



## Debt Status and Economic Performance in Nigeria: Implications for Macro- economic Policy

Okwuchukwu Odili

*Michael Okpara University of Agriculture, Abia State, Nigeria*

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### Abstract

This research paper examined Nigeria's debt status and its effect on Nigeria's macro-economic performance for a period of 37 years ranging from 1981 to 2018. Autoregressive-Distributed Lag (ARDL)-bounds testing model was adopted in investigating the existence or otherwise of long-run relationship between debt status and macro-economic performance in Nigeria. The dependent variable, real gross domestic product (RGDP) represents macro-economic performance, while public debt servicing, external debt, domestic debt and exchange rate were used as proxies for explanatory variables. The data were collected from the Central Bank of Nigeria (CBN) statistical bulletin and the Debt Management Office (DMO). The estimated short-run results revealed the existence of inverse relationship between public debt servicing and RGDP, while long run result showed insignificant effect on RGDP. Domestic debt had positive and significant effect on RGDP in short run and long run. The external debt revealed negative and significant impact on RGDP in the short-run and long-run, but exchange rate result revealed negative and significant effect on RGDP in the short run and insignificant impact in the long-run. The study recommends that expansionary fiscal policies of government should focus on capital expenditure funding for sustainable growth. Massive investment is urgently needed in agriculture, manufacturing, trade, logistics and tourism in Nigeria. This will create employment, ensure diversification of economy and generate revenue for the government. It further recommends that all the tiers of government should be proactive and reduce the costs of governance, cut down overheads and excessive wage bills of political office holders and increase the funding for social safety net programs and invest more on infrastructural development.

**Keywords:** Public Debt, Government Expenditure, Debt Servicing, Fiscal Deficits, Sustainable Economic Growth

**JEL Classification:** E62, H62, H63, O11, O47

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### Introduction

Since the great depression of nineteenth century when Keynesian theory on deficit financing policy propelled the economies of Western Europe out of depression, public debt has been recognized and used a tool for raising aggregate demand, employment and productivity



of developed and developing countries. Public debt is seen as a viable means of mobilizing additional resources required to finance the development needs of nations. This financing approach appears justifiable for most developing countries in the face of poor national savings which have never matched desired levels of investment. Jhingan (2008) argued that developing countries are saddled with complex external debt problems, because as low-income countries, they have low rates of domestic savings and consequently, investment. These countries depend on capital inflows from abroad to finance their development needs.

Sadly, capital inflows in the form of public debt are obtained with stringent repayment terms. The repayment terms create conditions for debt crisis as greater proportion of the export proceeds of debtor countries would be required to service external debts. The traditional finance theory as indicated by Solomon (1963), Lintner (1963) posit that leverage (debt financing) is desirable for corporate growth irrespective of contrary opinion expressed by Modigliani and Miller (1958). Solomon (1963), Lintner (1963) argued that an economy would be better off with an appreciable mix of internally generated revenue with domestic and external debts provided that the value of goods and services produced through debts financing, exceed the costs of such debt.

Debt accumulation is said to be beneficial if it promotes economic growth and wellbeing of the citizens. However, if debts are not properly managed the resultant debt burden could be severe and becomes a disincentive to national development with significant negative socio-economic implications on future generation. Leverage desirability theoretically stems from the financial and economic opportunities of government in developing countries who use it to finance socially and economically desirable public sector projects such as electricity and power supply, transportation and health care delivery services and other infrastructural facilities. These facilities are essential to accelerate development of public and private sectors of the developing countries economy.

### **Statement of the Problem**

The problem of public debt status in Nigeria is worrisome given the uncertainty that surrounds the issue of whether public debt incurred by Nigerian Government which consists of domestic and external debts has contributed positively or otherwise to the growth of Nigeria's economy. Jhingan (2008) argued that less developed countries borrow to accelerate economic development through the import of capital goods, spare parts, and raw materials to finance consumption requirements of her growing population considered as strategic for the achievement of objective of economic growth and development of these countries. Akujuobi (2007) opined that the external debts contributed negatively to Nigeria's economic growth as opposed to the domestic debt which contributed positively to Nigeria's economic growth.

While the debate on the relevant explanatory variables for predicting public debts continues, it is important to mention that country specific debt burden could differ in terms of the causative factors and the influence of the domestic and external debts on the affected economies. Although it has been often acclaimed that the growth rate of the Nigerian economy in the recent times hovered between 4 per cent and 6 per cent range per annum, studies are scanty on the status of Nigeria's debt and its implications on the growing economy, and this constitutes the gap which the study needs to fill. The study does not, in any way, attempts to address the issue of optimal mix of internally generated revenue, domestic and external debts that will maximize economic performance in Nigeria. However, it largely evaluated the implications to the Nigerian economy of the current status of the prevailing public debts.

## Stylized Facts on Nigeria's Debt Status

Government debt in comparison to GDP in Nigeria appears to fall within manageable level. A figure of 24.34 trillion naira in December 2018 put the ratio of Nigeria's public debt to GDP at the rate of 24.1 per cent (DMO, 2019). The rising trend in public debt in Nigeria dates back to the early nineteenth century when Nigeria was under the colonial rule, and debt portfolio was expanded to provide for the required funds to execute capital projects.

In about 1923 - 1924, Nigeria's first documented loan, of about £5.7 million to be repaid over a period of 20 years with interest payment at the rate of 2.5 per cent per annum was borrowed by the British Government on behalf of Nigeria. At the end of 1936, Federal Government debt in Nigeria increased to approximately £4.89 million making Nigeria's total public debt portfolio to surge up to £9.89 million (DMO, 2019). Nigeria took more loans of about £5.74 million from 1946 to 1948, making the total public debt of Nigeria to rise to about £21.24 million by the end of 1952. When Nigeria had her independence in 1960, the Government decided to borrow about 31 million dollars from Paris Club Creditors repayable over a period spanning 20 years and interest payment at the rate of 3.5 per cent per annum (DMO, 2019). Debt servicing, huge debt burden and balance of payments problems started to accumulate in the late nineteenth century as Nigeria's domestic and external debt grew. In the opinion of most economists the debt servicing problems facing Nigeria today started in mid nineteenth century when Nigeria recorded total external debt of about 19 billion dollars and in 2004, outstanding external debt stood at about \$36 billion (DMO, 2019).

