

# External Debt, Foreign Exchange And Sustainable Debt Management: The Nigeria Experience, 1980 – 2017

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*Abstract: The study examined the External Debt, Foreign Exchange and Sustainable Debt Management- the Nigeria Experience, 1980 - 2017. The main objective of the study is to examine the effect of External Debt and Foreign Exchange on Sustainable Debt Management within the Nigerian context; the work which selected Nigeria as its sample, covered a period of 37 years. The model developed for the research has sustainable debt management (SDM) as dependent variable and independent variables were; External Debt (ED) and foreign exchange (EXCHR). Secondary data used were collected from the Central Bank of Nigeria and National Bureau of Statistics. The techniques used for analysis are the Ordinary Least Square Techniques, the Augmented Dickey Fuller Unit Root Test Techniques and the Co-integration Test. The econometric techniques of Ordinary Least Squares (OLS) results show that EXCHR had significant relationship with SDM in both short and long run periods while ED showed positive but insignificant relationship with SDM in both periods. The study concludes that while there is a significant relationship between EXCHR and SDM in both short-run and long-run periods, there is however, an insignificant relationship between ED and SDM in both periods. The study recommends amongst others appropriate pricing of external debt by the government and the engagement of such debt only for reproductive assets while diversifying the export base to earn sustainable foreign exchange, as these will assist in ensuring the attainment of sustainable debt management.*

**Keyword: Debt Management, External Debt, Foreign Exchange, Sustainable Debt Management**

## I. INTRODUCTION

### A. BACKGROUND TO STUDY

External debt is one of the avenues for financing government expenditures. It is usually employed when government expenditure exceeds its receipts. Thus, borrowing from foreign nations, clubs or nationals of other countries is called External Debt.

External debts should be productive or reproductive in order to trigger relevant economic growth and development. It is a productive debt when the debts are fully covered by assets of equal or greater value and the source of the interest is the income from the ownership of these assets such as

manufacturing corporation, agriculture and railways. Thus a debt is productive when its amount is spent to finance a project which in the long-run brings revenue to the government out of which interest is paid on the debt, (Jhingan, 2010). Hence, this study focused on the effect of external debt and foreign exchange on the Nigeria Debt Management.

According to Mukolu and Ogodor, (2012) deficit usually occurs as a result of government inability to match the tax revenue with its expenditure. The deficit is financed either through borrowings (domestically or foreign) or use of foreign reserve to settle the deficit as more money will be spent by government on servicing the debt which creates more expenditure and deficit. Persistence of this may result to high

and variable inflation, debt crisis with crowding out of investment and macroeconomic imbalance in general.

This study is subdivided into; section 1 which is the Introduction, section 2 of the study will deal with the reviews of literature, section 3 presents the methodology while section 4 will be used for the presentation of the result and section 5 concludes and provides possible recommendations.

## B. STATEMENT OF THE PROBLEM

It is expected that external debt increase will generate foreign exchange source, capital project development and consequently growth in economic development measured in terms of real productive output. However, studies have shown that such external debt increase does not necessarily result to project infrastructural growth and economic development. Most often, external debt are incurred to finance non-productive purposes thereby not resulting to economic growth and development, though some researchers on the other hand argue against this. As a result, debt financed fiscal stimulus has been significant in most developing economies, however, which has led to increase in public debt as well as government contingent liabilities. The increase in government debt levels and fiscal sustainability has triggered the market reaction, as the sovereign bond spreads have widened sharply, which has particularly raised the cost of borrowing from international markets. The decline in exchange rates in the region was primarily due to reversal in capital flows impacted by the death of the export base of the economy, and easy monetary policies pursued in response to credit crunch. When debts are incurred, they will have to be repaid, both interest and principal but when such external debt are not linked to reproductive assets, it creates servicing problems. One question that one may then ask is that; what is the impact of this external debt and foreign exchange associated with debt management on economic growth in an emerging economy like Nigeria? This becomes the problem in which this study tries to examine, so as to draw up a reasonable conclusion for the study.

