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Debt Stock, Debt Servicing and Foreign Reserves Accretion in Nigeria: A Cointegration Analysis

Tsenkwo, Bholla Mairiga Joseph & Gukat, Tontu Bonmwa (Mrs)[1]

Department of Economics,
Faculty of Social Sciences,
University of Jos,
Nigeria.

Abstract

The focus of the paper is on debt stock, debt servicing and foreign reserves accretion in Nigeria, with the major objective to determine the impact of debt stock and debt servicing on foreign reserves accretion in Nigeria for the period 1986 – 2016. This is hinged on the observed simultaneous upward trend in the three variables over time with no clear explanation on their relationship. To achieve the above objective, descriptive and quantitative techniques were used to analyze the data. For descriptive technique charts and tables were employed to depict the trends movement while the quantitative techniques involved the use of unit root, co-integration tests and the Error Correction Methodology (ECM). However, the OLS regression shows that the coefficient of domestic debt and debt servicing are positive while that of external debt is negative. In addition, the negatively signed coefficient of the ECM shows that foreign reserves respond to a deviation from the long run equilibrium. The research recommends that external debts should be contracted solely for economic reasons to avoid accumulation of external debt stock to enable the accretion of foreign reserves overtime. Also, the authorities responsible for managing Nigeria's external debt should adequately keep track of the debt payment obligations and the debt should not be allowed to pass a maximum limit so as to avoid debt overhang.

Keywords: Foreign Reserves, External Debt
JEL Classification: C5, F30, F31, F33.

Contribution/Originality:
This study is one of very few studies which have investigated the long run and short run relationship between debt stock, debt servicing and foreign reserves accretion in Nigeria which is a major divergence from other studies that have focused on debt and economic growth. Thus, the paper has contributed in terms of development issues.

1.0 Introduction

Nigeria like most highly indebted countries has low economic growth and low per capita income, with foreign reserves insufficient to meet its transaction and precautionary purposes. Nigerian exports were mainly primary commodities with export earnings too small to finance imports which are mostly capital intensive (manufactured) goods that are comparably more expensive (Siddique, Selvanathan & Selvanathan, 2015). Compounding the problem is Nigeria's drift to mono economy with the discovery of oil. The oil sector generates about 95% of foreign exchange earnings and about 80 percent of budgetary revenue (CBN, 2007). The inability to diversify her revenue sources coupled with corruption and mismanagement made Nigeria to have inadequate fund for providing basic infrastructure such as roads, electricity pipe borne water and so on which are requisite for economic growth and development.

Consequently, the quest for economic growth and development compelled Nigeria to acquire external debt. The first major external loan of US$28 million by Nigeria was acquired from World Bank in 1958 to finance railway construction. Ever since then, there has been accumulation of loans aimed at various development projects without obvious results as expected. Due to the increase in the amount of loans, Debt Management Office (DMO) was established in October, 2000 but prior to the establishment of DMO, Central Bank of Nigeria (CBN) was saddled with the responsibility of

[1] Corresponding Author's Email & Phone: bonmwa88@gmail.com ; +234 (0) 703 3418 006.

management of national debts. At moment, DMO in collaboration with CBN and Federal Ministry of Finance manage Nigeria's public debt stock which has risen to $62,870.07 as at 31st March 2017 (DMO, 2017)

The problems associated with debt stock and debt servicing prompted Sanusi (2003) to warn that raising Nigeria's debt is an impediment to economic growth and development. A similar view was expressed by Campbell (2009) when he said that government debt can easily become a burden on the economy by weakening its foundation, warning that the authorities should recognise that accumulating debt also means accumulating risks by increasing claims on unrealised future income.

The major objective of this study is therefore, to examine the impact of debt stock and debt servicing on the accretion of Nigeria's foreign reserves. Specifically, the study aims to;

i. determine the long-run relationship between Nigeria's debt profile and foreign reserves accretion;

ii. investigate the short-run relationship between Nigeria's debt profile and foreign reserves accretion;

iii. find out the causal link between Nigeria's debt profile and foreign reserves accretion.

To achieve these objectives, the paper is structured into six sections with the introduction as section one. Section two deals with literature review, while section three discusses an overview of Nigeria's foreign reserves. Section four forms the methodology of the paper and section five deals with the presentation of empirical results and discussion of findings. Finally, section six provides the concluding remark and policy recommendation of the paper.