The fiscal deficit of Federal Government became higher than her capital expenditure. This indicates that the government borrowed to finance recurrent expenditure. From 2013 to 2016 the ratio of capital expenditure to total fiscal deficits fell from 95.79 per cent to 7.89 per cent and in 2017 capital expenditure represented 37.83 per cent of total borrowings by the government (DMO, 2019). The arrears of debt service payment stood at about 19.5 billion US dollars by the end of year 2000 but debt service obligation was reduced to about 3.6 billion US dollars, due to rescheduling arrangement reached towards the end of year 2000. The 3.6 billion US dollars debt service obligation to Paris Club of Creditors was further reduced to about \$1 billion and by the first quarter of 2001 fiscal year, total external debt portfolio of Federal Government amounted to 28.5 billion dollars. Despite the reduction in debt service obligations, domestic debt did not reduce and stood at about ₦1.52 trillion and by 2011, domestic debt became the major debt portfolio of Nigeria, soaring as high as ₦4.8 trillion (DMO, 2019).

Diverse and worrisome issues have been associated with the perpetual rise in public debt portfolio in Nigeria. Some schools of thought argued that Nigeria's debt problems are as a result of too much reliance on borrowing to finance its projects. Another group of analysts are of the opinion that rising public debt is due to uncontrolled increase in fiscal deficit at the three tiers of government in Nigeria. Others attribute the rise in public debt to continuous fall in crude oil price since Nigeria operates a 'mono economy' and crude oil export is the main source of revenue to the government. In addition to the already mentioned issues, it is imperative to note that, increase in public sector workforce due to increase in population and increase in demand for social services that led to increase in aggregate salary and wage bills of public sector, are also putting heavy toll on government and are hampering her ability to meet governance obligations. Sadly, poor investments culture and corrupt practices of public office holders gave rise to unexecuted projects and unimplemented economic policies and programmes also have contributed to the problems of rising public debt portfolio in Nigeria.

The Debt Management Office (establishment) Act, 2003 (as amended) established Debt Management Office (DMO) for the coordination and management of Nigeria's debt portfolio.

Nigeria's public debt portfolio from 2014 to 2019 is presented in Table 1.1

**Table 1.1 : Nigeria's Public Debt Portfolio (2014-2019)**

Year	Domestic Debt(₦' millions)	External Debt(₦' millions)	Total Debt (₦' millions)
2014	9,535,549.07	1,631,523.60	11,167,072.67
2015	10,948,526.57	2,111,530.71	13,060,057.28
2016	14,537,119.70	3,478,915.40	18,016,035.10
2017	18,376,998.77	5,787,512.64	24,164,511.41
2018	16,627,841.75	7,759,229.99	24,387,071.74
2019	17,943,940.63	8,271,040.50	26,214,981.13

Source: Debt Management Office, [www.dmo.gov.ng](http://www.dmo.gov.ng)

As at December 31, 2012, Nigeria's total debt portfolio stood at ₦7.55 trillion, an increase of about ₦1.03 trillion from 2011 figure of ₦6.52 trillion and by the end of 2015, Nigeria's total debt soared to ₦10.95 trillion. Due to recent borrowing from external sources, foreign debt portfolio increased from \$10.7 billion in 2015 to \$21 billion in 2018, which represents about one hundred and thirty-five per cent rise in external debt portfolio. Internal debt stock also increased from ₦8.83 trillion in December 2015 to ₦12.77 trillion in December 2018, about fortyfour per cent increase for a short period of three years.

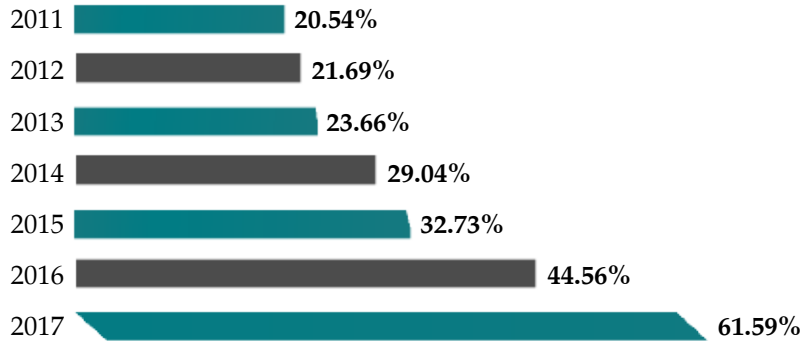
Internal debt stock also soared to about ₦12.51 trillion in June 2018. Domestic debt stock comprised Federal Government of Nigeria (FGN) bonds (₦8.93 trillion), Nigerian treasury bills (₦2.95 trillion), Nigerian treasury bonds (₦150.99 billion), Federal Government of Nigeria (FGN) saving bonds (₦8.52 billion), Federal Government of Nigeria (FGN) Sukuk (₦100 billion) and Federal Government of Nigeria (FGN) green bond (₦10.69 billion). This is presented in Table 1.2.

**Table 1.2: Federal Government Domestic Debt Portfolio, December 2018**

FG (Domestic Debt Stock)	June 2010 (%)	December 2014(%)	December 2016 (%)	June 2018 (%)	December 2018 (%)
FGN Bonds	60.97	60.63	68.41	73.47	73.07
Nigeria's Treasury Bills	23.93	35.62	29.64	24.31	21.42
Nigeria's Treasury Bonds	10.41	3.75	1.95	1.24	1.18
FGN Saving	0	0	0	0.07	0.08
FGN Sukuk	0	0	0	0.82	1.57
Promissory Note	1.67	0	0	0	2.59
Development Stock	0.01	0	0	0	0
FGN Green Bond	0	0	0	0.09	0.08

Source: Debt Management Office, [www.dmo.gov.ng](http://www.dmo.gov.ng)

The costs implications of servicing public debt compared to revenue generated are rising geometrically. This indicates that Federal Government borrowed to fund her expenditure obligations on overhead costs and debt servicing payments, which were higher than revenue generated by government. Looking at Figure 1.1, it is obvious that for every 100 naira that was earned in 2017, about 62 per cent of it was spent on servicing Nigeria's debts.