## C. MOTIVATION FOR THE STUDY

Public debt leads to the transference of money from one set of people to another. External debt management which may be defined as policy which seeks to alter the stock composition, structure and terms of debt with a view to maintaining at any given time, a sustainable level of debt service payment, has become an important issue in macroeconomic management (Ojo, 1997). The link between external debt management and economic growth has been extensively documented in the growth literature, see for example, Poirson and Ricci (2002) and Pattilo, Poirson and Ricci (2004), these studies provide empirical evidence of a non-linear relationship between external debt and economic growth. A number of studies have dealt with the external debt and economic growth relationship during the two last decades. Most of the studies carried out so far in this area have focused mainly on the impact of external debt on foreign direct investment and economic growth.

The rationale behind this study is therefore to; empirically examine the effects of external debt management on sustainable economic growth and development in the era of government deficit financing. It is hoped that this study will add to the existing literature as only few of this kind of study have been done in Nigeria and also serve as a reference to intending researchers willing to delve in this area of study.

## D. OBJECTIVES OF THE STUDY

The main aim of the study is to examine the effects of external debt and foreign exchange on sustainable debt management in Nigeria.

## E. HYPOTHESIS OF THE STUDY

For the purpose of this study the following hypothesis was tested.

$H_0$  There is no significant relationship between external debt, foreign exchange and sustainable debt management in Nigeria.

## II. REVIEW OF RELATED LITERATURE

### A. CONCEPTUAL LITERATURE

Debt is created by an act of borrowing. It is defined according to Oyejide T.A. & Kayode M.O. (2004) as the resource or money uses in organization that is not contributed by its owner and does not in any other way belong to them. It is a liability represented by a financial instrument or any other formal equivalent. External debt therefore refers to the resources of money in use in a country that is not generated internally and does not in any way come from local citizens whether corporate or individual. The world Bank (1998, cited in oke, 2012) described external debt as the amount of money at any given time disbursed and outstanding contractual liabilities of residents to pay interest, with or without principal. The external problem facing Nigeria has been receiving increasing attention in which adequate solutions are yet to be found. A clear and persistent lesson of debt crisis has been that adequate debt management is essential if external resources are to be used efficiently. Many developing countries result to external borrowing to bridge the domestic resource gap in order to accelerate economic development. It means that the processes are utilized in a productive way that facilitates the external servicing and liquidation of debt.

#### a. RATIONALE FOR EXTERNAL DEBT

According to Jhingan (2010), the government could borrow externally for the following reasons;

- ✓ Deficit Budget – The government borrows when there is budget deficit, when its expenditure is higher than its receipts. This often times fast and more productive than the use of taxes that often take longer time.
- ✓ War: The government borrows from the public when it is involved in a war.

- ✓ Natural Calamities: Natural calamities like earthquake, flood and famine etc tend to increase government expenditure. This necessitate large government expenditure.
- ✓ Economic Development: Both developed and underdevelopment borrow for the economic development. Developing countries do not have sufficient resources to finance their development plan, hence they borrow.
- ✓ Public enterprises and Utilities: Countries borrow to finance certain public enterprises and utilities like railways.
- ✓ Economic Stability: Government borrow to stabilize the economy, to control inflationary conditions and also to take away excess money supply from the economy.

#### b. EFFECT OF PUBLIC DEBT

Creation of public debt transfers money from one type of people to another. Money flows from the people to the government, and further to those on whom the government spends the borrowed money. These leads to expenditure effect of the public debt. When the government pays the interest and repays the loan, money is again transferred from those who are taxed (by the government in order to pay the interest and principal) to those who hold government bond. This leads to revenue effect of public debt. These transferences of money from one set of people to the other through public debt affects consumption, production, distribution and business activity on the whole.

#### c. EXTERNAL DEBT BURDEN

External debts are required to be paid back along with interest from whom the government borrows (Jhingan, 2010). This is done by levying taxes on the people. This involves hardship on the tax payers which is the burden of external debt. The burden of debt, both internal and external, may be direct money burden, indirect money burden, direct real burden and indirect real burden.

#### d. SUSTAINABLE DEBT MANAGEMENT

Sustainable debt management is often referred to as the amount, composition and refunding of the external debt. It is referred to as the composition (the types of securities sold) and the refunding of the debt held by the public within a country. Sustainable debt management is defined as all actions of the government, including both the treasury and central bank, which affect the composition and retirement of the debt held by the public.

