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Effect of Public Debts on Private-Sector Investment in Nigeria

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Abstract

This study empirically analyzed the effect of Public Debt and Private-Sector Investment in Nigeria (1986-2017). This study employed secondary data in the analysis. The study used the ordinary least square method (OLS) and Error Correction Model (ECM) tools of analysis in the investigation of the impact and relationship among the economic variables. The Ordinary Least Squares (OLS) and the Error Correction Models show that there is a strong relationship between Private Investment (PIVN)in Nigeria and Public Debt in Nigeria. Public Debt in Nigeria has a negative effect on the economy both in the short run and long run especially the Public Domestic Debt in Nigeria and Public External Debts in Nigeria. This is because the more government borrows from both the domestic and the external the more it crowds out investment especially the domestic debt crowds out private investment through lack of access to funds. The ECM result revealed that Public Debt Service in Nigeria has a positive effect on Private Investment (PIVN)in Nigeria, this is because when the government pays back loans or debts, it increases access to funds by the private investors thereby increasing the level of private investment in the country. Therefore, the study recommends that government should design a mechanism for effective and efficient Public Debt Service Management in Nigeria to increase access to funds by private investors and thereby increasing and enhancing Private Investment (PIVN) in Nigeria.

Keywords:
Public Debt, Investment, Private Sector, External Debt, Domestic Debt

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Background to the Study

A desirable growth of the economy can be achieved by efficient utilization of resources. Although less developed countries have plenty of resources but can't utilize them properly and therefore engulf not only in deficit but also because of high inflation, making the saving rate is low too. Thus, the government used public debt as an important tool to finance its expenditures. When government spending exceeds its revenue, the government is said to be running deficit budgeting. To finance this deficit, the government uses at least one of four ways which include: printing of money, running down foreign exchange reserves; borrowing abroad, and borrowing from the domestic economy. The method chosen to finance government deficit affects resource allocation and by implication macroeconomic activities (Audu, 2004). By definition, government borrowing reduces the credit which would otherwise be available to the private sector, putting pressure on domestic interest rates (Atukeren, 2005). Where interest rates are controlled, domestic borrowing still leads to credit rationing and crowding out of private sector investment. If the economy is well integrated with international capital markets, then government domestic borrowing will tend to push the private sector into borrowing more abroad (Ezeabasili, Isu and Mojekwu, 2011).

In terms of contribution to the Nigerian economy, the share of private investment in GDP which was 14.6% in 1973 gradually fell to 5.9% in 1980 and 2.0% in 1985. During the structural adjustment period of 1986 to 1992, there was minimal improvement. In 1994, the share of private investment in GDP reduced to less than 0.5%. With the advent of civilian administration in Nigeria in 1999, the share of private investment in GDP rose to 13.0% and 16.2% in 1999 and 2002 respectively while 12.0% in 2005. However, it declined to 11.8% in 2019 (Central Bank of Nigeria, 2019).

The private sector in Nigeria has not fared better in terms of access to credit and the cost of borrowing. This may have been facilitated by excessive government domestic borrowing, the low-risk appetite of corporate lenders in Nigeria, and high-interest rate regimes (Onyeiwu, 2012). These inherent factors have inadvertently combined to dwarf private sector investment and growth in Nigeria. For instance, Nigeria is currently ranked 168 out of 185 countries in the World Bank's ease of doing business index, of which access to business credits to the private sector is a major feature of the index Private investment and access to credit and business capital in Nigeria is even more challenged with the recent introduction of Federal government savings bank and Sukuk sovereign bond by the Debt Management Office (DMO) (2017), for public subscription. Whereas the recently introduced Sukuk targets to mobilize N100 billion from the public, at a rental interest of 16.47 percent per annum and seven years' tenor, the savings bond has more or less become a monthly affair where the DMO acting on behalf of the Federal government issues an N100 billion bond for public subscription, at an interest rate of 13.81 percent per annum, for 2 and 3-year period (DMO, 2017).

