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Is Public Debt A Necessary Factor For Improving Economic Growth?: A VAR Modeling Of The Nigerian Situation

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Abstract: *The study investigates public debt and economic growth in Nigeria. The main objective is to empirically establish the impact of both domestic and external debt on the level of economic growth in Nigeria. The study covered the period between 1980 and 2014. Using the VAR methodology, the study shows that both domestic and external debt are statistically insignificant in explaining the level of economic growth in Nigeria. This result casts doubt on the efficient utilization of public debts in Nigeria. This also reflect inefficient in the activities of the Debt Management Office in Nigeria. The result recommends, amongst others, proper debt management and proper scrutiny of creditors conditionalities before further acquisition of debts.*
Keywords:*External debt, internal debt, fiscal deficit, economic growth, VAR*

I. Introduction

Government resort to borrowing as a means of bridging the resource gap has been an aged-long debate. Adam Smith warned Great Britain of the consequences of not allowing its ordinary expenses equals its ordinary revenue (balanced budget) citing empires and nations that have fallen under the debt burden.[1]. John Keynes advocated for an expansionary fiscal policy (government's expenditures financed by borrowing/deficit financing) or tax cuts (increase in workers disposable income) which would significantly stimulate aggregate demand and the Ricardian Equivalence which shows the irrelevance of governments financing their spending either through tax or debt.[2]. Over the decades, empirical literatures on the debt-growth nexus have focused more on developing countries[3] . Public debt was not of any concern to the advanced countries because of abundance liquidity in these economies and external financing could be obtained with ease and at low costs [3]. It was only after the recent financial crisis (2007-2009) had reached a global dimension in 2008 was more attention paid to the advanced countries as the level of their debts soar.[4] as shown in Table 1 below.

Table 1: Total Debt to Gross Domestic Product (GDP) of Selected Advanced Countries.

Countries	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Canada	51.3	46.8	45.9	43.1	39.2	43.0	51.3	51.4	52.2	53.2
France	67.4	69.1	70.7	66.5	65.4	71.0	82.7	86.5	90.6	101.1
Germany	39.7	41.6	43.2	42.0	39.4	41.7	46.0	53.7	53.2	55.1
Greece	118.7	121.4	121.5	123.0	120.5	116.9	133.2	127.0	109.1	166.1
Italy	106.9	106.7	108.7	105.1	100.6	103.4	117.1	115.8	108.9	127.2
Japan	N/A	N/A	144.3	145.2	144.1	153.1	166.5	174.8	189.5	196.0
Netherlands	48.1	48.9	48.4	42.7	40.3	51.8	54.0	57.7	61.8	67.4
Portugal	63.7	66.0	68.4	67.1	65.1	75.9	87.9	91.4	90.2	123.7
UK	39.7	42.0	43.8	43.7	44.7	54.3	68.4	81.3	94.5	96.6
USA	56.0	56.4	56.3	55.3	55.6	64.0	76.3	85.6	90.1	94.3

Source:http://data.worldbank.org/indicator/GC.DOD.TOTL.GD.ZS

The average public debt to Gross Domestic Product (GDP) of the advanced members of Organization for Economic Co-operation and Development (OECD) was 72% in 2007 but by 2012, it was 106%. [5] ; [6]. Public debt averaged 68.5% in the euro area in 2007, but reached 91.9% in 2014 [7]. The new wave of interest by academics and policy makers on the debt-growth relationship was triggered by the scholarly papers of [8] They examined data of 20 developed and 24 developing countries spanning over 200 hundred years (1790-2009). They found that the high debt to GDP level of over 90% was associated with a lower level of economic growth in the 44 sampled countries. The findings which identified a high debt-maximizing point beyond which debt is detrimental to economic growth resulted in a search for a threshold, a tipping-point as shown in Table 2 below.

Table 2: A Search for a Debt- Maximizing Point

S/N	Author(s)	Number of Countries	Years Covered	Threshold (Debt to GDP) in Percent
1	Reference [4]	10 African.	1981 -2010	47.31
2	Reference [51]	12 euro area.	1970-2010	90-100
3	Reference [48]	12 euro area.	1990-2010	67
4	Reference [52]	20 advanced & 21 emerging	1960-2010	20-60
5	Reference [49]	26 developed & 75 developing	1980-2008	Developed (77) & Developing (64)
6	Reference [56]	27 European Union	2000-2010	65
7	Reference [57]	28 OECD	1960-2011	About 90
8	Reference [58]	93 developing	1970-20	35-40
9	Reference [50]	18 OECD	1980-2010	85
10	Reference [53]	12 CARICUM	1980-2010	55-56
11	Reference [47]	155 developed and developing	1970-2008	Euro area(58)&Emerging(79)
12	Reference [54]	25 advanced and 13 emerging	1970-2007	Above 90
13	Reference [55]	15 old & 10 new EU member states.	Old(1980-2010)&New(1995-2010)	Old(80-90) & New(53-54)
14	Reference [27]	28 EU & 5 prospective EU	1990-2011	94

Sources: Various Journal Publications.