The main objectives of debt management include to minimise the interest cost of servicing the external debt to the tax payer; and to employ it contra cyclically as a stabilization weapon to supplement monetary and fiscal policy. Jhingan (2010), identified four techniques for sustainable debt management as follows;

- ✓ Lowering the interest cost: This will make the burden of servicing the debt to be minimal to the tax payer.
- ✓ Changing the maturity structure: This is used as a device for economic stabilization. This is done by swapping

operations by the central bank. The apex authority sells more long-term government securities in the open market and purchases a corresponding amount of short-term government securities with the same amount of money. This lengthens the average maturity structure of existing external debt which tends to raise the interest rate.

- ✓ Advance Refunding: The monetary authority swaps holders of near maturing debt with new longer period maturing debt that carries a little higher yield. This helps the monetary authority to avoid the use of open market operations and its attendant costs.
- ✓ Co-ordination with monetary and fiscal policies. The activities of the monetary authorities are synchronized and harmonised with those of the government fiscal policies to achieve the same macroeconomic objective.

#### e. FOREIGN EXCHANGE

Foreign exchange refers to the rate of exchange of one country's currency for another. It is the price at which one country's currency will exchange for one US dollar. Several factors determine this exchange price such as demand for foreign exchange, supply of foreign exchange, tastes, individual's preferences, activities of the black market etc.

The exchange rate between countries changes due to changes in demand or supply in the foreign exchange market. According to Jhingan (2010), the responsible factors include;

- ✓ Changes in Prices: It is changes in the relative price levels that causes changes in exchange rate.
- ✓ Changes in Exports and Imports: If exports of a country are more than its import, the demand for its currency increases so that rate of exchange moves in its favour. Conversely, if the country's imports are more than its export, the rate of exchange will move against the country's currency.
- ✓ Capital Movements: Short-term or long-term capital movements also influence the exchange rate. Capital flows tend to appreciate the value of the currency of the capital-importing country and depreciates the value of the currency of the capital-exporting country.
- ✓ Influence of Banks: Usually through their forex activities
- ✓ Influence of Speculation: It causes short-run fluctuations in the exchange rate. Uncertainties in the international money market encourages speculation in foreign exchange.
- ✓ Stock Exchange Influences: Stock exchange operations in foreign securities exert significant influence on the foreign exchange rate.
- ✓ Structural Influences: Structural changes are those changes which in turn causes changes in consumer demand for commodities. Structural changes tend to increase the foreign demand for domestic products.
- ✓ Political Conditions: This exerts very phenomenal influence on foreign exchange rate. Foreign investors cluster their investments in countries with politically stable and strong government and this increases level of foreign exchange in such countries with attendant rise in demand for their domestic currency and exchange rate swinging in the favour of the domestic currency.

B. THEORETICAL LITERATURE

The impact of public debt (both positive and negative) cannot be overemphasized. This assumption is not farfetched when it comes to the analysis of the relationship between capital investment and debt in the growth and development process of developing countries of the world. In this line of thought, this study will be incomplete without a proper review of some theories of debt and economic performance in an attempt to have a better understanding of the subject matter. All economists believe in the equality of saving and investing, in the production process (Jhingan, 2010). But they differ as to the manner in which the equality is brought about.

a. THEORIES OF GROWTH

The Keynesian View

There are two views with regards to saving-investment equality as put forth by Keynes. These are:

- ✓ *Accounting or definitional equality:* This tells us that actual saving and actual investment are always equal all time and at any level of income. In order to show it, he defined saving and investment in the current period are defined as excess of current income over current consumption, so that they are necessarily equal;

$$S_t = Y_t - C_t \dots \dots \dots I$$

$$I_t = Y_t - C_t \dots \dots \dots II$$

Since  $Y_t C_t$  is common to both equation  
Then  $S_t = I_t$

Where S is saving, I is investment, Y is income, C is consumption and t is current period.