**Figure 1.1 Federal Government Debt Servicing to Total Revenue Ratio (2011-2017)**

Source: DMO, [www.dmo.gov.ng](http://www.dmo.gov.ng)

**Table 1.3 : Federal Government Debt Servicing to Oil Revenue Ratio (2011-2017)**

Year	Total Revenue (₦ billions)	Debt Servicing (₦ billions )	Ratio (%)
2011	1,694.35	527.07	31.11
2012	1,764.69	679.28	38.49
2013	1,996.24	828.10	41.48
2014	1,980.36	941.67	47.55
2015	1,218.22	1,060.39	87.04
2016	697.80	1,313.46	188.23
2017	1,125.05	1,636.93	145.50

Source: DMO, [www.dmo.gov.ng](http://www.dmo.gov.ng)

## Literature Review

### Conceptual Framework

Conceptually, the study sees public debt as an instrument for providing needed infrastructure and executing capital projects that ordinarily could not have been possible because of low national income, savings and investment especially in developing countries. An economy would be better off with financing mix comprising internally generated revenue, domestic and external debts, provided that the value of goods and services produced through debts financing, exceeded the costs of debt.

Smith and Todaro (2009) argued that where debts are not properly managed, debt burden would be severe and distractive with significant negative socio-economic impact on future generation. This assertion supports the neoclassical growth theory referred to as 'Keynesian theory' in which capital accumulation is seen as the engine and catalyst for economic growth. The Asian Tigers- Malaysia, Singapore, Indonesia and Taiwan and South American and Brazil growth experience lends credence to the Keynesian theory. These countries borrowed to fund government expenditures thereby transforming their economy.

In the opinion of Reinhart *et al.* (2012), and Checherita-Westphal and Rother (2012) high levels of public borrowings have negative effect on economic growth and that no link exists between debt and growth when public debt is below 90 per cent of GDP. This view is similar to the position held by Reinhart and Rogoff (2010), and Furceri and Zdzienicka (2012) who posit that growth

gradually decreases around 100 per cent of GDP. In contrast to this view, Pescatoriet *al.* (2014), Eberhardt, Andrea and Presbitero (2015), and Egert (2015) however argued, that no negative linkage exists between public borrowings and economic growth and development. The guiding rules to be considered in debt sustainability when trying to manage debt are, debt to GDP ratio, in which the acceptable global maximum ratio is 40 per cent; total debt to total revenue ratio; and debt to debt service ratio. Efficient debt management approach should result in debt to debt service ratio between 20-25 per cent.

At a total public debt value of ₦24.39 trillion in December 2018, the ratio of public borrowings to GDP in Nigeria was about 24.1 per cent and this ratio is below the acceptable global maximum ratio of 40 per cent. Nigeria's total public debt, at the three tiers of government when compared with economic growth, thus, appears to be within a threshold that is sustainable. The study, therefore, sees Nigeria as a developing country with low national income and requires capital inflow to fund her development needs. Proper management and allocation of these financial flows determines the level of her macro-economic performance.

### Theoretical Review

There exist many economic theories but the Keynesian theory of increasing economic activity as catalyst to economic growth was deemed most appropriate for the study. The Keynesian theory was developed by a British Economist, John Maynard Keynes in the nineteenth century. Keynes (1936) theorized that the growth and stability of any economy depends on active intervention of national government. The Keynesian Economists posit that private sector decisions may lead to inefficiency in macro-economy of a nation. Monetary and fiscal policy actions by the government are necessary to direct the economy on the right path to growth. These policy actions will bring about stability in productivity and in business cycles and hence direct the economy towards increase in employment, output and sustainable growth and development. Keynes stated that during depression, a combination of two approaches that must be applied are reduction in interest rate (monetary policy), and government investment in infrastructure (fiscal policy). Keynesians and monetarists are of the opinion that both fiscal and monetary policies affect aggregate demand (Blinder, 2008). The monetary policy requires CBN to reduce monetary policy rate to commercial banks and the commercial banks to reduce lending interest rate to their customers.

Government investment in infrastructure injects fund into the economy by creating business opportunities, employment and demand. One of the sources of fund for infrastructural development is borrowing. The Keynesian theory is, therefore, appropriate in the study since Nigeria is a developing country and needs capital accumulation to fast track its development plans. Public debt will, therefore, provide the needed fund for investment in capital projects and other infrastructural facilities which will enhance economic activities and lead to sustainable growth.

### Review of Related Empirical Literature

Talknice and Nicholas (2019) in an analysis explored the causal relationships between public debt, public debt servicing and economic growth in Zambia using time series data from 1970 to 2017. The study included fiscal balance and savings as intermittent variables to minimize the problem of omission-of-variable bias. Based on ARDL model, the study found that there is unidirectional Granger-causality running from economic growth to public debt in Zambia, in the short and long run. The study, however, failed to find any causality between public debt service and economic growth in Zambia.

Ndubuisi (2019) investigated the impact of external debt on economic growth in Nigeria from 1985 to 2017. The study made use of Johansenco-integration, vector error correction model (VECM) and Granger causality test in analyzing the data set. The study observed that debt servicing negatively but insignificantly influenced the economy of Nigeria while foreign debt had negative and significant impact on the economy of Nigeria. Granger causality test result indicates no causal linkage between external debt and GDP.