The studies above found a threshold value(s) below which debt was either positive or neutral and above which debt contribution to economic growth was negative. Yet, others could not locate any threshold for debt ratios beyond which growth prospects were severely undermined and thus detrimental to economic growth. [9] ; [10]

It is the desire of every nation to raise the standard of living of its citizenry through economic growth which is a function of savings and investment[11]. Where saving is less than available investment opportunities, the shortfall is made up by borrowing internally or externally. Also, to finance current account deficits, a nation can borrow in the short term so as to shore up external reserves position and strengthens external liquidity position in the future [12]. At times, debts can be contracted to deliberately influence the direction, speed and size of economic activities [13]. If these borrowed funds are economically, efficiently and effectively utilized, the resultant growth will impact positively in reducing poverty, increase consumption, and a new cycle of prosperity opens. By 1970, Nigeria's external debt was ₦175 million while domestic debt was ₦1.091billion, up from ₦30 million in 1960 [14].These debt figures were insignificant compared to her revenue generating capacity being a major exporter of agricultural and petroleum products. But for the resource-curse syndrome, Nigeria had no reason to borrow as the price of crude oil jumped from $3.00 to $12.00 per barrel between October 1973 and March 1974; from $14.00 in 1978 to as high as $35.00 in 1981 to mention but a few of such oil price windfalls [15]. While the oil boom era persisted, the nation recklessly ceded her dominance in agriculture to other countries- Palm oil to Malaysia in 1971, Cocoa to Cote d'Ivoire in 1975 to mention but a few- until she now became a net importer of food.[16]. Even the period 1967-1977 which was the years of the Nigerian civil war and seven years after was a period of low debt as shown in Figure 1 and Table 3 below.

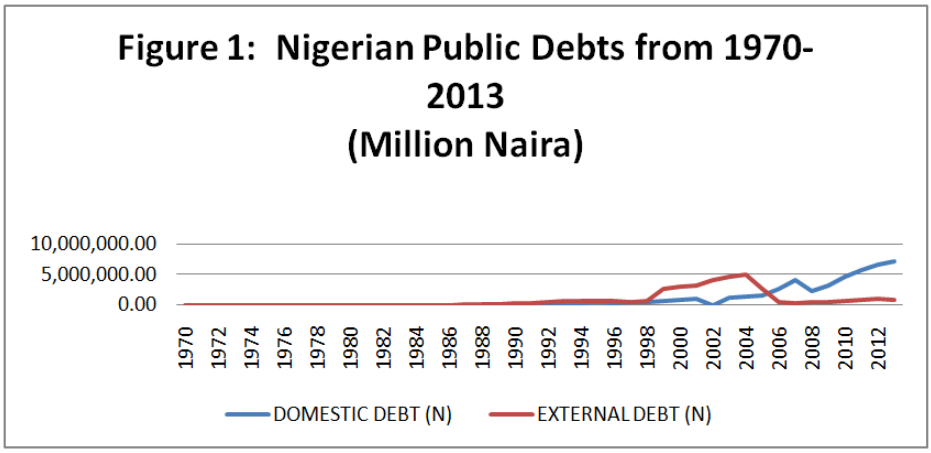


Table 3 : Nigerian External Debt Stock and Percentage Change in External Debt Stock.

Years	External Debt	% Change in Ext Debt	Years	External Debt	% Change in Ext Debt	Years	External Debt	% Change in Ext Debt
1971	178.5	2	1977	365.1	-2.5	1983	10577.7	19.9
1972	265.6	48.8	1978	1252.1	242.9	1984	14808.7	39.9
1973	276.9	4.2	1979	1611.5	28.7	1985	17300.6	16.8

1974	322.4	16.4	1980	1866.8	15.8	1986	41452.4	139.6
1975	349.9	8.5	1981	2331.2	24.8	1987	100789.1	143.1
1976	374.6	7.1	1982	8819.4	278.3	1988	133956.3	32.9

Source: Central Bank of Nigeria Statistical Bulletin.

Until 1978 when the first 'jumbo loan' of over $1billion was raised from the international capital market, debts incurred were mainly soft loans from World Bank and Nigeria's major trading partners which were not burdensome to the nation. Thus, the Obasanjo's administration in 1978 marks the beginning of massive debts in the face of dwindling oil revenue and the quest for infrastructural development, which never was. Nigeria's overdependence on crude oil export makes the economy susceptible to drastic revenue drop leading to massive borrowing in between booms and busts. The oil glut of 1982 set the stage for real financial crisis in Nigeria such that by 1985, the debt situation had worsened seriously due to persistent inability to meet its debt payment obligations especially the export credit-agency guaranteed loans. The economic woes of the country reached a critical stage when foreign creditors refused to open new credit lines of import to Nigeria by 1986. Thus, the nation was forced to adopt a structural adjustment programme (SAP) in 1986 as a result of the continuous drastic drop in oil revenue especially from 1982 to 1985. The aim of SAP was to diversify the economic base of the country, by reducing over reliance on oil production through the development of the non-oil sector [17]. Thirty years after SAP, oil continues to dominate while the other promising real sectors of the economy remain neglected andundeveloped. The structural adjustment programme (SAP) in 1986 as well as the various debt rescheduling efforts could not do as Nigeria's debts situation became unsustainable until 2005 when the Paris Club of creditors granted Nigeria some debt relief.