These are in addition to the recently listed $1 billion Eurobond offer, which now trades at the London Stock exchange. When one factor in the high returns these bonds offer the investing public and the volume of withdrawals of potential private investible funds by

these offers, there is no gainsaying that such actions may be hurting private sector investment and economic growth and development both in the short and long runs. Government borrowing activities, therefore, may have inadvertently hampered private investments in Nigeria, given that private savings and informal loans from friends and families constitute the chief sources of finance and capital for the private sector (Alfredo and Francisco, 2004).

These actions as well as the full implementation of the Treasury Single Account (TSA) have resulted in domestic banks having liquidity crises as a result of paucity of funds. With such competing demands for the available loanable funds, the interest rate has remained very high (above 2 digits for ages) and may likely continue in its rising trajectory owing to the high returns of these government bonds as well as the 14 percent monetary policy rate (MPC) the monetary authority has maintained. Whereas one may argue that such activities are targeted at taming inflationary pressures, they are inimical to private investment growth in particular and economic growth in general. It is against this backdrop that the researcher intends to investigate the extent to which government borrowing has affected the private sector investment in Nigeria?

Therefore, the main objective of this study is to empirical examining the impact of Public Debt on Private Sector led Investment in Nigeria, while specific objectives are to:

i. Examine the effect of Public Domestic Debt on Private Sector Investment in Nigeria.
ii. Investigate the effect of Public External Debt on Private Sector Investment in Nigeria.
iii. Evaluate the effect of Public Debt Serving on Private Sector Investment in Nigeria.

Literature Review

Conceptual Review

Debt refers to the resources or money in use in an organization that is not contributed by its owners and does not in any way belong to them. It is a liability represented by a financial instrument of another formal equivalent (Audu, 2004). Kalulumia, (2002) defines national debt as "all claims against the government-held by the private sector of the economy, or by foreigners, whether interest-bearing or not including bank held debt by the government against the private sector and foreigners. While domestic debt is the amount of money raised by the government, in a local currency, and from its residents (Debt Management Office (DMO), 2017). Also, external debt is the amount at any time or disbursed funds and outstanding contractual liabilities of residents of a country to repay the principal to non-residents (DMO, 2017).

Checherita, Hallett and Rother, (2012) opined that investments refer to the employment of funds intending to earn a favourable return on it. In other words, investment is a process, where the money is being utilized with the hope of making more money. Egert, (2012) believed that investment is the commitment of money that has been saved by deferring the consumption and purchasing an asset, either real or financial with the

expectation that it could yield some positive future returns. On the other hand, private sector investment is defined as a commitment of funds made by an individual or group of individuals in the expectations of some favourable rate of return and these investments are not government-owned. If the investment exercise is properly undertaken, the return will be corresponding with the risk the investor assumes (Asogwa and Okeke, 2013). Furthermore, private sector investment is an acquisition of a financial product or another item of value with anticipation of favourable future returns by the non-government-owned establishments. Investing is a serious subject that can have a major impact on investors' future well-being. Investors have series of investment avenues and each of them differs in terms of risk, return, safety, security, regular income, and various other parameters. The investor has to choose a proper investment avenue, depending upon his specific need, risk preference, and expected returns (Frank and Bernanke, 2001).

Empirical Review

The following empirical studies were reviewed in line with the specific objectives of the study. Audu (2004) investigated the impact of external debt on economic growth and public investment in Nigeria. The results confirmed the operation of crowding out and import compression hypotheses in Nigeria. This means that debt-servicing pressure in the country has had a significant adverse effect on the growth process. Ajisafe, Nassar, Fatokun, Soile, and Gidado (2006) investigated 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 (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. A cointegration test was also performed and the result shows that the variables are not related in the long run using the likelihood ratio as a measure of significance. The result of the cointegration determines the use of a vector autoregressive model to test for causality, which resulted in a bi-directional relationship between external debt and foreign private investment in Nigeria.