Festus and Saibu (2019) in their study focused on how external debt influenced the economy of Nigeria. The study tested for long run and short run relationships between external debt and economic growth using ARDL model. The study discovered that external debt has negative contribution to the economy of Nigeria.

Ezeet *al.* (2019) analyzed the impact of public debts on economic growth in Nigeria from 1981-2017. ARDL model and Chow Breakpoint test were used to estimate the variables. Data set used in the study include gross domestic product (GDP), public investment (LPUINV), external debt (LEXD), domestic debt (LDD), total public debt (LTPUBT), government expenditure (LGEX), national savings (LNS), consumer price index (CPI) and interest rate (INR). The results revealed that external debt had negative and significant impact on GDP while domestic debt had negative and insignificant effect on GDP. Similarly, government expenditure had positive and significant impact on GDP, while national savings and consumer price index have positive and insignificant effect on GDP. The results also showed that external debt had negative and significant impact on LPUINV, while LDD had positive and insignificant effect on LPUINV. The results, however, provided no evidence of any significant structural break between the variables.

Panagiotis (2018) examined the effects of investment, private and government consumption, trade openness, population growth and government debt on economic growth in Greece. The study discovered that there is long-run relationship between the variables and economic growth in Greece. The study further observed that investment, private and government consumption and trade openness had positive effect on economic growth, while government debt and population growth, have negative effects on economic growth in Greece. The study also found that the relationship between debt and economic growth depends on debt breaks. The study observed that debt levels before year 2000 were low, and the ratio of government debt-to-GDP had insignificant effects on economic growth, but as government debt rises after year 2000, the effect on economic growth became negative and significant.

Isiboret *al.* (2018) focused on the Nigerian government's debt and its impact on economic growth from 1982-2017 using two-stage least squares regression model. In the first equation, both internal and external debt and their lags were regressed against GDP, and the test inferential statistics recorded that external debt negatively influenced the economy while internal debt had positive impact on the economy. In the second equation, GDP, total savings deposits in commercial banks in Nigeria and capital expenditure were regressed against internal debt, the result showed that all the variables have significant relationship with internal debt.

Ujuju and Oboro (2017) examined the relationship between the structure of Nigeria public debts and her economic performance from 1990-2015. The study made use of simple and multiple regression techniques. The simple regression result indicates significant positive relationship between aggregate public debt and GDP. Multiple regression analysis indicates that external debt was negatively signed while domestic debt had positive and significant effect on GDP. The study concluded that Nigeria public debts are valuable in predicting partially variations in Nigeria's economic performance.

Elom-Obedet *al.* (2017) in their study investigated how public debt influenced the economy of Nigeria from 1980-2015. The study made use of Vector Error Correction Model (VECM) in data analysis. The investigation revealed that external debt had negative and significant influence on the economy of Nigeria. Domestic debt (DMD) had significant negative relationship with economic growth. External debt and domestic debt Granger cause RGDP in Nigeria with causality running from external debt and domestic debt to RGDP.

Udehet *al.* (2016) ascertained the impact of external debt on economic growth in Nigeria from 1980 to 2013. The study collected data for external debt, exchange rate fluctuation and external debt service payment which were independent variables and gross domestic product the dependent variable. Data were analyzed using ordinary least squares regression model. Diagnostic tests were conducted using Augmented Dick Fuller unit root test, co-integration and error correction model. The study observed that external debt and exchange rate fluctuation positively and significantly influenced gross domestic product in short run, but had negative effect in the long run. External debt service payment on the other hand had negative effect on the gross domestic product.

Afonso and Alves (2015) studied the relationship amongst economic growth, productivity and government debt using 14 European countries from which panel data were collected and analyzed. The study found that debt-to-GDP ratio had negative effect on economic growth. Atique and Malik (2012) investigated the effect of internal and external debt on the economy of Pakistan for the period ranging from 1980-2010 using ordinary least squares (OLS) the regression approach. The result revealed that domestic and external debts have negative but significant effect on economic growth of Pakistan.

Sulaiman and Azeez (2012) explored the impact of external debt on the economy of Nigeria using gross domestic product to represent economic growth and the ratio of external debt to export, inflation and exchange rates were the exogenous variables. The result of analysis of data carried out using ordinary least squares econometric technique showed that external debt contributed positively to Nigerian economy. Misztal (2010) investigated the impact of public debt on economic growth in the European Union from 2000–2010. The result of the research revealed that 1 per cent increase in public debt in EU countries led to 0.3 per cent decrease in GDP, while 1 per cent growth in GDP resulted in 0.4 per cent drop in public debt. Okoye and Akenbor (2010) researched on the effect of deficit financing on socio-economic activities in Nigeria from 1997 to 2007. Pearson product moment co-efficient of correlation was employed to test the nature of relationship that exists between deficit financing and economic activities and social community services. The research results indicate that deficit financing has positive and significant effect on the economic growth of Nigeria.

## Methodology

### Model Specification

Nigeria's public debt consists of external and domestic debts. Real gross domestic product (RGDP) in the research model represents macro-economic performance in Nigeria. The dependent variable (RGDP) is thus stated as a function of the explanatory variables in line with economic theory as follows:

$$RGDP = f(PDS, EDS, DDS, EXR) \dots \dots \dots (3.1)$$

The econometric model is therefore presented thus:

$$RGDP = \beta_0 + \beta_1 PDS + \beta_2 EDS + \beta_3 DDS + \beta_4 EXR + U \dots \dots \dots (3.2)$$

Transforming equation 3.2 into a log-linear econometric function, the following equation emerged as shown below:

$$\text{LogRGDP}_{t-1} = \beta_0 + \beta_1 \text{LogPDS}_{t-1} + \beta_2 \text{LogEDS}_{t-1} + \beta_3 \text{LogDDS}_{t-1} + \beta_4 \text{LogEXR}_{t-1} + U_{t-1} \dots \dots \dots (3.3)$$

Where:

RGDP = Real gross domestic product

TDS = Public debt servicing

EDS = External debt status

DDS = Domestic debt status

EXR = Exchange rate

$\beta_0$  = Constant

$\beta_1$ - $\beta_4$  = Parameters to be estimated

U = Error term

Log = Natural logarithm

t = time dimension

### Data Estimation Technique

In estimating the variables under consideration, ARDL model was used in analyzing the effects of the dependent variables on the explanatory variables. The research model choice was based on the advantages that it gives consistent estimate of the long-run coefficients irrespective of the order of integration of the variables. It also provides a means of arriving at unbiased estimates of the long-run result and valid statistical inferences. It can be applied to small sample size (Yaaba, 2013).