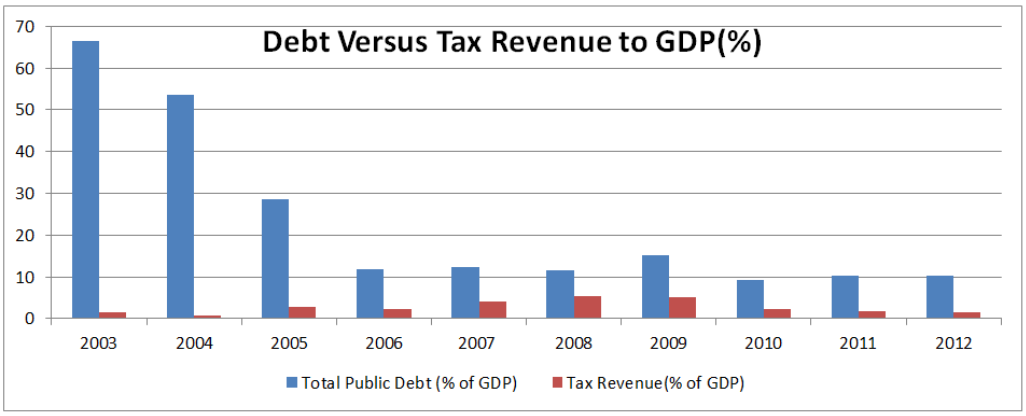
II. Statement of the Problem.

The assessment of the health of any economy by third parties on whether to deal with households and firms or not depends on that country's size and quality of public debt [11]. Although Nigeria's debt position today is sustainable since 2006, all the indicators for debt unsustainability are rising fast towards the thresholds as shown in Appendix 1. Crude oil export still dominate the economy even when there are no ready buyers since the loss of the United States markets which previously accounted for over 50% of crude oil revenue. The exchange rate (naira) keeps depreciating against the dollars leading to higher debt stock even without contracting additional borrowing. The 2016 budget is to be heavily financed through borrowing while the tax revenue to GDP ratio is far lower than total public debt to GDP ratio as shown in Table 4 and the accompanying graph below.

Table 4: Nigerian Total Public Debt (% of GDP) Versus Tax Revenue(% of GDP)

Items Year	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Total Public Debt (% of GDP)	66.4	53.6	28.6	11.8	12.4	11.5	15.1	9.4	10.2	10.4
Tax Revenue(% of GDP)	1.5	0.9	2.9	2.4	4.0	5.5	5.1	2.3	1.8	1.6

Source: World Bank Group (2014).



The above accounts for the timeliness of this research. The main objective of this study is to investigate the contribution of public debt to economic growth in Nigeria and so we hypothesized that public debt has no significant impact on economic growth in Nigeria.

III. Literature Review.

The literature is reviewed under theoretical and empirical frameworks.

3.1 Theoretical Framework.

Prebisch-Singer Hypothesis (PSH).For a long time, the classical economists view that the terms-of-trade of primary products would show long-term improvement over manufactured products held sway. To them, a primary-products economy should not be bothered about industrialization as the free play of international market forces will distribute the gains (technology transfer) from the industrialized economies to the primary-products economies through the higher prices of their exports of primary products relative to the prices of imported manufactured products [18]. However, Raul Prebisch and Hans Singer independent works in 1950 opposed theclassical view noting that it is the manufactured products that have a favourable terms of trade against primary commodities. The theory states that the terms of trade between primary products and manufactured products deteriorates over time against the primary producers exports. One reason for it is that manufactured products have a greater income elasticity of demand than primary products such that as incomes increase, the demand for manufactured products increases faster than demand for primary products. Another reason is that primary products have a lower price elasticity of demand such that a decrease in their prices leads to a less than proportionate increase in revenue. Even when there is a temporary boom in revenue from an unexpected price increase, such windfalls could be dangerous to the entire economy if not prudently managed. Due to this disadvantage terms of trade that primary producers face, they are advised to diversify their economies, not only vertically but also horizontally, by developing their manufacturing industry. The importance of the "Prebisch-Singer thesis" is that there appears to be a structure of the world economy that unevenly or unfairly distributes the gains from trade between nations exporting mainly primary products and those exporting mainly manufactured goods [19]. Some recent empirical works in support of PSH are: [20]; [21]; [22] ,and [23]. Thus, [24] noted that fiscal management in Nigeria has merely transited from one primary product-based revenue to another instead of transforming or diversifying the existing revenue base, thereby making the economy susceptible to fluctuations of the international oil market.

