed that external debt and domestic debt were negatively skewed while domestic investment, gross domestic product, interest rate and inflation rate were positively skewed. The kurtosis statistics showed that domestic investment and domestic debt are platykurtic, suggesting that their distributions are flat relative to normal distribution while gross domestic product, interest rate inflation rate are leptokurtic, suggesting that the distributions is peaked relative to normal distribution. However, external debt had normal distribution. Finally, the Jarque-Bera statistic rejected the null hypothesis of normal distribution for external debt, gross domestic product and inflation rate while the Jarque-Bera statistic accepted the null hypothesis of normal distribution for the remaining variables (domestic investment, domestic debt and interest rate) at five percent critical value.

**Table 1.** Descriptive Statistics

| Variables | LDINV | LED | LDD | LGDP | INT | INF |
|---|---|---|---|---|---|---|
| **Mean** | 12.587 | 5.817 | 5.891 | 12.863 | 12.713 | 20.331 |
| **Std. Dev.** | 2.563 | 2.108 | 2.075 | 1.106 | 4.291 | 18.453 |
| **Skewness** | 0.123 | -1.009 | -0.270 | 2.686 | 0.702 | 1.453 |
| **Kurtosis** | 1.704 | 3.182 | 1.829 | 15.213 | 3.998 | 3.828 |
| **Jarque-Bera** | 2.537 | 5.988 | 2.423 | 259.602 | 4.330 | 13.322 |
| **Probability** | 0.281 | 0.050 | 0.298 | 0.000 | 0.115 | 0.001 |
| **Observations** | 35 | 35 | 35 | 35 | 35 | 35 |

Source: Authors computation from E-views 9

The Augmented Dickey Fuller test is used to conduct the unit root estimate. From the unit root result in Table 2 below some observed that all domestic investment (LDINV), external debt (LED), domestic debt (LDD) and interest rate (INT) were not stationary at levels but became stationary after first differencing, indicating that series were integrated of order one, the variables were I(1) series. Inflation rate is integrated of order zero, the variables is stationary at level. However, gross domestic product was not stationary at level, first difference and even at second difference. The variable gross domestic product (LGDP) is omitted from the regression estimate. This is because using such variable in the regression estimate will bias the result (Umoh et al., 2012).

**Table 2.** Unit Root Test

| **Augmented Dickey-Fuller (ADF) Test** | | | |
|---|---|---|---|
| Variables | Level | After Differencing | Status |
| LDINV | 0.2044 | -4.3320* | I(1) |
| LED | -2.9869 | -4.1319* | I(1) |
| LDD | -1.6770 | -4.3365* | I(1) |
| LGDP | 0.1491 | -2.6261 | - |
| LINT | -2.8581 | -6.0707* | I(1) |
| INF | -3.0262** | - | I(0) |

Note: *=1 % and **=5 % significance level.
Source: Authors computation from E-views 9

Following the unit root test, the Johansen co-integration test is used to examine the existence of co-integration among variables. From the co-integration estimate on Table 3 below, some observed that the null hypothesis of no co-integration for None and At most 1 were rejected by the trace test because the statistic values were greater than the critical values while the null hypothesis of no co-integration for 2 was not rejected by trace test because the statistic value was less than the

critical value, indicating the existence of two co-integrating equations. The null hypothesis of no co-integration for none is rejected by the max-eigentest because the statistic value is greater than the critical value while the null hypothesis of no co-integration for 1 was not rejected by max-eigen test because the statistic value was less than the critical value, indicating the existence of one co-integrating equation. The trace and maxi-eigen statistic assert the existence of a long run relationship among the variables to be estimated.