ARDL econometric form is:

$$\begin{aligned} \text{LogRGDP}_{t-1} = & \beta_0 + \sum_{p=1}^p \beta_1 \text{Log RGDP}_{t-1} + \sum_{p=1}^p \beta_2 \text{LogPDS}_{t-1} + \sum_{p=1}^p \beta_3 \text{Log EDS}_{t-1} \\ & + \sum_{p=1}^p \beta_4 \text{Log DDS}_{t-1} + \sum_{p=1}^p \beta_5 \text{Log EXR}_{t-1} + W_1 \text{RGDP}_{t-1} + W_2 \text{PDS}_{t-1} + W_3 \text{EDS}_{t-1} \\ & + W_4 \text{DDS}_{t-1} + W_5 \text{EXR}_{t-1} + U_{t-1} \dots \dots \dots (3.4) \end{aligned}$$

Where:

$\Sigma$  = summation

P = Optimal lag

$\beta_0$  = constant

$\beta_1$  to  $\beta_5$  = Coefficients of the short-run variables

$W_1$  to  $W_5$  = Coefficient of the long-run component

Following Engle and Granger (1987) assertion that variables which exhibits long-run relationship usually converge in the short-run, the ARDL short-run model of the general error correction mechanism in equation (3.4) is:

$$\text{Log RGDP}_t = \beta_0 + \sum_{i=1}^p \beta_1 \text{LogRGDP}_{t-1} + \sum_{i=1}^p \beta_2 \text{LogPDS}_{t-1} + \sum_{i=1}^p \beta_3 \text{LogEDS}_{t-1} + \sum_{i=1}^p \beta_4 \text{LogDDS}_{t-1} + \sum_{i=1}^p \beta_5 \text{LogEXR}_{t-1} + \text{ECM}_{t-1} \dots\dots\dots (3.5)$$

Where: ECM = Error correction mechanism.

## Results and Discussions

### Descriptive Statistics

The general behaviors' of the data set are presented in descriptive statistics in Table 4.1.

**Table 4.1 : Descriptive Statistics**

	RGDP	PDS	EDS	DDS	EXR
Mean	32748.60	-213.0833	2611.541	226.5010	100.0828
Median	22449.41	-110.5072	1247.843	237.5456	119.7686
Maximum	69023.93	1776.870	8998.090	506.0100	254.8865
Minimum	13779.26	-1557.793	36.78910	2.128700	4.536700
Std. Dev.	18888.86	687.2634	3011.101	170.1510	73.64126
Skewness	0.801840	0.971810	1.074332	0.067.510	0.232036
Kurtosis	2.141391	5.525298	2.594028	1.715457	2.217000
Jarque-Bera	5.101370	12.69349	5.976965	2.085351	1.035565
Probability	0.078028	0.001752	0.050364	0.352510	0.595840
Sum	1211698	6392.498	78346.24	6795.029	3002.484
Sum <sup>2</sup> Dev.	1.28E+10	13697597	2.63E+08	839589.4	57268.0
Observation	37	37	37	37	37

Source: Author's Computations, 2020

Average real gross domestic product within the study period was ₦32748.60 billion, mean public debt servicing of ₦213 billion, average value of external debt of ₦2611.54 billion, mean domestic debt of ₦226.5 billion and average exchange rate of ₦ to \$ of ₦100 to 1\$. The standard deviations for real gross domestic product, public debt servicing, external debt, domestic debt and exchange rate were found to be 18888.86, 687.26, 3011.10, 170.15 and 73.64 respectively. Standard deviations recorded, show some level of fluctuation in real gross domestic product in Nigeria, as they vary year in year out. Same can also be said for public debt servicing, external debt, domestic debt and exchange rate.

Whilst the minimum value of real gross domestic product within the study period stood at ₦13779.2 billion, the maximum value was ₦69023.93 billion. Minimum value of public debt servicing was found to be ₦1557.79 billion, while maximum value was ₦1776.87 billion. For external debt, minimum and maximum values are ₦36.78 billion and ₦8998.09 billion respectively, while minimum and maximum values of domestic debt were ₦2.13 billion and ₦506.01 billion, minimum and maximum values of exchange rate stood at ₦4.54 and ₦255 respectively. The study period covers 37 years, hence the number of observations are 37.

## Correlation Matrix

**Table 4.2 : Correlation Matrix**

	RGDP	PDS	EDS	DDS	EXR
RGDP	1.000000	-0.035767	-0.848864	0.872719	-0.794551
PDS	-0.035767	1.000000	-0.091689	-0.05392f	-0.231278
EDS	-0.848864	-0.091689	1.000000	0.991406	0.718933
DDS	0.872719	-0.053925	0.991406	1.000000	0.763634
EXR	-0.794551	-0.231278	0.718933	0.763634	1.000000

Source: Author's Computations, 2020

The correlation matrix examines the nature of relationship that exists among variables in the model. The results as shown in Table 4.2 indicate that there is negative relationship between real gross domestic product and all other variables except domestic debt which was positive. Public debt servicing was found to have negative correlation with other variables.

The external debt had inverse correlation with RGDP and PDS and positively with DDS and EXR, while the domestic debt correlated positively with other variables except PDS which was negative and exchange rate was found to be positively correlated with EDS and DDS but was negatively correlated with public debt servicing and RGDP.