- ✓ *Functional equality:* This stipulates that saving and investment are equal only at the equilibrium level of income. i.e. saving and investment are not only equal but also in equilibrium. This is brought about by the adjusting mechanism of income as distinct from the classical view of variations in the rate of interest. Here, income is functionally related to saving and investment. When saving is more than investment income falls and when investment is more than saving, income rises, this dynamic process will continue till saving and investment are equal but are also in equilibrium.

The Growth With Debt Theory

The growth-with-debt theory, developed by Green and Khan (1990) argue that most developing countries face a shortage of capital and there is no presumption that foreign debt can and should be utilised to augment the stock of capital over and above what could be provided for domestic savings. This presumption implies that the typical developing country should be a net foreign borrower. The addition to the stock of external debt over time must contribute to growth and development in particular to the country's abilities to make payment to creditors (Ariyo 1998). This is the fundamental relationship underlying the notion of "sustainability" of the stock of foreign debt. The analytic framework of the "growth-

with-debt" theory provides a way of determining debt capacity and optimal foreign borrowing (Mac Donald, 1982). The standard model used for this purpose contains two building blocks. The first one of these is growth relationship in which domestic real output is assumed to depend on factors of production, such as capital, labour and imported inputs, and a total factor productivity. This is basically the neo-classical form of the model (khan and Montiel, 1989). Let us assume that domestic output (q) is a function of the domestic capital stock only while others are held constant. i.e.

$$Q=f(K) \dots \dots \dots (1)$$

Differentiating equation (1), we have

$$\text{Marginal product of capital, } dq/dk=fk>0 \dots \dots \dots (2)$$

Real national income (Y) is the difference between real output interest payments on foreign debt,

$$Y=q-rD \dots \dots \dots (3)$$

Where r is interest payments on foreign debt and D is the stock of external debt

Substituting the value of q equation (1) into equation (3), we have

$$Y=f(K)-rD \dots \dots \dots (4)$$

Differentiating equation (4) with respect to time we have,

$$Y=f(K)-r_t D-rD_t \dots \dots \dots (5)$$

The second building block of the model is the savings relationship. Total savings (S) is made up of private savings (Sp), government savings (Sg) and foreign savings (Sf)

$$S=Sp+Sg+Sf \dots \dots \dots (6)$$

Private savings can be specified as a function of disposable income i.e.

$$Sp=Y-t$$

$$Sp=S(I-t)Y \dots \dots \dots (7)$$

Where S= average propensity to save, t= tax

Government savings (Sg) is the fiscal balance which in this model comprises only income tax revenues (ty) less government expenditure on goods and services (G)

$$Sg=ty-G \dots \dots \dots (8)$$

Foreign savings is equal to current account balance (net foreign borrowing).

$$Sf=Cb \dots \dots \dots (9)$$

Substituting equations (7),(8),(9) into equation (6) gives

$$S=s(I-t)Y +ty-G+Cb$$

$$S=(S(I-t)+I-t) Y-G+Cb \dots \dots \dots (10)$$

Converting equation (5) into growth rate and substituting for S from equation (10) yields

$$Y/Y=fk[S(I-t) +_t-G/Y]Y +(fK-r)D/Y-rD/Y \dots \dots \dots (11)$$

Equation (11) yields the basic propositions of growth-with-debt-theory

C. EMPIRICAL LITERATURE

Morriset (2002) examines the effect of debt reduction within a macroeconomic framework and tested various direct and indirect relationships between external debt, investment and economic growth. In order to explain the drastic reduction in private investment, some direct and indirect channels are considered. It is argued by most authors that if private sector is credit rationed, then the high level of foreign debt affects productive investment through a disincentive effect.

Saint-paul (1992) and josten (2000) consider continuous – time overlapping generations models in the tradition of

Blanchard (1985). In the words of Gurley and Shaw (1956), mounting volume of public debt is a necessary feature of a strong and healthy financial structure of an economy. Therefore some secular increase in public debt should be planned by every government of a market-oriented economy.

Ajayi (1999) traces the origin of Nigeria's debt problems to the collapse of the international oil price in the early 80's and the persistent suffering of the international oil market and partly due to domestic lapses. As a result of the debt problem, credit facilities gradually dried up, which led to a number of projects getting stalled. He advocated the revival of the economic growth as the best and most durable solution to the debt burden. The needed growth however, is distributed by two factors, which include, limitation imposed by inappropriate domestic policies and external factors, which are beyond the control of the economy.