2.0 Review of Relevant Literature

2.1 Conceptual and Theoretical Issues

2.1.1 Debt Stock

It is important to provide conceptual clarification on the glaring concepts adopted in this work to situate the context used. The debt stock of a country is usually made up of external and internal debts which are all liabilities on the government. However the particular one that relates to the matter being discussed here is the external debt. While its stock adds to reserves, its servicing is a drain on the foreign reserves.

Debt has no precise fixed meaning but may be regarded essentially as that which a person or group of people legally owes another or an obligation that is enforceable by legal action to make payment for money owed to another (Adepeju, Salan & Obayelu, 2007). Debt stock is the total value of the debt that a nation owes to all lenders. Technically, a debt is the disbursement of funds made available to a needy entity (or nation) by a wealthy entity or institution, for development and consumption purposes on certain terms of repayment. Thus, when a government borrows, the debt is noted as public debt, which can be incurred from domestic and international financial markets. Furthermore, government borrowing within its boundaries is referred to as domestic debt, which is usually in the form of treasury bills and bonds, while that which is sourced externally from other nations or financial institutions is categorized as foreign or external debt. External debt refers to unpaid portion of foreign resources acquired for development purposes and balance of payment support, which are not repaid as they fall due. According to Ajibola, Udoette, Omotosho &Rabia(2015), external debt is debt owed by a country to other countries or institutions abroad.

Government debt can be categorized as internal debt (owed to lenders within the country) and external debt (owed to foreign lenders). Another common division of government debt is by duration until

repayment is due. Short term debt is generally considered to be for one year or less, long term is for more than ten years. Medium term debt falls between these two boundaries. A broader definition of government debt may consider all government liabilities, including future pension payments and payments for goods and services the government has contracted but not yet paid.

2.1.2 Debt Service

Debt service payments are the payments that a nation makes on its debt. Funds required to meet interest expenses, principal payments and sinking fund requirements during a specific time period. Funds kept aside primarily for this function are referred to as debt service reserve funds or sinking funds which are basically established to service interest and principal payments of short and longterm debt.

Actual debt service is the set of payments actually made to satisfy a debt obligation, including principal, interest, and any late payment fees. Scheduled debt service is the set of payments, including principal and interest, which is required to be made through the life of the debt (IMF, 2003).

2.1.3 Foreign Reserves

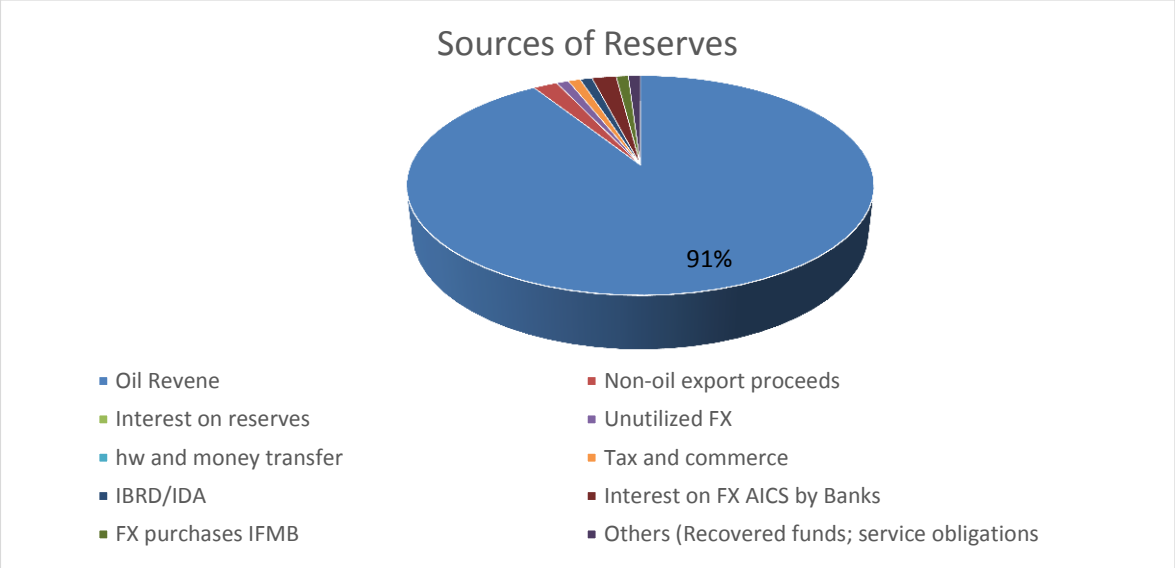
External reserves, also known as International Reserves, Foreign Reserves or Foreign Exchange Reserves, "*consists of official public sector foreign assets that are readily available to and controlled by the monetary authorities for direct financing of payment imbalances and regulating the magnitude of such imbalances through intervention in the exchange market to affect the currency exchange rate and/or other purposes*" (CBN 2007). By this definition, external reserves include international reserve assets of the monetary authority but exclude the foreign currency and the securities held by the public including the banks and corporate bodies.