In another study, Oke and Sulaiman (2012) investigated the relationships among external debt, economic growth, and private investment in Nigeria between the periods of 1980-2008. They employed debt-cum-growth model regression in their analysis and found that reserve to external debt; private investments and debt service ratio have negative relationships with GDP, whereas exchange rate and interest rate have a positive relationship with GDP. They recommend that appropriate measures be put in place to aim at optimal use of borrowed funds so that servicing such funds will not invoke economic crises. Also, Onyeiwu (2012) investigated the relationship between domestic debt, private sector, and economic growth in Nigeria using the error correction modeling approach to regression analysis used quarterly data between 1994 and 2008 for GDP, foreign exchange rate, credit to the private sector, budget deficit and money supply. The result showed that the domestic debt holding of the government was far above the healthy threshold of 35 percent of bank deposits, which resulted in a negative effect on

economic growth. He recommended that government should maintain a debt-to-bank deposit ratio of below 35 percent, resort to increased use of tax revenue to finance its projects, and divest itself of all projects the private sector can handle while providing enabling environment for private sector investments such as tax holidays, subsidies, guarantees and most importantly improve infrastructure.

Asogwa and Okeke (2013) evaluated the relationship between private investment and budget deficits by adopting an analytical framework that employed the ordinary least squares (OLS) and Granger Causality test. The analysis confirms that budget deficits crowd out private investments and that private investments granger cause budget deficit with feedback. Following the findings, it was recommended that stakeholders should reduce recurrent expenditure and increase its capital expenditure to encourage and make a conducive environment for private investment to thrive which will ensure economic growth. Additionally, Apere (2014) studied the impact of public debt on private investment in Nigeria throughout 1981-2012 by regressing private investment on external debt, domestic debt, and private consumption expenditure by using an OLS nonlinear model. They found that domestic debt had a linear and positive impact on private investment, the external debt had a U-shaped impact and private consumption expenditure had a negative impact, all variables were statistically significant at 1%.While Udo (2016) Examined issues on and determinants of private investment in Nigeria. The study established that the expected sustained improvement in the level of private investment has been greatly constrained by the adverse impacts exerted by most of the determinants of private investment. The study has identified determinants of private investment in Nigeria to include domestic inflation rate, size and growth rate of market, availability, and access to bank credit, interest rate, fiscal deficits, public investment rate, poor provision of infrastructure, political and economic stability, investment climate and institutional factors.

Amana et al, (2018) empirically examine the impacts of government expenditure on private investment in Nigeria from 1986-2016. Time series data and econometric tools were used to test for stationarity, and co-integration, while Auto Regressive Distributed Lag Model was adopted to estimate the long-run and short-run impact of government expenditure and private investment in Nigeria. The study revealed that in the long run Government Recurrent Expenditure (GRECEXP) and Inflation Rate (INFR) were positively related to Private Investment in Nigeria while Government Capital Expenditure (GCAPEXP) and Interest Rate in Nigeria (INTR) were negatively related to Private Investment. Also, in the short run, all the independent variables were positively related to Private Investment in Nigeria except interest rate as lag one.

Furthermore, Mabula and Mutasa (2019) examined the effect of public debt on private investment in Tanzania. Secondary data for the period of 1970-2016 were collected from the National Bureau of Statistics (Tanzania), Bank of Tanzania, World Bank, and scholarly journals. An Autoregressive Distributed Lag (ARDL) bound test to co-integration is used in this study. Results suggest significant evidence of nonlinear long-

run and short-run relationships between external debt and private investment. However, the Granger causality test suggests that this relationship is rather a co-movement than causal. At a 5% level of significance, there is no significant evidence of a long-run and short-run relationship between domestic debt and debt service on one hand, and private investment on the other hand. However, the combined effect of domestic and external debt on private investment is statistically significant both in the long run and short run. The study recommends the government adopt strict policies on project implementations to ensure positive returns of borrowed funds and closely monitoring of public debt, particularly external debt on which private investment is more responsive than domestic debt and debt service, despite its sustainability at present.