Sanusi (1998) is of the view that faulty domestic policies which range from project financing mismatch, inappropriate monetary and fiscal policies was responsible for domestic borrowing problem. He believes that some of the policies were of little significance because of the perceived temporary effect of the external shocks. The expansionary policies, he believes led to stupendous macroeconomic fallout, which encourage import and discourage export production.

Bauerfreund (2000) uses a computable general equilibrium model to measure the cost of external debt to the Turkish economy. His dissertation explains the issue of debt overhang, using a multi sector, non-linear general equilibrium model. The approach taken to measure the debt overhang is to compare the growth rate of the Turkish economy following hypothetical debt forgiveness. In order for government to pay debt obligations, they need to levy a tax on the private economy. This increasing taxation causes a decrease in the net returns of investment, resulting in a reduction of investment in the debtor countries, and a negative effect on future production and income. It is believed that indebted countries are able to achieve this by, increasing exports, but in practice, the experience shows that maintaining the increase in export is very difficult. On the other hand, the ratio of imports of developing countries grows more rapidly than that of developed countries.

### III. DATA AND METHODOLOGY

#### A. SOURCES OF DATA AND DESCRIPTION

This research study makes use of secondary data. The variables used are the Sustainable Debt Management (SDM), proxy by Gross Domestic Product (GDP), External Debt (ED), Foreign Exchange (EXCHR), and Error Term (U). The data are collected by CBN statistical bulletin, the publication of CBN, the international Financial Statistics (IFS), and the World Development Indicators 2018. It covers the period of 1980-2017.

#### B. MODEL SPECIFICATION

Following Odugbemi and Oyesiku, (2000). The functional model is specified thus;

$$SDM=F(ED, EXCHR)..... (1)$$

Where

SDM = Sustainable Debt Management

ED = External Debt

EXCHR= Foreign Exchange

U= Error Term

For the purpose of statistical test, equation (1) would be stated as follows:

$$SDM=\beta_1+\beta_2ED +\beta_3 EXCHR + U..... (2)$$

$\beta_1>0, \beta_2<0, \beta_3>0,$  (Parameters)

#### MODEL

$$SDM = \beta_1 + \beta_2ED + \beta_3EXCHR + U ..... (5)$$

#### C. A PRIORI EXPECTATIONS

A priori refers to what the theory (with regard to the different schools of thought) says about each of the variable considered in this study. Based on this we expect our independent variables to display their respective behaviour according to what the theory says in relation to the dependent variables that is being specified in our model. Hence, on apriori we expect a significant relationship, this is developed to see the overall impact of the global financial crisis on foreign debt management in Nigeria.

### IV. DATA PRESENTATION AND ANALYSIS

Year	ED	SDM	EXCHR	Year	ED	SDM	EXCHR
1980	14.63	4.20	0.55	1999	84.59	0.47	92.34
1981	19.23	-	0.62	2000	80.46	5.32	101.70
		13.13					
1982	23.83	-1.05	0.67	2001	78.46	4.41	111.23
1983	50.54	-5.05	0.72	2002	59.94	3.78	120.58
1984	64.16	-2.02	0.77	2003	61.19	10.35	129.22
1985	66.98	8.32	0.89	2004	51.16	33.74	132.89
1986	115.12	-8.75	1.75	2005	26.05	3.44	131.27
1987	133.77	-	4.02	2006	6.83	8.21	128.65
		10.75					
1988	130.15	7.54	4.54	2007	7.86	6.83	125.81
1989	136.02	6.47	7.36	2008	6.81	6.27	118.55
1990	120.05	12.77	8.04	2009	10.29	6.93	148.90
1991	134.45	-0.62	9.91	2010	4.43	7.84	150.30
1992	110.12	0.43	17.30	2011	4.54	4.89	153.86
1993	228.37	2.09	22.07	2012	4.13	4.28	157.50
1994	210.33	0.91	22.00	2013	4.32	5.39	157.31
1995	129.51	-0.31	21.90	2014	4.51	6.31	158.55
1996	95.90	4.99	21.88	2015	6.15	2.65	192.44
1997	84.76	2.80	21.89	2016	14.3	-1.58	253.00
1998	103.89	2.72	21.89	2017	15.3	0.82	323.50