While there are several definitions of international reserves, the most widely accepted is the one proposed by the IMF in its Balance of Payments Manual, 5th edition. It defined international reserves as consisting of official public sector foreign assets that are readily available to, and controlled by the monetary authorities for direct financing of payment imbalances, and directly regulating the magnitude of such imbalances, through intervention in the exchange markets to affect the currency exchange rate and/or other purposes (CBN, 2007).

The components of foreign reserves include monetary gold, reserve position at the International Monetary Fund (IMF), holding of special drawing right (SDRs) and foreign exchange which are convertible currencies of other countries (CBN, 1997).

According to Central Bank of Nigeria (2016), the Sources of Nigeria's external reserves are derived mainly from the proceeds of crude oil production and sales. Other sources of external reserves in Nigeria include: income from investing foreign reserves, repatriation of unutilized Wholesale Dutch Auction System (WDAS), interest on WDAS Accounts held by Deposit Money Banks, WDAS Purchases, Inward Money Transfer, Value Added Tax (VAT), Education Tax, Commission, etc. These can be shown in the diagram given below:

Figure 1: Sources of Reserves



Source: Foreign Operations Department, Central Bank of Nigeria (2016)

Dual gap theory which is also called two gap theories was made in the context of foreign aid or foreign borrowing of capital by developing countries required for achieving rapid economic development. When external finance either grants or loans supplement domestic resources, then we have "the Two-Gap model" the major assumption of this model is that most developing countries either face a shortage of domestic savings to augment for investment opportunities or they (developing countries) are faced with foreign exchange constraints to finance the needed capital and intermediate goods. Chenery & Strout (1966) applied the Harrod- Domar growth model to show that foreign capital can raise the growth rate by raising the availability of capital for production, where the capital-output ratio is held constant. The model is based on the gap between a country's own provision of resources and its absorptive capacity. These two gaps are known as the Savings Gap and the Foreign Exchange Gap. Whichever of the two gaps is binding (or is the greatest) will constrain the amount of investment and capital formation, which can be undertaken.

The dual- gap framework is coined from a national income accounting identity which states that excess investment expenditure over domestic savings is equivalent to the surplus of imports over exports. Thus at equilibrium the following identities hold;

$Y = C + I + (X - M)$ where: Y = GNP

Where; Y= GNP; C= Consumption; I= Investment (or Domestic Capital formation)

X = Exports; M = Imports

$Y + M = C + I + X$

$Y – C + M = I + X$

Since $Y – C = S$

$S + M = I + X$

$M – X = I – S$

(Foreign Exchange Gap) (Savings Gap)

The above equations show that the foreign exchange gap (M - X) is equal to savings gap (I–S). An excess of import over export implies an excess of resources used by an economy over resources

generated by it. This further implies that the need for external debt is determined overtime by the rate of investment in relation to domestic savings. Hence, the debt burden is aggravated when the rate of investment in relation to domestic savings is low. The constant need to borrow from foreign sources arises from the recognized role of capital in developmental process of any nation. Sustainable economic growth requires a given level of savings and investment and in a case where it is not sufficient; it results in external borrowing and herein lays the basis for the dual-gap analysis

2.2 Empirical Review

In their study on the impact of the huge external debt, with its servicing requirements on economic growth of the Nigerian and South African economies, Ayadi & Ayadi (2008) employed and analyzed the Neoclassical growth model which incorporates external debt, debt indicators, and some macroeconomic variables was using both Ordinary Least Square (OLS) and Generalized Least Square (GLS) techniques of estimation. Their findings revealed that debt and its servicing requirement has a negative impact on the economic growth of Nigeria and South Africa.

Also, Faraji & Makame (2013) investigated the impact of external debt on the economic growth of Tanzania using time series data on external debt and economic performance covering the period 1990-2010. It was observed through the Johansen co-integration test that no long-run relationship between external debt and GDP. However the findings show that external debt and debt service both have significant impact on GDP growth with the total external debt stock having a positive effect of about 0.36939 and debt service payment having a negative effect of about 28.517.