The work of Omodero, (2019) examined the impact of government domestic debt on private sector credit in Nigeria. Data for the study have been collected from the Central Bank of Nigeria Statistical Bulletin, 2018 edition, Debt Management Office, and the World Bank. The variables on which data are sourced include private sector credit, domestic debt, interest rate, and the inflation rate. The scope of the study spans from 1988 to 2018 and the data are analyzed using the ordinary least squares multiple regression techniques. The study finds that domestic debt has a significant positive impact on private sector credit while the interest rate exerts a substantial negative influence on the private sector credit. However, the inflation rate is found insignificant in explaining the growth of private sector credit in this study. These findings lead to the recommendation that government domestic borrowing activities should always be done with the interest of the private sector businesses in mind. The study further suggests moderation of interest rates by the relevant authorities to boost private sector access to finance and encourage entrepreneurship in the country.

Finally, Arsène-Aurelien, Luc, and Désiré, (2020) investigated the effect of external debt on domestic investment in sub-Saharan Africa (SSA) during the period 1980-2017. It focuses on four zones in SSA (EAC, ECOWAS, CEMAC, and SADC), and the methodology adopted is the Generalized Method of Moments (GMM). The results show that external debt has a positive effect on domestic investment in SADC and EAC, with a bearable debt threshold, which accounts for 74.33% of Gross Domestic Product (GDP) in the EAC zone. For CEMAC and ECOWAS, the effect of external debt on domestic investment is rather negative, but for a debt threshold below 94.73% of GDP in CEMAC, the effect on investment is positive. Our results imply that public policies for improving domestic investment and assuring sustainable debt should be promoted: to concentrate investments in sectors with ripple effects that can boost other sectors; to observe multilateral surveillance across countries over the long term, and to strengthen investment thanks to the improvement of the business climate.

Theoretical Framework

The theoretical framework of this study is the Adam Smith theory of Public Debt in the fifth book (chapter III) of the *Wealth of Nations* (1776) where he discussed the economic effects of public debt. In his book, Smith argued that governments should not run budget

deficits, because the accumulation of debt is considered "pernicious" for the nation even if all of it is owed to domestic investors. Smith attacks the mercantilist notion according to which the payment of interest on public debt is like "the right hand which pays the left". For Smith, this is an apology founded altogether on the sophistry of the mercantile system (Smith, 1937). The reason is that soon the need to redeem the debt will lead to increased taxation, causing the flight of domestic capital and the devaluation of the currency with negative effects on the remaining domestic producers (Smith, 1937). The debt, according to Smith, severely retards the "natural progress of a nation towards wealth and prosperity" (Smith, 1937) since resources that could be used productively from the private sector of the economy are diverted by the state to finance its unproductive activities the private sector investment suffers set back.

In other words, the public would not perceive the debt as a tax of an equal amount and therefore, people would tend to save less than in the case of taxation and so capital accumulation would slow down. As a consequence, income and tax revenues would fall and the government would raise the tax rates in the effort to raise the same tax revenues slowing further down capital accumulation and eventually leading to poor private sector investment. Studies like Erenburg (1993), Looney (1995), Erden and Holcombe (2005), Atukeren (2005), Erden and Holcombe (2006), and Saeed and Ali (2006) agreed that from the Smith view there is a strong functional relationship between public debt and private sector investment. Therefore, this study also agreed with Smith's Theory that there exists a functional relationship between public debt and private sector investment

Methodology

Sources of Data and Method of Analysis

The data collected for the study is secondary. The study employed time series data on annual basis from 1986 – 2017. The data were collected from the Central Bank of Nigeria (CBN) Statistical Bulletin December 2017 and the data collected were Private Investment in Nigeria, Public Domestic Debt in Nigeria, Public External Debts in Nigeria, and Public Debt Service in Nigeria which was used for the estimation and analysis. The static long-run model and dynamic short-run model were derived, applying the Ordinary Least Squares (OLS) and Error Correction Model (ECM) tools of analysis in the investigation of the impact and relationship among the economic variables, the Ordinary Least Squares (OLS) was used to test the impact among the economic variables in this study while the Error Correction Model (ECM) was used to test the short-run impact of Public Debt indicators on Private Investment in Nigeria (PIVN). We shall therefore determine the reliability of the results based on three criteria namely; Economic apriori criteria; Statistical criteria and Econometric criteria.