3.2 Empirical Literature.

[25] analyzed the impact of external debt and domestic debt on economic growth in Nigeria between 1970 -2010. The Ordinary Least Squares (OLS) technique was used to establish the relationship between the variables under study. The results revealed that external debt possessed a negative impact on economic growth while domestic debt has impacted positively on economic growth. Reference [26] investigated the impact of external debt on economic growth of Indonesia. The OLS regression method was used to analyze the secondary data from 1980 to 2012. The study showed that external debt has a negative impact on economic growth during the period under study. [27] examined the relationship between public debt and economic growth for a panel of 33 European countries from the period 1990-2011. Secondary data from World Bank's World Development Indicators, International Monetary Fund's World Economic Outlook and Historical Public Debt datasets were used for the research. The results confirmed the existence of a "U inverted" relationship, with a maximum debt threshold of about 94% of GDP beyond which public debt is expected to negatively affect economic growth. [28] sought to investigate the impact of external debt, public debt and debt service on the gross national savings in Nigeria from 1970 to 2010. The OLS technique was used to test the data. Results indicated that while external debt has a negative and significance effect on national savings in Nigeria, public debt and debt service have a positive and statistical significant effect on national savings in Nigeria. [29] examined the impact of domestic debt and external debt on the economic growth in Pakistan. The study used data covering the period of 1980 to 2010 and employed the OLS technique of data analysis. The results found a negative and significant relationship between domestic debt as well as external debts and economic growth. [30] researched on the effect of the external debt burden on economic growth and development of Nigeria. The OLS technique was used to test the secondary data sourced from various relevant publications. The results showed that external debt burden had an adverse effect on the Nigerian economy. [31] investigated the effect of external debt on the economic growth of Nigeria. Time series data obtained from the Central Bank of Nigeria statistical bulletin and Debt Management Office from 1970 to 2010 was tested using the OLS econometric techniques. The findings showed that external debt has contributed positively to the Nigerian economy. Reference [32] examined the impact of external debt burden on major macro-economic variables in Nigeria. Data used for the study were obtained from various sources and tested using the OLS regression technique. The study shows that there exists a long-run relationship among the major macro-economic variables, and that external debt burden, foreign direct investment, inflation and export have a positive relationship with economic growth. [33] applied the dependency and liberal economic theories to explain the debt crisis in Africa with particular emphasis on Nigeria. The researcher considered some of the actions and policies of International Monetary Fund (IMF), other International Financial Institutions and the administrations of some Nigeria leaders on the trend of events during the implementations of the Structural Adjustment Programme in Nigeria as well as some of the activities in other countries in Africa relevant to the analysis. The paper concluded that the IMF, the World Bank and the West collaborated with some Nigeria leaders in making the country indebted. [34] explored the relationship between domestic debt and

economic growth in Nigeria. The OLS was used to analyze the quarterly data between 1994 and 2008. Results showed that the level of debt has negative effect on economic growth. [35] investigated the impact of public debt on economic growth in Nigeria. The value impact variables used were external debt, domestic debt, total debt, and budget deficit figures. The OLS technique was used to analyze the time series data from 1975 to 2005. The result showed that, on the long-run, debt has a negative and significant impact on economic growth but, on the short-run, the impact is positive. [36] analyzed the role of public debt in economic growth of 31 Organization for Economic Co-operation Development (OECD) member states and 5 non-OECD European Union member countries. The sample was divided between developed economies, covering the period 1980–2010, and emerging economies, covering the period 1995–2010. The OLS regression technique was used to determine the turning point of debt-to-GDP ratio and the impact of the levels of indebtedness in public sector on current economic growth. The results showed that the positive effect of accumulated public debt changes into a negative effect between 90 % and 94 % for developed economies while that of the emerging economies was between 44 % and 45 %. This confirmed the general assumption that the impact on growth is positive at low levels of public debt whereas beyond a certain debt turning point, a negative effect on growth arises. [37] examined the implications of debt management on economic growth and development in Nigeria. Secondary data collected from CBN statistical bulletin and Debt Management Office between 1990 and 2011for the study were analyzed using the OLS regression method. The result revealed that the debt holding of government far above certain healthy threshold has negative effect on economic growth. [38] investigated debt overhang paradox in the Heavily Indebted Poor Countries (HIPC) of the Southern African Development Community (SADC) in order to show if debt overhang exists and the effect of debt relief on these countries. A typical debt overhang model was modified to show the effect of debt relief effects on both the economic output and private capital. Also, a causality test on economic output, private capital and debt service obligations using the Granger causality test was carried out. Result revealed that a significant relationship exists between external debt and GDP as a decrease in external debt leads to an increase in GDP. [39] explored the effect of government debt on economic growth in Nigeria. Secondary data between 1986 and 2013 were used for the study while OLS regression method was employed for the analysis. The results revealed that government debt has insignificant impact on economic growth over the period under review as the enormous external debt over the years contributed minimally to real gross domestic product. [40] researched on the effect of a continuous increase in Nigeria's public domestic debt profile on economic growth as well as on the crowding-out of private lending in the economy. Secondary data from 1980 to 2009 were used to evaluate the modified Barro Growth Model while the analysis was done with OLS regression technique, The results revealed that domestic debt has an inverse and significant impact on economic growth and also, domestic debt robustly crowds-out private lending in Nigeria. [41] investigated the influence of domestic debt, external debt and external debt service on the economic development of Nigeria. Data from 1970-2010 was sourced from Central Bank of Nigeria statistical bulletin and World Bank data bank. The OLS regression technique was used to analyze the data. The results showed that total domestic and total external debts were inversely related to real gross domestic product while interest on total external debt was positively related to real gross domestic product. [42] carried out a study on whether public debt contributed to the economic growth in Malaysia. Time series data over the period 1991 to 2013 were used in this study. The OLS regression technique was used to analyse the data. Results revealed a negative association between debt and growth as well as a decreasing function between GDP and budget deficit, government consumption and external debt service. Reference [11] studied the major determinants of Nigeria's external debt for the period 1986 to 2010. The secondary data used for the study were analyzed using the OLS regression method. The results showed a long-run relationship between external debt and the explanatory variables. External debt had a negative relationship with foreign direct investment and terms of trade, a positive relationship with budget deficit while external debt service is positively related to exports. [14] exploredthe relationship between debt, growth and poverty in Nigeria. Secondary data over the period 1970-2011 were used for the study. General Method Moments Estimation of the Simultaneous Equations Model was used to analyze the data. The results revealed that public debt had a negative impact on economic growth and poverty reduction. [43] examined the Nigerian external debt crisis and efforts made to obtain debt relief in 2005. The study used the descriptive analysis for the secondary data collected. The results revealed that lack of fiscal discipline, over-dependence on oil revenue, poor project analysis and implementation were factors responsible for the Nigerian debt crisis in the past. Thus, the debt relief has not impacted positively on economic growth. [44] examined the relationship between external debt and economic growth in Nigeria as a result of the debt relief. Time series data of external debt, external debt service and real gross domestic product from 1980 to 2009 were used to determine the structural break effect of external debt on economic growth using the Chow test regression technique. The result indicated that the 2005 external debt relief caused a structural break in economic growth relationship with external debt in Nigeria. [45] investigated the impact of external debt on economic growth in Nigeria. Data from the period 1980 to 2011 were used for this study and analysed with a Simple Regression technique. The results showed that external debt had insignificant negative impact on economic growth while