**Table 3.** Summary of the Co-integration Estimate

| Trace Test | | | Maximum Eigen value Test | | |
|---|---|---|---|---|---|
| Hypothesized No. of CE(s) | Statistics | 0.05 Critical values | Hypothesized No. of CE(s) | Statistics | 0.05 Critical values |
| None* | 119.59 | 95.75 | None* | 46.82 | 40.08 |
| 1* | 72.76 | 69.82 | 1 | 30.41 | 33.88 |
| 2 | 42.36 | 47.86 | 2 | 18.29 | 27.58 |
| 3 | 24.07 | 29.80 | 3 | 16.67 | 21.13 |

Source: Authors computation from E-views 9

### 4.2.2 Regression Estimates on Saving and Monetary Policy in Nigeria

The regression estimate on the relationship between external debt and domestic investment in Nigeria is presented in table 4 below. The coefficient of determination ($R^2$) of the model is high (98.7 %) indicating that independent variables explained about 99 % of total variation in domestic investment in Nigeria. The F-statistic (578.55) showed that the model is well specified. The regression estimate showed that external debt (LED) had negative and significant impact on domestic investment in Nigeria. The coefficient value of – 0.23 external debt, implies that one percent increase in external debt is expected to result in a decline in domestic investment by 23.1 percent. However, the result of the regression estimate showed that domestic debt had positive and significant effect on domestic investment; this indicates that one percent increase in domestic debt is expected to enhance domestic investment by 140.3 percent in Nigeria.

In addition, the regression result on external debt and domestic investment on Table 4 showed that interest rate and inflation rate were insignificant in influencing domestic investment in Nigeria. Although, this result is in contrast to the theoretical expectation, it simply means that over the period of study interest rate and inflation rate have not influenced domestic investment positively and significantly.

**Table 4.** Regression Estimate on External Debt and Domestic Investment in Nigeria

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| LED | -0.231008 | 0.075786 | -3.048179 | 0.0048 |
| LDD | 1.403251 | 0.065586 | 21.39574 | 0.0000 |
| INT | -0.017656 | 0.021606 | -0.817147 | 0.4203 |
| INF | -0.005263 | 0.003191 | -1.649571 | 0.1095 |
| C | 5.996062 | 0.249615 | 24.02120 | 0.0000 |

| | | | |
|---|---|---|---|
| R-squared | 0.987202 | Mean dependent var | 12.58739 |
| Adjusted R-squared | 0.985496 | S.D. dependent var | 2.563374 |
| S.E. of regression | 0.308713 | Akaike info criterion | 0.618753 |

| | | | |
|---|---|---|---|
| Sum squared resid | 2.859107 | Schwarz criterion | 0.840945 |
| Log likelihood | -5.828170 | Hannan-Quinn criter. | 0.695453 |
| F-statistic | 578.5488 | Durbin-Watson stat | 1.507744 |
| Prob(F-statistic) | 0.000000 | | |

Source: Authors computation from E-views 9

Although, the Durbin-Watson Stat. is 1.51, indicating the absence of serial autocorrelation, other diagnostic tests such as the normality test, serial correlation LM test and Heteroskedasticity ARCH tests, further showed that the regression estimate is appropriate. From Figure 3, the Jarque-Bera statistics of the Normality test was insignificant suggesting that the residual of the regression estimate is normally distributed. Also the F-statistics of the Breusch-Godfrey Serial Correlation LM test and Heteroskedasticity ARCH test were insignificant, confirming the absence of serial correlation in the residual of the regression estimate (see Table 5 and 6). The implication is that the regression estimate was appropriately estimated.
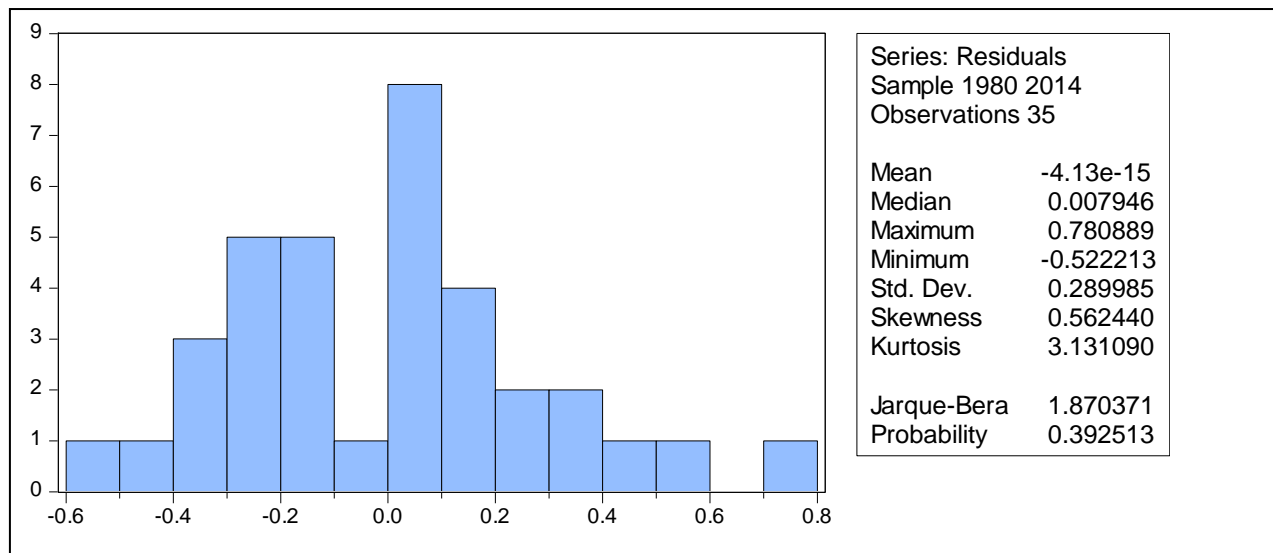