Model Specification

Several econometrics methods can be used to derive the estimation of the parameters of the economic relationship. As earlier mentioned, the study will use the techniques of a linear regression which defines the relationship between a dependent and explanatory variable. The study adopted and modified the models of the work of Sulaiman and Azeez

(2012) which examined the effect of external debt on the economic growth of Nigeria. Thus, the general model relating public debt and private investment in Nigeria is presented below;

PINV = *f*(PDDN, PEDN, PDSN,) (1)

PIVN = *f*(logPDDN, logPEDN, logPDSN) (2)

Equation 1 reads that Private Investment in Nigeria (PIVN) is a function of Public Domestic Debt in Nigeria (PDDN), Public External Debts in Nigeria (PEDN), and Public Debt Service in Nigeria (PDSN). However, to be able to estimate the equation we transform it into the following:

$$PINV = \beta_0 + \beta_1 PDDN_t + \beta_2 PEDN_t + \beta_3 PDSN_t + U_t \quad (3)$$

The natural log was introduced to bring the variables to the same units and normalized the variables. Therefore, the logged form of the model is stated as follows:

$$PINV = \beta_0 + \beta_1 logPDDN_t + \beta_2 logPEDN_t + \beta_3 logPDSN_t + U_t \quad (4)$$

Where:$PINV_t$ = Private investment level; $PDDN_t$ = Public Domestic Debt in Nigeria; $PEDN_t$ = Public External Debts in Nigeria; $PDSN_t$ = Public Debt Service in Nigeria; U_t = Error Term, β_0 is the constant and β_1, β_2, β_3, are parameter estimates. In the above equation, PINV is the dependent variable (endogenous variable) while Public Domestic Debt in Nigeria (PDDN), Public External Debts in Nigeria (PEDN), and Public Debt Service in Nigeria (PDSN) are the independent variables (exogenous variables). While the Error Correction Model (ECM) that will be used in this study is specified as follows:

$$\Delta PIVN_t = \beta_0 + \sum_{g=1}^{m} \beta_{1i}\, PIVN_{t-i} + \sum_{h=1}^{n} \beta_{2i}\, \Delta PDDN_{t-i} + \sum_{i=1}^{o} \beta_{3i}\, \Delta PEDN_{t-i} + \sum_{j=0}^{p} \beta_{4i}\, \Delta PDSN_{t-j} + \beta ECM_{t-1} + \varepsilon_t \quad (5)$$

The model above is used to adjust the estimation until the ECM turned negative. The negative sign of the coefficient of the error correction term ECM (-1) shows the statistical significance of the equation in terms of its associated t-value and probability value.

Presentation and Discussion of Results

The data for regression for the study are presented in table 1, where PIVN is the Private Investment in Nigeria, PDDN is the Public Domestic Debt in Nigeria, PEDN is the Public External Debts in Nigeria and PDSN is the Public Debt Service in Nigeria. The data were regressed and the results are presented below.

Descriptive Analysis of Variables

Table 1: Descriptive Analysis of Variables

	PIVN	PDDN	PEDN	PDSN
Mean	425.6221	2655.052	1543.595	349.3125
Median	178.8000	1091.490	669.3250	159.6150
Maximum	1360.300	12578.80	5787.510	1959.200
Minimum	0.735000	28.44000	41.45000	1.630000
Std. Dev.	454.8163	342.286	1584.512	471.6776
Skewness	0.667811	1.490355	1.193121	1.969128
Kurtosis	1.924323	4.102510	3.264792	6.480078
Jarque-Bera	3.921292	13.46689	7.685684	36.82773
Probability	0.140767	0.001190	0.021433	0.000000
Sum	13619.91	84961.65	49395.03	11178.00
Sum Sq. Dev.	6412595.	3.760008	77831019	6896872.
Observations	32	32	32	32

Source: Authors Computation from E-views, (2019)

Table 1 shows the descriptive analysis of the variables used in the study. From the table, the highest value for Private Investment in Nigeria during the period of study is 1360.3 billion as shown in table 1. Also, the maximum value for Public Domestic Debt in Nigeria, Public External Debts in Nigeria, and Public Debt Service in Nigeria are 12578.8, 5787.5, and 1959.2 billion respectively. However, the minimum value for Private Investment in Nigeria during the period of study is 0.73 billion. While, the lowest value for Public Domestic Debt in Nigeria, Public External Debts in Nigeria, and Public Debt Service in Nigeria are 28.44, 41.45, and 1.63 billion respectively. On the other hand, the average value of Private Investment in Nigeria is 425.6 billion. While, Public Domestic Debt in Nigeria, Public External Debts in Nigeria, and Public Debt Service in Nigeria are 2655.1, 1543.5, and 349.31 billion respectively as indicated by their mean values in table 1.