Similarly, Ejigayehu (2013) also analyzed the effect of external debt on the economic growth of eight selected heavily indebted African countries (Benin, Ethiopia, Mali, Madagascar, Mozambique, Senegal, Tanzania and Uganda) through the debt overhang and debt crowding out effect with ratio of external debt to gross national income as a proxy for debt overhang and debt service export ratio as a proxy for debt crowding out. Panel data covering the period 1991-2010 was used. The empirical investigation was carried out on a cross-sectional regression model with tests for stationarity using Augmented Dickey Fuller tests, heteroskedasticity and ordinary regression. The concluding result from estimation showed that external debt affects economic growth through debt crowding out rather than debt overhang.

In their study on external debt relief and economic growth in Nigeria, (Ekperiware & Oladeji, 2012) examined the structural break relationship between external debt and economic growth in Nigeria. The study employed the se o quarterly time series data of external debt, external debt service and real GDP from 1980-2009. An empirical investigation was conducted using the chow test technique of estimation to determine the structural break effect of external debt on economic growth in Nigeria as a result of the 2005 Paris Club debt relief. The result of their findings revealed that the 2005 external debt relief caused a structural break effect in the relationship between external debt and economic growth. Based on these findings they concluded that the external debt relief made available resources for growth-enhancing projects.

Furthermore, Chinaemerem & Ebiringa (2012) wrote on an analysis of the effect of external reserves management on macroeconomic stability of Nigeria. Using the Vector Auto Regressive (VAR) approach, they found that what influences external reserves management in Nigeria is the nature, pattern and level of capital goods and noncapital goods. This is because the model revealed their direct impact on external reserves management. Writing on the impact of Nigeria's debt stock and its servicing on social services provision: 1980-2010, Darma (2014) using the Ordinary Least Squares (OLS) method established a positive relationship between internal debt , exchange rate and social

service provision. On the other hand, he found an inverse relationship between external debt and social service provision.

In another study, Matthew & Mordecai (2016) investigated the impact of public debt on the economic development of Nigeria. Using the error correction method (ECM) the study established that external debt stock and external debt servicing both have an insignificant negative relationship with economic development. However, domestic debt stock has a direct and significant relationship with economic development. Domestic debt service payment was significant but inversely related to economic development.

Similarly, Nwannabuike, Ike & Onuka (2016) researched on external debt and economic growth: The Nigerian experience. Also using the error correction mechanism (ECM), they observed that external debt had a positive relationship with gross domestic product (GDP) at the short run but negative relationship in the long run. Also, while external debt service payment had a negative relationship with GDP, exchange rate had a positive relationship with it.

There are various empirical studies that have been conducted to investigate the impact of public debt burden on economic growth in Nigeria and have arrived at different results using varied scopes of study. This study will focus on issues in external debt to determine the long run and short run relationship between debt stock, debt servicing and foreign reserves accretion which is a major divergence from other studies that have focused on debt and economic growth.

3.0 An Overview of Nigeria's External Reserves

Prior to the inception of the Central Bank of Nigeria in 1959, the country formed part of the defunct West African Currency Board (WACB). In that period, management of external reserves posed little or no problems to the country because the manner in which the Board operated prevented such problems from arising. Optimal deployment of reserves then was really not an issue since Nigeria's non-sterling earnings were deposited in London in exchange for credit entries in the sterling accounts maintained there (Aizenman, 2005).

Subsequently, the 1959 Act which established the Central Bank of Nigeria (CBN) required the Bank to hold external reserves solely in Gold and Sterling. With the amendment in 1962 of this Act, the Bank acquired the mandate to maintain the country's foreign exchange reserves not only in sterling balance but also in non-sterling assets such as gold coin or bullion, bank balances, bills of exchange, government and government-guaranteed securities of countries other than Britain and treasury bills in other countries. The monetary options available to the country widened upon joining the International Monetary Fund (IMF) in 1961 to include many more assets (Yuguda, 2003).The problems of reserve management began during the periods of the First National Development Plan in 1962 to1966 and the Nigerian Civil War of 1967 to 1970. In these periods, financing the plan and the war consumed a large portion of the country's reserves. Also, the tempo in the foreign trade sector dropped, following the disruption of economic activities in the country. The problems became compounded immediately after the war in the wake of the Federal Government's efforts to reconstruct and reactivate the war ravaged economy which continued to demand immense foreign exchange reserves. Because of the exigencies of this period, the CBN became committed to maintaining an 'adequate' level of external reserves (Olawoyin, 2005).