Source: Central Bank of Nigeria, World Bank and National Bureau of Statistics

ED – External Debt to Gross Domestic Product

SDM - Gross Domestic Product Growth Rate

EXCHR - Exchange Rate to the US Dollar

Table 4.1: Table showing Selected variables

SUMMARY

The table shows unstable and rising debt to GDP ratio between the periods 1980 to 2017 (37 years). The period also shows high government expenditure to GDP while the exchange rate post crisis period have moved up to unimaginable levels from N0.55 to 1 US Dollar in 1980 to N323.50 to 1 US Dollar by close of 2017. The national output growth rate depicted by SDM has remained below double digit and sometimes in the negative, indicating an economy that has been in and out of crisis.

A. DIAGNOSTIC TESTS

The aim here is to carry out various diagnostic tests to ensure that our data and model used in this research work conforms to the basic assumptions of the classical linear regression. This will ensure that the output of this process is not error prone and is reliable.

a. UNIT ROOT TESTS

The test for stationarity requires that the variables in the series model must be stationery at a given level and p-value must be significant at that level. Stationerity is attained where the test statistics is most negative and greater than the critical value of the chosen level of significance.

VARIABLES	ADF Test Statistics	Critical Values @5%	P-value	Order of Integration
D(ED)	-5.8095	-3.5403	0.0002	I(1)
D(EXCHR)	-2.0816	-1.9504	0.0375	I(1)
D(SDM)	-9.8056	-2.6308	0.0000	I(1)

Source: Author's E-view 7 Computation

Table 4.2: Unit Root Test Table

Table 4.2 reports the tests for stationarity properties of the series following the Augumented Dickey Fuller (ADF) statistics. All the variables were found to be stationery at order one (1). At the First difference as reported, the ADF Statistics for the respective variables were more negative than the critical values at 5% significance level. The reported P values were all less than 0.05 chosen level of significance for which cause, the Null Hypothesis of the presence of unit root in all the variables is convincingly rejected. For the purposes of Co-integration analysis and tests, it is also interesting to state that the variables are all integrated of the same order.

b. DESCRIPTIVE STATISTICS

	ED	EXCHR	SDM
Mean	65.87184	80.95711	3.471316
Median	60.56500	57.20500	3.990000
Maximum	228.3700	323.5000	33.74000
Minimum	4.130000	0.550000	-13.13000
Std. Dev.	59.32411	81.70746	7.417481
Skewness	0.849297	0.840387	1.268838
Kurtosis	3.172702	3.258342	9.155954
Jarque-Bera	4.615487	4.578593	70.19799
Probability	0.099485	0.101338	0.000000
Sum	2503.130	3076.370	131.9100
Sum Sq. Dev.	130216.0	247016.0	2035.704
Observations	38	38	38

Source: Author's E-view 7 Computation

Table 4.3: Descriptive Statistics Table

The descriptive statistics in table 4.3, reveals the skewness as a swing between positive and negative signs and the Kurtosis between leptokurtic (ED, EXCHR) and platykurtic (SDM). The Jarque-Bera statistics p-values while significant for SDM, it was however not significant for ED and EXCHR at the 5% threshold of significance, indicating an outlinear in the data distribution. This observed outlinear will be corrected either through data differencing, log transformation or addition of dummy variables or even dropping of variables in the models to improve our R<sup>2</sup>. The testing of single dependent variable against single independent variable will greatly assist to cure this defect.

c. TEST FOR SERIAL CORRELATION – BREUSCH-GODFREY (BG) TESTS

The Breusch-Godfrey tests is used to test for the presence or absence of serial or autocorrelations in the model with the Null hypothesis stating that there is No autocorrelation. This holds if p-value is greater than the chosen level of significance otherwise reject

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	0.453337	Prob. F(2,31)	0.6397
Obs*R-squared	1.079824	Prob. Chi-Square(2)	0.5828