**Fig. 3.** Normality Test

**Table 5.** Breusch-Godfrey Serial Correlation LM Test

| | | | |
|---|---|---|---|
| F-statistic | 5.039449 | Prob. F(2,28) | 0.0935 |
| Obs*R-squared | 9.263961 | Prob. Chi-Square(2) | 0.0997 |

**Source:** Authors
computation from E-views 9

**Table 6.** Heteroskedasticity Test: ARCH

| | | | |
|---|---|---|---|
| F-statistic | 0.626508 | Prob. F(1,32) | 0.4345 |
| Obs*R-squared | 0.652882 | Prob. Chi-Square(1) | 0.4191 |

Source: Authors computation from E-views 9

## 5. Summary, conclusion and policy recommendation

### 5.1. Summary of the Findings

From the analysis of this study on the relationship between external debt and private investment in Nigeria, the following are the main findings of the study:

(i)   The trend of external debt in Nigeria has been rising over the period of study except for the period of debt forgiveness during the Obasanjo's administration while the trend of private investment showed a progressive increase over the period of study.

(ii)   The co-integration test showed that the null hypothesis of no co-integration among the variables was rejected, indicating a long run relationship. There was also at least one co-integration among the variables which implies there is a long run relationship among the variables in the model.

(iii)   The regression estimate showed that external debt had negative and significant effect on private investment in Nigeria while domestic debt had positive and significant effect on private investment in Nigeria during the study period. This showed that external debt impedes private investment in Nigeria over the period of study.

(iv)   The robustness diagnostic tests showed that the regression estimates were appropriate and are free from the problems serial correlation and appropriate. This is because the null hypotheses of the tests were accepted and their probabilities values were greater than 0.05.

### 5.2. Conclusion

Based on the findings above, the study concluded that the relationship between external debt and private investment is inverse; implying that an increases external debt reduces private investment in Nigeria. The reduction in private investment will hurt the rate of economic growth in Nigeria.

### 5.3. Policy Recommendation

The study recommended that given the positive effect of domestic debt on private investment in Nigeria, there is the need for government to focus more on domestic investment and lessen the concentration on foreign debt due to its negative impact on private investment. Also, government should evolve appropriate macroeconomic policy to increase private investment in Nigeria. Also, government should provide an enabling environment that will encourage foreign investors to invest in Nigeria economy by addressing the security challenges in the country, providing investment friendly environment by improved regulatory framework and encourage domestic investment.

Government should put mechanism whereby research institutes go in partnership with major industries in the country to develop skills capable of inducing investment and government should ensure that the needed infrastructural facilities are provided to attract more investors. In addition, deposit money banks should be encouraged to provide more long-term loans to the real sector of the economy as this would increase the volume of private investment in Nigeria. The study also recommends the need for government to aggressively initiate policies to channel the Nation's domestic savings for investment and enact policies to train human capital to argument increasing FDI into the country to stimulate the economy towards rapid and sustained economic growth.

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