In a related development, (Odozi, 2000) noted that in addition to the problem of depleting reserves, Nigeria faced anew scenario with reserve management. Following the admission into the organisation of Petroleum Exporting Countries (OPEC) in 1973 and the oil boom of the era, the problem of reserve management switched from that of 'inadequate' to that of 'excess reserves'. This remained so until

1981 when the country was hit by the global economic recession that led to a consistent decline in her external reserves. In the light of this development, economic stabilisation measures revolving stringent exchange control, which ran from April 1982 to June, 1986(when accretion to external reserves was low), were introduced. By the end of 1985, it was evident that the use of stringent economic control was ineffective in restraining external reserves depletion. To this end, exchange and trade controls were discontinued in 1986, following the adoption of market based policy measures, the Structural Adjustment Programme (SAP) in July 1986.

However, after more than seven years of liberation, government felt that the overall performance of the economy was unsatisfactory. Hence, in January 1994, some measures of control were re-introduced which saw the CBN as the sole custodian of foreign exchange and together with its designated agents. Again the trade and exchange policies in 1994 failed to substantially achieve the desired objectives. The guided deregulation introduced in 1995, among other things, abolished the 1962 Exchange Control Act, in a bid to enhance the flow of capital and the reserves position of the country. Other measures aimed at boosting external reserves included the introduction of an Autonomous Foreign Exchange Market (AFEM) for the purpose of trading in foreign currencies at market determined rates and further liberation of the foreign exchange system in 1997 and the trade and exchange regime in 1998.

4.0 Methodology

Since the study is an aggregate study, secondary data was used and obtained from the Central Bank of Nigeria (CBN, 2016) Statistical Bulletin International Monetary Fund (IMF, 2016) and Debt Management Office (DMO, 2016) from 1981-2016. The methods of analysis include Ordinary Least Square (OLS) method, Causality, and Error Correction Methodology with Phillips-Perron (PP) Unit Root Test and Engle-Granger Co-integration test as estimation techniques.

The study hypothesized that debt stock and debt servicing have no significant effect on foreign reserves accretion in Nigeria. The model adopted percentage change in foreign reserves (FOREV) as the endogenous variable, while domestic debt stock (DOD), external debt stock (EXD), and public debt servicing (PDS) represent the exogenous variables. The functional form of the model is specified as;

FOREV= f(DOD, EXD, PDS)……(1)

The log linear form of equation (1) becomes;

FOREV = β0 + β1logDOD + β2logEXD + β3logPDS……...…….. (2)

FOREV = β0 + β1D(logDOD) + β2D(logEXD) + β3D(logPDS) + β4Ecm(t-1)

Where;

β0 = Intercept of the model (constant).
β1 – β4 = coefficients of each exogenous variable
ECM= Error Correction Term
The a priori expectation for the coefficients in the model are β 1> 0 while β 2, β 3, < 0

Furthermore, the causality model is specified as:

FRt=Σni=1αiDSt-i+ Σnj=1βjFRt-j+U1t---------- (3)

DSt=Σni=1δiDSt-i+ Σni=1λjFRt-j+U2t---------- (4)

Where; DS= Debt Stock as measured by domestic debt stock, external debt stock and debt servicing, FR= Foreign Reserves and it is assumed that the disturbances U1t and U2t are uncorrelated. Equation 1 and 2 postulate that current FR is related to past values of FR as well as those of DS and that current DS is also related to past values of NS and SD. Note that αi, βj, λi. δjare parameters to be estimated.

Decision Rule

If the computed F value exceeds the critical F value at 5% level of significance, we reject the null hypothesis in which case, the lagged terms belong to the regression. The decision could also be taken using the probability value of the F-statistic where it is less than 0.05, the null hypothesis is rejected otherwise it is accepted.