Source: Author's E-views Computation

Table 4.4: B-G Serial Correlation Result

From table 4.4, the p-value is greater than the chosen level of significance of 5%, indicating the absence of autocorrelation in the model. This is further enhanced with a Durbin-Watson statistics of 1.948. Hence, we do not suspect any violation of the assumptions of classical linear regression.

d. TEST FOR HETEROSKEDASTICITY

The assumption of the classical linear regression that the variance of the errors is constant is known as *Homoskedastycity*. If the variance of the errors is not constant, this would be known as *Heteroskedasticity*. Hence, we test for the presence of heteroskedasticity with the intention of treating same if found. The treatment method adopted here is the Autoregressive conditionally Heteroscedastic test known as BRESCH-PAGAN-GODFREY. The Null hypothesis states that there is no Heteroscedasticity if the p-value is greater than the level of significance (Brooks, 2014).

Heteroskedasticity Test: Breusch-Pagan-Godfrey			
F-statistic	0.587617	Prob. F(4,33)	0.6739
Obs*R-squared	2.526637	Prob. Chi-Square(4)	0.6399
Scaled explained SS	6.194112	Prob. Chi-Square(4)	0.1851

Source: Author's E-View 7 computations

Table 4.5: Heteroskedasticity Test Outcome

The null hypothesis states that there is No heteroskedasticity if p-value is not significant and is greater than the chosen level of significance of 5%. Hence, in table 4.5, we accept the Null hypothesis that there is no evidence of heteroskedasticity since p-value is greater than 5% significance level. Also, the Durbin Watson statistics of 2.2184 further supports this position.

e. TEST FOR RAMSEY RESET SPECIFICATION

Ramsey (1969) proposed a general functional form misspecification test, Regression Specification Error Test (RESET), which has proven to be useful. The Reset test is a general test for the following type of specification errors:

- ✓ Omitted Variables
- ✓ Incorrect Functional form
- ✓ Correlation between variables which may be caused by measurement error, simultaneous equation combination, combination of lagged values and serially correlated disturbances.

Ramsey RESET Test			
Equation: UNTITLED			
Specification: SDM C ED(-1) EXCHR(-1)			
Omitted Variables: Powers of fitted values from 2 to 3			
	Value	df	Probability
F-statistic	1.158950	(2, 30)	0.3275
Likelihood ratio	2.753684	2	0.2524

Source: Author's E-view 7 Computation

Table 4.6: Ramsey Reset Specification Result

The p-values in the table 4.6 for t and F-statistics being greater than the 5% significance level, indicates that the test statistics are not significant at the 5% level. We thus accept the Null hypothesis that the regression model in equation 2, is linear.

B. HYPOTHESIS TESTING

a. RESTATEMENT OF HYPOTHESIS

H<sub>03</sub> There is no significant relationship between external debt, foreign exchange and sustainable debt management in Nigeria.

H<sub>13</sub> There is significant relationship between external debt, foreign exchange and sustainable debt management in Nigeria.

Regression Test

Dependent Variable: SDM(-1)				
Method: Least Squares				
Date: 08/29/18 Time: 17:44				
Sample (adjusted): 1983 2017				
Included observations: 35 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-2.875243	3.080782	-0.933284	0.3577
EXCHR(-3)	0.063047	0.022579	2.792346	0.0088
ED(-3)	0.038574	0.024166	1.596179	0.1203
R-squared	0.189208	Mean dependent var		4.054000
Adjusted R-squared	0.138533	S.D. dependent var		7.127502
S.E. of regression	6.615407	Akaike info criterion		6.698496
Sum squared resid	1400.435	Schwarz criterion		6.831812
Log likelihood	-114.2237	Hannan-Quinn criter.		6.744517
F-statistic	3.733790	Durbin-Watson stat		1.914556
Prob(F-statistic)	0.034878			

Source: Author's E-views Computation

Table 4.7: Result of Regression Test

In table 4.7, the R<sup>2</sup> and Adjusted R<sup>2</sup> both showed 18.92% and 13.85% respectively. This shows that the variable under consideration does not exert much influence on the outcome of the overall model as 18.92% of changes in the model are explained by this variable. F-statistics of 3.7338 is considered good being positive and significantly large enough and it

shows that there is significant positive relationship between the dependent and explanatory variables. The overall probability (F-statistics) of 0.0349 is rightly signed and very significant and displays a Durbin-Watson of 1.9146, which is considered good as it shows little or no effect of autocorrelation on the chosen data.