debt service had positive insignificant influence on growth. [46] examined the extent to which external debt promotes economic growth in Nigeria. Time series data from 1970 to 2007 were analyse using Augmented Dickey Fuller (ADF) test, Granger causality test, Johansen Co-integration test and Vector Error Correction Method (VECM). Results showed an insignificant and negative relationship between external debt and economic. [12] studied the relationship between Nigeria's external debt and economic growth. The period covered under this study was from 1975 to 2006. Data analysis was done using Augmented Dickey Fuller (ADF) test, Granger causality test, Johansen Co-integration test and Vector Error Correction Method (VECM). Results indicated that there is a negative relationship between economic growth and the present level of external debt in Nigeria.

IV. Econometric Procedures

The Vector Auto regression (VAR) will be used in assessing the impact of public debt on the Nigerian economy. The VAR analysis will, amongst others, include the Cholesky variance decomposition and impulse response analysis. Before this, the Augmented Dickey Fuller (ADF) unit root test will be used to test whether the variables are stationary or not and their order of integration.

The variables used include Gross Domestic Product(GDP), External Debt (EXD), Internal Debt (IDEBT) and Fiscal Deficit (FD). The data used covered the period between 1980 and 2014.

The result of the ADF unit root test is shown in Table 5 below:

Table 5: Summary OfAdf Unit Root Test Result

Variables	Level data	First Difference	Order ofIntegration
IDEBT	1.88	-4.35*	I(1)
GDP	-2.42	-3.52*	I(1)
FD	1.53	-6.19*	I(1)
EXD	02.39	-3.98*	I(1)

NB:1.) * indicates significance at the 1 percent level

2.) 1% critical value = -3.65, 5% critical value = -2.96, 10% critical value= -2.62

The result of the ADF unit root test indicates that all the variables were originally not stationary. They however became stationary after the first difference was taken. All the variables were stationary at the 1 percent level.

The following are the results of the multivariate VAR analysis:

Table 6: Summary of VAR results:

	LGDP	LIDEBT	LFD	LEXD
LGDP(-1)	0.805531	1.376219	1.014037	-0.750941
	(0.20284)	(0.66372)	(3.07731)	(0.48144)
	[3.97133]	[2.07351]	[0.32952]	[-1.55978]
LGDP(-2)	0.024407	-0.721850	-0.810448	0.694246
	(0.18230)	(0.59651)	(2.76572)	(0.43269)
	[0.13389]	[-1.21012]	[-0.29303]	[1.60447]
LIDEBT(-1)	0.103455	0.173204	0.021286	-0.076334
	(0.06000)	(0.19634)	(0.91034)	(0.14242)
	[1.72416]	[0.88216]	[0.02338]	[-0.53597]
LIDEBT(-2)	0.029153	0.041157	0.186376	-0.036795
	(0.06096)	(0.19949)	(0.92491)	(0.14470)
	[0.47819]	[0.20632]	[0.20151]	[-0.25428]
LFD(-1)	-0.003775	-0.014675	0.874665	0.144041
	(0.01441)	(0.04717)	(0.21868)	(0.03421)
	[-0.26191]	[-0.31114]	[3.99972]	[4.21018]
LFD(-2)	0.011147	0.031117	-0.273820	-0.031269
	(0.01243)	(0.04069)	(0.18864)	(0.02951)
	[0.89651]	[0.76482]	[-1.45155]	[-1.05950]
LEXD(-1)	0.031601	-0.058102	-1.609670	0.538809
	(0.08659)	(0.28333)	(1.31365)	(0.20552)
	[0.36496]	[-0.20507]	[-1.22534]	[2.62170]
LEXD(-2)	0.035473	-0.007307	1.283531	0.316881
	(0.07826)	(0.25608)	(1.18730)	(0.18575)