## Unit Root

**Table 4.3 : Unit Root Test Results**

Variable	Levels				
	ADF Statistics	Critical values			P-values
		1%	5%	10%	
RGDP	0.117692	-3.63290	-2.948404	-2.61287	0.9626
PDS	-0.398934	-3.769597	-3.004861	-2.642242	0.8932
EDS	-3.798567	-4.394309	-3.612199	-3.243079	0.0346
DDS	-0.463971	-3.679322	-2.967767	-2.622989	0.9823
EXR	-1.546707	-3.679322	-2.967767	-2.622989	0.4963

Source: Author's Computations, 2020

The unit root test results presented in Table 4.3 provide evidence that except external debt which was found to be stationary at 5 per cent level of significance, the other variables were not stationary at levels. However, public debt servicing, real gross domestic product, exchange rate and domestic debt became stationary after they had been differenced once at 5 per cent significance level. Implication of non-stationary time series is that the data set will lead to spurious regression when used at levels due to persistent shock or disturbance on such variable. Stationarity status of variables at first difference shows that the variables can withstand the shocks to a reasonable extent.

## Inferential Statistics

**Table 4.4 : ARDL-Bounds Test**  
**Null Hypothesis: No long-run relationships exist**

Test statistic	Value	K	Test statistic	Value
F-statistic	12.28069	4	F-statistic	12.28069
Critical Value	Bounds			
Significance	I(0) Bound	I(1) Bound	Significance	I(0) Bound
10%	2.45	3.52	10%	2.45
5%	2.86	4.01	5%	2.86
2.5%	3.25	4.49	2.5%	3.25
1%	3.74	5.06	1%	3.74

Source: Author's Computations, 2020

The result of the bound test in Table 4.4 shows that there exists long run relationship between variables. This is evidenced from the value of F-statistic calculated as 12.28 which is above the critical bound test value at 10 per cent, 5 per cent and 1 per cent at I(0) and greater than the I(1) critical bound test value at 10 per cent, 5 per cent and 1 per cent.

**Table 4.4.1 : Results of Auto-regressive Distributed Lag (ARDL)**

Variable	Coefficient	Std. error	t-statistic	Prob.
PDS(-2)	-13.95965	2.805595	-4.975648	0.0076
EDS(-2)	-11.95840	2.944791	-4.060867	0.0153
DDS(-2)	80.50159	21.97519	3.663295	0.0215
EXR(-2)	-11.52281	2.948602	-3.907890	0.0174
C	7109.420	3364.961	2.112779	0.1022
R <sup>2</sup>	0.799873	Mean	26944.91	
Adj R <sup>2</sup>	0.890207	S.D. dependent var.		11 549.6
S.E. regression	325.2216	Akaike info. criterion		14.2274
Sum <sup>2</sup> resid.	423076.4	Schwarz criterion		15.2919
Log likelihood	-162.9562	Hannan-Quinn criter.		14.5339
F -statistic	1501.223	Durbin-Watson stat		2.26317
Prob. (F-statistic)	0.000001			

Source: Author's Computations, 2020

Note:  $t$ -tabulated=2.07 at  $df=22$  and 95% confidence level. The selected model was (3, 2, 2, 2) based on AIC with maximum dependent lag of 4.

From the results obtained in Table 4.4.1, R<sup>2</sup>value of 79.99 per cent as well as the adjusted R<sup>2</sup>value of 89.02 per cent shows strong representation of the research model. This means that independent variables explained about 89 per cent of the total variations in the dependent variable and 11 per cent may be due to other variables not included in the model.

There exist significant relationships in terms of  $t$ -stat. between RGDP, PDS, EDS, DDS and EXR. The relationship that exists between DDS and RGDP was found to be positive such that unit increase in DDS would bring about 80.50159 (80.50 per cent) increase in RGDP. The result also

revealed negative and significant impact of PDS, EDS and EXR on RGDP, such that unit increase in PDS would bring about 13.95965 (13.96 per cent) unit decrease in RGDP, while, unit increase in EDS would bring about 11.95840 (11.96 per cent) unit decrease in RGDP and unit increase in EXR would bring about 11.52281 (11.52 per cent) decrease in RGDP. Durbin-Watson statistic of approximately (2.3) suggests that the variables are free from autocorrelation. F-statistics value of 1501.223 was statistically significant at 5 per cent level as indicated by the corresponding probability value of 0.000001. This implies that the model research variables jointly and statistically influenced the Nigerian economy within the period under review.

**Table 4.4.2 : Short-run Dynamics - ECM**

Variable	Coefficient	Std. error	t-statistic	Prob.
PDS(-2))	-13.959653	-2.805595 1.187110	-4.975648	0.0076
D(EDS)	-3.308867 9.562864	3.249331	-2.787330	0.0494
D(DDS)	-63.609725	16.162683	2.943026	0.0423
D(EXR)	-0.398256	0.233087	-3.935592	0.0170
CointEqn(-1)			-1.708619	0.1627

Source: Author's Computations, 2020

Results presented in Table 4.4.2 records the ECM value of the estimated ARDL equation. It reveals that in the short-run, unit increase in PDS, ED Sand EXR brought about -13.959653, -3.308867 and -63.609725 units decrease in RGDP, while unit increase in DDS brought about 9.562864 units increase in RGDP. In summary, probability values of the explanatory variables indicate that they significantly influenced RGDP within the period.

The coefficient of ECM was negative and correctly signed. This implies co-integration among the model research variables in the longrun. It also indicates that distortions in Nigeria's economy that are creating disequilibrium in the system can be restored to its equilibrium position within the period. Given the ECM value of -0.398, about 40 per cent of distortions in equilibrium can be restored within the period.