Hence, from table 4.7, the EXCHR(-3) was lagged by 3 periods, has a t-statistic value of 2.7923 and a p-value of 0.0088, was found to have a positive effect on Sustainable debt management and this effect is statistically significant at 5% level since its p-value is well below 0.05. Therefore, we reject null hypothesis to accept the alternative. The implication of this result is that a 1% increase in EXCHR will result to a 0.0631% increase in Sustainable debt stock and the coefficient of the future levels of EXCHR variable has a positive sign and is positive at the 5% significance level. Conversely, for ED, the p-value of 0.1203 indicates that there is an insignificant relationship between external debt and sustainable debt management.

Co-integration Test

Date: 08/29/18 Time: 17:49				
Sample (adjusted): 1982 2017				
Included observations: 36 after adjustments				
Trend assumption: Linear deterministic trend				
Series: EXCHR ED SDM				
Lags interval (in first differences): 1 to 1				
Unrestricted Cointegration Rank Test (Trace)				
Hypothesized		Trace	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.417414	33.17815	29.79707	0.0196
At most 1	0.262785	13.72814	15.49471	0.0907
At most 2	0.073611	2.752614	3.841466	0.0971
Trace test indicates 1 cointegrating eqn(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		Max-Eigen	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None	0.417414	19.45001	21.13162	0.0845
At most 1	0.262785	10.97553	14.26460	0.1554
At most 2	0.073611	2.752614	3.841466	0.0971
Max-eigenvalue test indicates no cointegration 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 computation

Table 4.8: Co-Integration Test Result

Table 4.8 shows the trace test for co-integration that only EXCHR with a p-value of 0.0196 has a co-integration relationship with sustainable debt management (SDM), in which case we reject the Null hypothesis to accept the alternative that there is a long-run relationship between EXCHR and SDM. It is instructive to note that in contrast, ED has no co-integration relationship with SDM, in which case we accept the null hypothesis in order to reject the alternative.

C. DISCUSSION OF FINDINGS

This study on External Debt, Foreign Exchange and Sustainable Debt management: the Nigeria experience examined one objectives for which an hypothesis was developed and tested. Preliminary tests were carried out on the data and model, it was discovered that the variables under

study were all stationary at first difference level with highly significant p-values. They also passed the relevant serial correlation tests, Heteroscedasticity tests and the Ramsey reset specification tests with an acceptance of their relevant null hypothesis since the p-values were all greater than the chosen level of significance. Based on above success, we proceeded to test the hypothesis now discussed below;

To examine the effect of external debt and foreign exchange on sustainable debt management in Nigeria – The regression and co-integration result reveals the exchange rate and sustainable debt management both have significant and positive relationship in the short-run ( $p = 0.0088$ ) and long-run ( $p = 0.0196$ ) respectively and this outcome is corroborated by growth-debt-theory of a positive and significant relationship. However, the External Debt and sustainable debt management showed positive but insignificant relationship in both short-run ( $p = 0.1203$ ) and long-run ( $p = 0.0907$ ) respectively at the 5% level of significance. A plausible interpretation of this would be that external debt within these periods have not added to the stock of economic growth and development while increasing the debt stock. While this situation runs contrary to the expectations of the growth-debt-theory of Green and Khan (1990), the outcome is however supported by the findings of Sanusi (1998) of financing mismatch and Ajayi (1999) of inappropriate domestic policies.

#### V. CONCLUSIONS AND RECOMMENDATIONS

The study investigates the impact of External Debt and Foreign Exchange on sustainable debt management in Nigeria. The findings from this study revealed that while external debt had insignificant effect on sustainable debt management, foreign exchange on the other hand had convincing significant effect on the dependent variable (sustainable debt management) in both runs. From the findings and conclusion of this study, we recommend that;

Government should adopt appropriate pricing of external debt and the engagement of such debt only for reproductive assets while diversifying the export base to earn sustainable foreign exchange

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