Stationarity Test of Variables

Table 2: Summary of Unit Root Test

Variables	5% level	Critical ADF	Order of Integration
PIVN	-7.272657	-3.568379	1(1)
PDDN	-3.932027	-3.562882	1(0)
PEDN	-5.218424	-3.580623	1(1)
PDSN	-3.568379	-3.942628	1(1)

Source: Author Computation, (2019)

Table 2 shows the stationarity test of the variables used in the study and from the table Augmented Dickey-Fuller test results revealed that the Private Investment in Nigeria and Public Debt Service in Nigeria were stationary at the first difference at 5 percent level of significance. While Public Domestic Debt in Nigeria was stationary at the level at 5 percent level of significance and Public External Debts in Nigeria was stationary at the second difference at 5 percent level of significance.

Co-integration Test

Table 3: Co-integration Trace and Maximum Eigenvalue

Hypothesized No. of CE(s)	**Eigenvalue**	**Trace Statistic**	**0.05 Critical Value**	**Prob.****
None *	0.619263	54.78880	47.85613	0.0097
At most 1	0.380388	25.81943	29.79707	0.1342
At most 2	0.257563	11.45960	15.49471	0.1848
At most 3	0.080724	2.525069	3.841466	0.1120
*Trace test indicates 1 cointegratingeqn(s) at the 0.05 level * denotes rejection of the hypothesis at the 0.05 level **MacKinnon-Haug-Michelis (1999) p-values*				
Unrestricted Cointegration Rank Test (Maximum Eigenvalue)				
Hypothesized No. of CE(s)	**Eigenvalue**	**Max-Eigen Statistic**	**0.05 Critical Value**	**Prob.****
None *	0.619263	28.96938	27.58434	0.0330
At most 1	0.380388	14.35983	21.13162	0.3362
At most 2	0.257563	8.934526	14.26460	0.2916
At most 3	0.080724	2.525069	3.841466	0.1120
*Max-eigenvalue test indicates 1 cointegratingeqn(s) at the 0.05 level * denotes rejection of the hypothesis at the 0.05 level **MacKinnon-Haug-Michelis (1999) p-values*				

Source: Author's E-views 9.0 Computation (2019)

Though the results from the unit root tests presented in Table 3 suggest that there is no possibility of a long-run relationship among the time series variables, the study proceeded to conduct the co-integration test applying Johansen's procedure to establish co-integration among. The results of the trace and maximum Eigenvalue of the unrestricted cointegration rank test are presented in Table 3.

From Table 3, the study revealed that both the trace test and maximum Eigenvalue statistics indicate 1 co-integrating equation at the 5% level of significance. Based on this evidence, we can safely reject the null hypothesis of no co-integrating vectors and conveniently accept the alternative hypothesis of the presence of cointegrating vectors among all the variables in our model of study. This implies that long-run relationships exist among the variables that are, Private Investment in Nigeria, Public Domestic Debt in Nigeria, Public External Debts in Nigeria, and Public Debt Service in Nigeria that is specified, model.

Correlation Results

Table 4: Correlation Results

	PIVN	PDDN	PEDN	PDSN
PIVN	1			
PDDN	0.7684280816	1		
PEDN	0.1771352454	0.4244805248	1	
PDSN	0.6893768905	0.9693470870	0.5602612799	1

Source: Author's E-views 9.0 Computation (2019)

The correlation coefficient shows the degree of linear association between two variables. The value can vary from -1 (perfect negative correlation) through 0 (no correlation) to +1 (perfect positive correlation). The analysis continues in this section in determining the degree of linear association between Private Investment in Nigeria and the independent variables. The result of the correlation analysis is presented in table 4 above.