	[0.45327]	[-0.02853]	[1.08105]	[1.70594]
C	0.062045	1.416151	2.186124	3.581274
	(0.31194)	(1.02074)	(4.73263)	(0.74041)
	[0.19890]	[1.38738]	[0.46193]	[4.83685]

The VAR result indicates that the immediate past value of economic growth (GDP(-1) is statistically significant in explaining the changes in the current level of economic growth. The result indicates that both the current period and two periods lag values of domestic debt are statistically insignificant in explaining the changes in the level of economic growth, insinuating that previous domestic borrowings have not improved the level of economic growth in Nigeria. Also, the one period lag and two period lags of external debt were not statistically significant in explaining changes in the level of economic growth. These results cast some doubts on the administration of public debts in Nigeria. Immediate past value of fiscal deficit was however significant in explaining the level of external debt. The immediate past level of external debt was also statistically significant in explaining the current level of external debt.

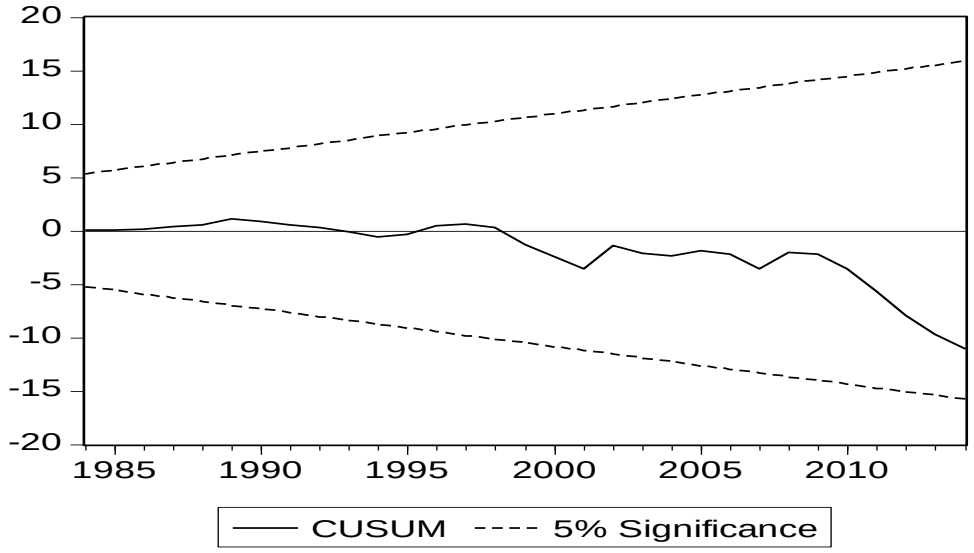
The result of the diagnostic checks are shown nelow:

Table 7: Summary of Diagnostic checks results

JarqueBera			
Jarque-bera value	2.19		0.33
Breusch Godfrey Serial Correlation LM TEST			
F-statistic	0.11	Probability	0.89
White Heteroskedasticity test			
F-statistic	1.64	Probability	0.58

The result indicates the validation of the null hypothesis that the residuals are normally distributed and that the residuals are not serially correlated. The White heteroskedasticity test indicates that the residuals are homoskedastic. The result of the Cumulative Sum of Recursive Residuals (CUSUM) test is shown below:

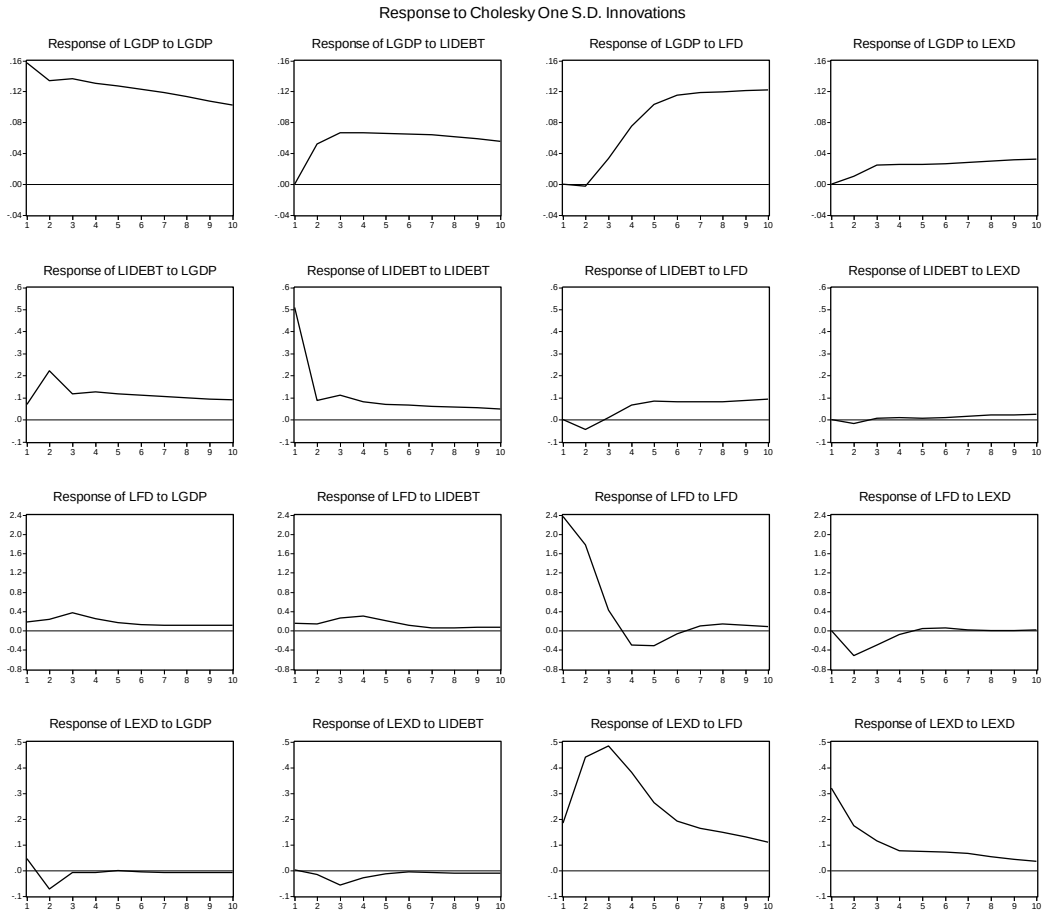
Figure 2: CUSUM Stability test



The result of the CUSUM stability test indicates that the residuals are stable.

The figure below shows the result of the impulse response from one standard deviation shocks in the endogenous variables

Figure3: Impulse Response



The result show that unanticipated increases in expected economic growth, external debt, internal debt, and fiscal deficit have a positive impact on actual level of economic growth. Shocks caused by unanticipated increase in economic growth and internal debt have a negative impact on actual level of external debt.
The result of the Cholesky variance decomposition is shown below:

Table 8: Result of Cholesky Variance Decomposition

Variance Decomposition of LGDP:					
Period	S.E.	LGDP	LIDEBT	LFD	LEXD
1	0.156602	100.0000	0.000000	0.000000	0.000000
2	0.212778	93.77610	5.976889	0.021421	0.225588
3	0.264764	87.30557	10.10312	1.557484	1.033827
4	0.312866	79.96586	11.76839	6.858662	1.407091
5	0.360157	72.86842	12.19237	13.37643	1.562767
6	0.403752	67.29218	12.29060	18.76225	1.654970
7	0.442577	63.17043	12.30419	22.75237	1.773019
8	0.477067	59.97947	12.25422	25.84601	1.920299
9	0.508118	57.34790	12.13102	28.44483	2.076247
10	0.536351	55.09785	11.95378	30.72497	2.223395
Variance Decomposition of LIDEBT:					
Period	S.E.	LGDP	LIDEBT	LFD	LEXD
1	0.512429	1.737291	98.26271	0.000000	0.000000
2	0.567169	16.75176	82.50010	0.640804	0.107333
3	0.589981	19.50178	79.77589	0.613148	0.109179
4	0.611766	22.27505	75.91523	1.691438	0.118285
5	0.631840	24.23895	72.32965	3.314118	0.117277
6	0.650160	25.83642	69.29924	4.730107	0.134235
7	0.666473	27.09003	66.79672	5.932880	0.180367
8	0.681566	28.03594	64.57582	7.132071	0.256168
9	0.695986	28.70917	62.50709	8.436703	0.347029
10	0.709901	29.17261	60.56321	9.822413	0.441772

Variance Decomposition of LFD:					
Period	S.E.	LGDP	LIDEBT	LFD	LEXD
1	2.375869	0.517991	0.373244	99.10877	0.000000
2	3.021088	0.937645	0.436322	95.72257	2.903465
3	3.098797	2.268412	1.109287	92.87923	3.743068
4	3.138206	2.822889	2.014742	91.45382	3.708552
5	3.165312	3.052312	2.391483	90.88808	3.668120
6	3.170468	3.177067	2.496990	90.64528	3.680660
7	3.174620	3.288127	2.526460	90.51151	3.673906
8	3.180152	3.405076	2.547592	90.38616	3.661171
9	3.184604	3.525569	2.578422	90.24505	3.650956
10	3.188081	3.635286	2.613806	90.10637	3.644537
Variance Decomposition of LEXD:					
Period	S.E.	LGDP	LIDEBT	LFD	LEXD
1	0.371702	1.465965	0.000190	24.50856	74.02529
2	0.605873	2.038509	0.084367	61.92687	35.95025
3	0.785052	1.224498	0.604267	74.65503	23.51620
4	0.875867	0.996243	0.597564	78.75487	19.65133
5	0.917403	0.908144	0.564842	79.97911	18.54790
6	0.939887	0.868738	0.544817	80.34829	18.23816
7	0.955940	0.847725	0.537539	80.53204	18.08269
8	0.968736	0.835687	0.539564	80.71172	17.91303
9	0.978519	0.827676	0.544717	80.87656	17.75105
10	0.985402	0.822920	0.548985	80.99672	17.63138
Cholesky Ordering: LGDP LIDEBT LFD LEXD					