**Table: 4.4.3 : Long-run Coefficients of ARDL Results**

Variable	Coefficient	Std. error	t-statistic	Prob.
PDS	-25.840635	21.299767	-1.213189	0.2918
EDS	-8.876301	4.192269	-2.117302	0.0107
DDS	45.402078	22.579140	2.010797	0.0147
EXR	-65.388293	43.230938	-1.512535	0.2049
C	17851.38264	2324.80971	7.678642	0.0015

Source: Author's Computations, 2020

From estimated long-run coefficients in Table 4.4.3, DDS positively and significantly influenced RGDP. While PDS and EXR indicate negative effects and did not influence RGDP significantly. EDS on the other hand shows inverse relationship which was statistically significant in influencing RGDP.

## Granger Causality

Granger causality test was carried out to ascertain whether change in Nigeria's debt status Granger cause change in RGDP if past values of change in Nigeria's debt status improves

unbiased least squares predictions on changes in real growth of Nigeria's economy. The hypothesis is stated in the null ( $H_0$ ), thus: explanatory variables does not Granger cause explained variable and explained variable does not Granger cause explanatory variables. Since data of the variables under study are time series data, it is important to carry out causality test between Nigeria's debt status variables and RGDP. The summary results of Granger causality test are presented in Table 4.5.

**Table 4.5 : Granger-causality Test Results**

Null hypothesis	Obs.	F-statistic	Prob.
PDS does not Granger-cause RGDP RGDP does not Granger-cause PDS	28	0.66276 1.95894	0.5250 0.0778*
EDS does not Granger-cause RGDP RGDP does not Granger-cause EDS	28	0.30922 0.22324	0.7370 0.8016
DDS does not Granger-cause RGDP RGDP does not Granger-cause DDS	28	0.75019 0.21825	0.4835 0.8056
EXR does not Granger-cause RGDP RGDP does not Granger-cause EXR	28	0.16165 3.84825	0.8517 0.0362**

Source: Author's Computations, 2020

Note: \* and \*\* denote statistical significance at 10% and 5% levels, respectively.

Table 4.5 contains F-statistic and probability values which indicate whether to accept or reject the null hypothesis at 5 per cent level of significance. The first row shows that null hypothesis PDS does not Granger cause RGDP. The F-statistic value is 0.66276 with probability value of 0.5250 which indicates no causality. The null hypothesis that RGDP does not Granger cause PDS has F-statistic value of 2.85894 and probability value of 0.0778 indicating that there is no causal linkage between RGDP and PDS in Nigeria. From the above observation, the null hypothesis that PDS does not Granger cause RGDP is accepted. Likewise, the null hypothesis that RGDP does not Granger-cause PDS is accepted.

The result also shows that there is no causal linkage between EDS, DDS and RGDP in Nigeria for the period under review. However, there exists causal relationship that runs from RGDP to EXR and non-causal relationship from EXR to RGDP. The causality that runs from RGDP to EXR is said to be unidirectional. Implication of Granger causality result is that Nigeria's debt status does not reflect the level of its economic growth and therefore is a disincentive to national development.

## Discussion of Findings

Estimated long-run results revealed that public debt servicing in Nigeria had negative effect on RGDP but was not able to influence RGDP significantly. This is in line with the findings of Ndubuisi (2019) but in contrast with the discovery of Udeet *et al.* (2016) who found that debt servicing in Nigeria had negative and significant effect on RGDP. The domestic debt exhibited positive and significant influence on RGDP. This is in agreement with results of Isiboret *et al.* (2018) and Ujuju and Oboro (2017) but in contrast with Elom-Obed *et al.* (2017) who recorded negative and significant effect, while Ezeet *et al.* (2019) revealed positive and insignificant impact of domestic debt on RGDP. On the other hand, Atique and Malik (2012) reported that growth of internal and external debts impacted negatively on investment and economic growth in Nigeria. Afonso and Alves (2015), and Cuestas *et al.* (2014) posited that the ratio of public debt to GDP negatively influenced economic growth and high levels of public debt revealed non-linear effect on GDP.

In the short-run, PDS had negative effect on RGDP. This implies that government's debts are

not sourced based on needs of the economy and, therefore, there are diversions here and there and eventually projects are either partially executed or not executed at all making debt servicing and repayment difficult. In line with this report, Akujuobi (2007) revealed that external debt has negative effect while internal debt has positive effect on GDP.

The external debt recorded negative and significant impact on real gross domestic product in the short-run and in the long-run. This result is in congruence with the findings of Ndubuisi (2019), Festus and Saibu (2019), Eze *et al.* (2019), Panagiotis (2018), Isibor *et al.* (2018), Ujuju and Oboro (2017), and Elom-Obed *et al.* (2017). Implications of these findings are that the three tiers of government are not able to match borrowing with public expenditure items that can improve overall income profile of the country. Secondly, high exchange rate between the naira and the dollar, coupled with persistent volatility in exchange rate, negatively affected the value of the naira and hence the value of total loan fund which were given in dollars. Excess importation of goods and services may also hamper growth of infant industries and this has an adverse effect on local production and hence macro-economic performance in Nigeria. The findings of the research are in congruence with the research reports of Olawunmi and Ayinla, (2007), but in negation of the work of Ojong and Owui (2013).

The Granger causality test revealed the existence of causal relationship that runs from RGDP to EXR and no evidence of causality running from EXR to RGDP. The causality that runs from RGDP to EXR is said to be unidirectional. There was no causal linkage between PDS, EDS, DDS and RGDP. This result is in contrast with findings of Talknice and Nicholas (2019) who reported unidirectional causal flow from RGDP to public debt and Elom-Obed *et al.* (2017) that revealed unidirectional linkage running from domestic and external debts to RGDP. The implication of the Granger causality result is that Nigeria's debt status is high and thus a disincentive to national planning and development.