From table 4 above, there is a strong and significant positive relationship between Private Investment in Nigeria and Public Domestic Debt in Nigeria and Public Debt Service in Nigeria. This is indicated by their high Pearson Correlation coefficient of 0.768 and 0.689 and they are both significant at a 1 percent level of significance (LOS) since the p-value is 0.000. Meaning an increase or decrease in Private Investment in Nigeria is associated with an increase or decrease in Public Domestic Debt in Nigeria and Public Debt Service in Nigeria.

Similarly, there is a strong and significant relationship between Public Domestic Debt in Nigeria and Public Debt Service in Nigeria. This is indicated by their high Pearson Correlation coefficient of 0.969 and it was significant at a 1 percent level of significance (LOS) since the p-value is 0.000. Finally, there is a positive and significant association between Public External Debts in Nigeria and Public Debt Service in Nigeria. This is indicated by their high Pearson Correlation coefficient of 0.560 and it was significant at a 1 percent level of significance (LOS) since the p-value is 0.000.

Presentation and Interpretation of Regression Results

Table 5: Long Run Regression Results

Variable	Coefficient	Std. Error	t-Statistics	Prob.
LOG(PDDN)	-0.119333	0.962444	-0.123990	0.9025
LOG(PEDN)	-0.108841	0.320175	-0.339942	0.7373
LOG(PDSN)	0.918113	0.882900	1.039884	0.3102
C	3.788926	3.805284	0.995701	0.3307
R-squared	0.958267			
Adjusted R-squared	0.942369			
F-statistic	60.27515			
Durbin-Watson stat	1.931896			
Prob(F-statistic)	0.000000			

Source: Author's E-views 9.0 Computation (2019)

Table 5 shows the OLS results of the study. The R-square of 0.96 percent suggests that there is a strong relationship between Private Investment in Nigeria and Public Debt in Nigeria. This also implies that Public Debt indicators in Nigeria have a good fit in determining variations in Private Investment in Nigeria. Also, the F-statistic value of 60.2 shows that the model employed is statistically significant in determining variations in Private Investment in Nigeria.

From the long-run regression results obtained in Table 5, it was revealed that a unit increase in Public Domestic Debt in Nigeria and Public External Debts in Nigeria on the average holding other independent variables constant will lead to 0.119 and 0.108-unit decrease in Private Investment in Nigeria respectively. While a unit increases Public Debt Service in Nigeria on average holding other independent variables constant will lead to a 0.918-unit increase in Private Investment in Nigeria. Finally, based on the probability value, Public Domestic Debt in Nigeria, Public External Debts in Nigeria, and Public Debt Service in Nigeria were statistically insignificant in explaining the variation in Private Investment in Nigeria in the long-run.

Table 6: The Error Correction Model Results

Selected Model: ECM				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
DLOG(PIVN(-1))	-0.330029	0.175704	-1.878325	0.0743
DLOG(PDDN)	-1.325128	0.631291	-2.099075	0.0481
DLOG(PEDN)	-0.038047	0.115821	-0.328501	0.7458
DLOG(PDSN)	0.027553	0.234321	0.117587	0.9075
DLOG(PDSN(-1))	-0.374381	0.201052	-1.862106	0.0766
ECM(-1)	-0.349566	0.171125	-2.042758	0.0338

Source: Output from E-views 9.0 (2019)

From the short-run regression results obtained in Table 6, it was revealed that the ECM parameter is negative (-) and significant which is -0.35, this shows that 35 percent disequilibrium in the previous period is being corrected to restore equilibrium in the current period. It has been established that the variables are cointegrated and also have a short-run relationship that is there is a short-run relationship between Private Investment and Public Debt in Nigeria.