The result indicates that for Gross Domestic Product, own shocks explained between 100 percent in the first period and 55 percent in the last period. Shocks to internal debt explained 6 percent of changes in domestic debt in the second period which increased to 12 percent in the last period. The result indicates further that shocks to Fiscal deficit explained 6 percent of changes in economic growth in the fourth period which increased to 31 percent in the last period. Shocks to external debts only explained between 1 percent and 2 percent of economic growth in most of the study period.

V. Conclusion and Recommendations

This paper assessed the impact of public debt on economic growth in Nigeria. The ADF unit root test was used to test whether the variables are stationary or not and their order of integration. The result indicates that although all the variables were originally non stationary, they became stationary after the first difference was taken. The VAR methodology was adopted and this includes a multivariate VAR analysis, the Impulse response and the variance decomposition. The result indicates that the lagged values of both internal debt and external debt were not statistically significant in explaining the level of economic growth in Nigeria. The result indicates a mismanagement of public debt in Nigeria. A probable reason for this is alleged gross mismanagement of both domestic and external debts. The result thus recommends more prudence in the acquisition of both domestic and external debt. The government should also critically evaluate the conditionalities given by creditor institutions or creditor nations before further borrowing. Both domestically and externally borrowed funds should be tied to key real sector projects. . This was exactly the condition upon which the recent $6billion loan from china was contracted in order to safeguard against diversion and misappropriations of borrowed funds.

Appendix 1: International and Nigerian Public Debt Sustainability Indicators in Percent

INDICATORS	SOLVENCY (PV=Present Value).ED=External Debt			SOLVENCY (PV is 3 years moving average).. TD=Total Debt		
RATIOS	PV of ED/GDP	PV of ED/Export	PV of ED/Revenue	PV of TD/GDP	PV of TD/Export	PV of TD/Revenue
THRESHOLD	56/ 40	150	250	56/40	N/A	N/A
1972	3.24	17.13	12.85	20.53	108.61	81.46
1973	3.21	14.40	9.15	17.77	79.75	50.67
1974	2.50	9.097	5.56	12.04	43.88	26.83
1975	1.94	7.30	4.28	10.11	38.04	22.30
1976	1.56	5.99	3.40	9.87	37.84	21.47
1977	1.37	5.64	3.04	11.05	45.57	24.51
1978	2.15	9.74	5.04	13.85	62.79	32.49
1979	2.99	13.16	7.02	17.28	76.08	40.61
1980	3.75	15.22	8.38	19.80	80.33	44.25
1981	4.17	16.12	8.72	23.29	89.97	48.69
1982	8.90	38.96	19.45	32.42	141.95	70.87
1983	14.51	81.28	36.95	46.83	262.42	119.31

1984	21.14	137.94	64.40	60.02	391.61	182.83
1985	23.63	150.78	77.72	65.62	418.67	215.80
1986	37.40	247.44	128.29	79.13	523.46	271.39
1987	65.85	312.82	182.65	104.31	495.51	289.32
1988	88.11	391.91	228.50	123.93	551.20	321.37
1989	103.04	397.52	237.74	131.42	507.01	303.22
1990	107.94	338.09	204.71	136.52	427.60	258.91
1991	108.91	299.75	176.30	139.96	385.22	226.56
1992	105.31	267.99	157.10	139.31	354.53	207.83
1993	98.51	275.82	155.23	135.67	379.85	213.77
1994	86.29	289.65	156.31	126.90	425.95	229.87
1995	56.83	145.32	89.79	89.79	229.59	141.86
1996	35.82	80.40	50.11	59.40	133.33	83.10
1997	25.95	55.12	32.44	44.77	95.08	55.96
1998	22.48	55.90	28.88	40.53	100.78	52.07
1999	43.73	119.60	58.45	65.07	177.96	86.98
2000	59.69	161.01	85.21	81.18	219.00	115.90
2001	70.40	175.93	97.50	92.08	230.10	127.52
2002	62.62	182.74	97.91	81.62	238.18	127.61
2003	57.58	172.95	93.05	75.03	225.37	121.25
2004	49.61	140.98	79.81	64.03	181.96	103.01
2005	35.00	80.76	47.69	47.26	109.05	64.40
2006	18.04	41.92	23.86	30.66	71.24	40.54
2007	6.34	15.77	8.59	21.19	52.70	28.73
2008	2.13	5.57	2.95	16.06	41.95	22.24
2009	2.14	5.87	3.03	15.56	42.67	21.99
2010	2.18	6.07	3.18	14.37	40.05	20.96
2011	2.26	6.37	3.39	16.17	45.58	24.25
2012	2.29	6.41	3.45	16.95	47.38	25.54
2013	2.20	9.59	4.38	17.32	75.48	34.51

Source: Authors computations from Central Bank of Nigeria's Statistical Bulletin.

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