## Implications for Macro-economic Policy

From the results of the analysis conducted, the following scenarios can be deduced:

1. Fiscal policies of government directed towards investment in critical infrastructural facilities, is not the focus of Federal Government borrowing in Nigeria: Fiscal deficit of Federal Government was more than the capital expenditure items. This is an indication that recurrent expenditure items were financed through borrowed fund. The ratio of capital expenditure to fiscal deficit fell from 95.79 per cent in 2013 to 7.89 per cent in 2016. While in 2017, capital expenditure items were about 37.83 per cent of fiscal deficit.
2. Public debts servicing cost in Nigeria is soaring high, relative to Nigeria's revenue generation; From 2015 projections of ₦953.62 billion, the figure in 2016 was ₦1.313 trillion, about 44.5 per cent of revenue generated. Budgeted figure in 2017 was ₦1.7 trillion. Looking at these figures in comparison with revenue generation for 2018 one may conclude that about 58 per cent of actual revenue generated will be used for debts servicing. The Federal Government borrowed more funds to finance recurrent expenditure obligations, because overhead costs and debt servicing payments were higher than revenue generated within the fiscal year. The study opines that public debt needs to be directed towards executing specific public expenditure items and proper documentation and accountability should be ensured.
3. Persistent drop in oil revenue imposes more problems to Federal Government's debts servicing projections: The costs of servicing public debts continue to rise more than

revenue generated. Oil revenue which is the main source of servicing public debt continues to dwindle. If the price of crude oil continues in this direction and Federal Government debt rising on the other hand, Nigeria may be heading towards debt trap as debt servicing cost may become unsustainable. The current price of crude oil of less than \$29 per barrel is already posing great danger to debt repayment and servicing plans.

4. Increase in Federal Government domestic debt has negative effect on local currency exchange rates and hence domestic investment: In recent times the risk-free rates are soaring high and at 17 – 21 per cent level with commercial banks' lending rates rising to 24-26 per cent, domestic investment continues to fall. Government in order to cushion the effect of dwindling domestic investment creates huge subsidy programs aimed at ensuring monetary stability in the banking sector and enhance financial intermediation role of the financial system in Nigeria. These subsidy programs are also adding to the cost of governance in Nigeria.

Implications of the foregoing for Macro-economic policy is that governments at federal, state and local levels should be proactive by ensuring that public debt should only be sought when it is aimed at developing the country and providing amenities for the betterment of livelihood of future generation. To this end, policies of the government in respect of public debt procurement should be centered on developing agricultural and manufacturing sectors, promoting export-oriented businesses improve logistics and develop tourism industry.

## Conclusion

The study examined the Nigeria's debt status and its effect on macro-economy over a period ranging from 1981 to 2018. Auto Regressive Distributed Lag (ARDL) - Bounds test was adopted as the estimation technique to ascertain if debt status has long-run effect on the economy of Nigeria. RGDP was employed as the explained variable, while PDS, EDS, DDS and EXR were the explanatory variables. Time series data for the study were sourced from CBN statistical bulletin, various issues and DMO, [www.dmo.gov.ng](http://www.dmo.gov.ng).

The estimated long-run results revealed that PDS negatively but insignificantly impacted RGDP, DDS positively and significantly influenced RGDP, while EDS negatively and significantly impacted RGDP. EXR negatively and insignificantly influenced RGDP. On the other hand, short-run estimation results revealed that PDS had negative and significant effect on RGDP, DDS positively and significantly contributed to RGDP while EDS and EXR impacted negatively on RGDP. Implications of these findings are that governments at federal and state levels have consistently used borrowed funds to finance recurrent expenditures and have failed to link borrowing to sustainable capital expenditure items which in the long run could have improved the overall income profile of the country.

## Recommendations

Based on the findings of this study, the following recommendations are suggested:

1. Fiscal policies of the government should aim at funding critical infrastructural facilities and capital projects. This will ensure that the ratio of capital expenditure to fiscal deficit increases to sustainable level.
2. Government's borrowings both at state and national levels need to be directed towards executing specific public expenditure items and proper documentation and accountability should be enshrined in the system to ensure office holders are properly guided.

3. In the face of dwindling oil price and hence revenue, which is the source of fund for servicing debt, significant investment is urgently needed in agriculture, manufacturing, trade, logistics and tourism to diversify the economy of Nigeria. These sectors if properly explored will invariably create more jobs and increase economic activities that would generate revenue for the government and improve overall economic performance of Nigeria.
4. The domestic and external debts are rising. The debt servicing and repayments cost are also soaring. All tiers of government should be proactive by ensuring that public debts are tied to items of expenditures on investment and infrastructural needs of Nigeria in budget planning and implementation. There should be commitment on the part of government to reduce costs of governance, cut down overheads and excessive wage bills of political office holders and increase funding for social safety nets programs and invest more on infrastructural development.
5. An increase in Federal Government domestic debt has negative effect on local currency exchange rates and hence domestic investment: Domestic investment should be encouraged using policies that will reduce interest rate while promoting the production of export-oriented goods. Import restriction is also necessary to reduce the high demand of foreign currency which impacts negatively on the Nigerian economy.

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### ***Author's Profile***

**Odili Okwuchukwu** holds a Bachelor of Agricultural Technology from Federal University of Technology, Owerri, Imo State, Nigeria. He earned an Advanced Diploma in Accounting from Obafemi Awolowo University, Ile-Ife; Master of Business Administration (MBA) in Banking and Finance; and Master of Science (M.Sc.) in International Economics and Finance from Rivers State University of Science and Technology, Port Harcourt, Rivers State, Nigeria. He bagged Ph.D. in Banking and Finance from Michael Okpara University of Agriculture, Umudike, Abia State, Nigeria. Dr. Okwuchukwu Odili has Financial Engineering, Derivative Securities and Markets, Commodity Exchanges and Futures Market, Financial Management, Corporate Finance, International Trade and Finance, Financial Econometrics, Quantitative Finance, Risk Management and Insurance, Agricultural Financing, Development Finance as his areas of research interest. He is a lecturer in the Department of Banking and Finance Michael Okpara University of Agriculture, Umudike, Abia State, Nigeria. He has over sixty peer reviewed articles in reputable journals to his credit. He is a Chartered Banker (ACIB) - Associate of the Chartered Institute of Bankers of Nigeria (CIBN).

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