All the independent variables were positively related to Private Investment (PIVN)in Nigeria except Public Debt Service in Nigeria at the present period. Finally, the Public Domestic Debt in Nigeria (PDDN) was statistically significant in explaining the variation in Private Investment (PIVN)in Nigeria while all other independent variables were statistically insignificant in explaining the variation in Private Investment (PIVN)in Nigeria which implies that the change in the variables that is Public External Debts in Nigeria and Public Debt Service in Nigeria have no or little influence in the variation in Private Investment (PIVN)in Nigeria

Conclusion and Recommendations

In conclusion, the findings of this study agreed with the work of Sulaiman and Azeez (2012) which examined the effect of external debt on the economic growth of Nigeria. Both studies reveal that there is arelationship between Public Debt in Nigeria and output in which private investment contributes to the national output. It finds out that public debt management indicators in Nigeria have a weak effect on private investment in Nigeria because evidence shows beyond doubt that there exists a weak correlation between debt management and private investment indicators. On the part of those indicators in Nigeria and based on the research conducted for this study as to why the rate of the indicators had been consistently decreasing in the period under review; this is as a result that government has not been making any positive impact to better the private investment sector in the country.

Finally, it was further shown that Public debt management indicators in investment cannot be over-emphasized. The development of debt management indicators is recognized by economists to be a key prerequisite for Nigeria's economic and political transformation, as it was given by the theory. Observation from the research project shows that the Nigerian government and policymakers have over the years underestimate the severity and complexity of the problems associated with debt management indicators in the country. This is shown clearly from the standard error test, t-test that the debt management indicators under review are insignificant on private investment in Nigeria.

To strengthen the Nigeria debt management indicators, it is, therefore, necessary to put forward the following recommendations which are:

I. Since Public Debt Service in Nigeria has a positive impact on Private Investment (PIVN)in Nigeria, Therefore, the government should design a mechanism for effective and efficient Public Debt Service Management in Nigeria to increase access to funds by private investors and thereby increase and enhance Private Investment (PIVN)in Nigeria.

ii. Since Public Domestic Debt in Nigeria was negative and statistically insignificant in explaining variation Private Investment (PIVN)in Nigeria both in the long run and short run, the government should control the Public Domestic Debt in Nigeria and improve the Public Domestic Debt Management in Nigeria to increase Private Investment (PIVN) in Nigeria.
iii. The government should adopt an efficient and effective way of improving the Public External Debts Management in Nigeria both in the short and the long run to cultivate saving habits and impact on the performance of the Private Investment (PIVN) in Nigeria.

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APPENDIX I

Table 7: Data for Regression

Year	PIVN	PDDN	PEDN	PDSN
1986	0.735	28.44	41.45	1.63
1987	2.452	36.79	100.79	3.93
1988	1.718	47.03	133.96	9.24
1989	13.877	47.05	240.39	13.27
1990	4.686	84.09	298.61	23.82
1991	6.916	116.20	328.45	26.41
1992	14.463	177.96	544.26	19.41
1993	29.660	273.84	633.14	81.08
1994	22.2	407.58	648.81	49.40
1995	75.9	477.73	716.87	51.06
1996	111.3	419.98	617.32	53.05
1997	110.5	501.75	595.93	68.54
1998	80.7	560.83	633.02	64.39
1999	92.8	794.81	2,577.37	30.84
2000	116.0	898.25	3,097.38	131.05
2001	132.4	1,016.98	3,176.29	155.42
2002	225.2	1,166.00	3,932.88	163.81
2003	258.4	1,329.68	4,478.33	363.51
2004	248.2	1,370.33	4,890.27	382.50
2005	654.2	1,525.91	2,695.07	393.96
2006	624.5	1,753.26	451.46	249.33
2007	759.4	2,169.63	438.89	213.73
2008	971.5	2,320.31	523.25	381.20
2009	1273.8	3,228.03	590.44	251.79
2010	905.7	4,551.82	689.84	415.66
2011	1360.3	5,622.84	896.85	527.18
2012	1113.5	6,537.53	1,026.90	679.30
2013	875.1	7,118.98	1,387.33	828.10
2014	738.2	7,904.02	1,631.52	941.70
2015	602.1	8,837.00	2,111.53	1060.38
2016	1124.1	11,058.20	3,478.92	1584.11
2017	1069.4	12,578.80	5,787.51	1959.20

Source: Central Bank of Nigeria Statistical Bulletin, December 2017