5.0 Results and Discussion

Granger-Causality Result

Using the data in the appendix, the paper estimated the causality models and the results are as shown in Table 1

Table 1: Pairwise Granger Causality Test Result

Null Hypothesis	F-Statistic	Probability	Causal Inference
DOD does not Granger Cause FOREVE	2.02423	0.1550	Reject H_0
FOREVE does not Granger Cause DOD	0.04580	0.9553	Reject H_0
EXD does not Granger Cause FOREVE	1.23208	0.3129	Reject H_0
FOREVE does not Granger Cause EXD	2.19924	0.1370	Reject H_0
PDS does not Granger Cause FOREVE	1.59779	0.2240	Reject H_0
FOREVE does not Granger Cause PDS	0.10135	0.9040	Reject H_0
EXD does not Granger Cause DOD	1.74838	0.1985	Reject H_0
DOD does not Granger Cause EXD	5.86571	0.0095	Accept H_0
PDS does not Granger Cause DOD	8.68610	0.0015	Accept H_0
DOD does not Granger Cause PDS	52.8275	2.E-09	Reject H_0
PDS does not Granger Cause EXD	2.02270	0.1573	Reject H_0
EXD does not Granger Cause PDS	1.20990	0.3182	Reject H_0

Source: Authors Computation Using Eviews Version 9.0

The result of the granger causality test shows that external debt, domestic debt and debt servicing do not Granger Cause foreign reserves accretion in Nigeria with the exception of a unidirectional relationship between DOD and PDS and another unidirectional causality between PDS and DOD at 5% level of significance.

Unit Root Test Results

Stationary of the independent variables and dependent variable was tested using Phillips-Perron (PP) test. Table (1) depicts the results which indicate the rejection of the unit root null hypothesis of the stationarity of DOD, EXD and PDSat the first difference while FOREV was stationary at level.

Table 2: Phillips-Perron (PP) Unit Root Test

Variables	PP Statistic	5% CV	Prob.*	Order of Integration
FOREV	-4.401910	-2.96392	0.016	I(0)
DOD	-5.251331	-2.967767	0.0002	I(1)
EXD	-4.509935	-2.967767	0.0000	I(1)
PDRD	-3.766429	-2.967767	0.0081	I(I)

Source: Authors Computation

Co-Integration Result

The results of the Engle-Granger single equation co-integration indicate the presence of co integration at 5% significant level. This is shown by comparing the ADF test statistic of the error term with the 5% critical values. (See table 3). Hence, the variables are co-integrated which implies the existence of a long-run relationship between debt stock, debt servicing and foreign reserves accretion in Nigeria.

Table 3: Engle-Granger Co-integration Test Results

ADF Statistic	Level of Significance	Critical Value
-7.453491	1%	-3.699871
	5%	-2.976263
	10%	-2.627420

Source: Author's Computation Using Eviews Version 9.0

Error Correction Estimation Result

From table 3, the variables of the model are co-integrated given that the linear combination of the variables is I(0), the next step was the estimation of the short-run dynamics within the error correction models (ECM) in order to capture the speed of adjustment to equilibrium in the case of any shock to any of the independent variables. An error correction model was estimated and the results are presented as follows;

Table 4: Error Correction Model Result

Variable	**Coefficient**	**Standard Error**	**t-statistic**	**Probability**
C	-0.069381	0.111659	-0.621364	0.5402
Log DOD	-0.011968	0.071424	-0.167562	0.8683
Log EXD	-0.015361	0.148275	-0.103600	0.9183
Log PDS	0.290663	0.214524	1.354922	0.1881
ECM (-1)	**-0.889472**	**0.202675**	**-4.388657**	**0.0002**
R-Squared	**0.528637**		**DW Statistic**	**1.852283**
Adjusted R^2	**0.450076**		**F-Stat**	**6.729041**

Source: Author's Computation Using Eviews Version 9.0

From table 4, the coefficient of determination as revealed by R2 indicates that 52% of the variations observed in the dependent variable FOREV were explained by variations in the independent variables. This implies the rate at which foreign reserves accrete is determined by variations in debt stock and debt servicing. The test of goodness of fit of the ECM model as indicated by R2 was properly adjusted by the Adjusted R2 of 45% which indicates the 45% of the variations in the dependent variable are caused by variations in the independent variables. Also, from the results, the error correction term is -0.89. This implies that the Error Correction Model was adjusting with the previous system dis-equilibrium at the rate of 89% annually. It also means that the ECM term actually corrects dis-equilibrium in the system. The Error Correction Model (ECM) indicated that if the economy is out of equilibrium, 89% of disequilibrium will be corrected for annually.

Furthermore, the findings revealed that the impact of DOD and EXD on FOREV is negative. This is in line with the theoretical a priori expectation implying that both domestic and external debt stock deplete the foreign reserves. However PDS is positive but quite low at 0.0290663 and this can be attributed to the dampening effect it has on foreign reserves accretion. The Durbin Watson Statistic reveals the absence of serial correlation since it tends towards 2 and the low value from the AIC and SIC showed that the model is properly specified (See Appendix). Finally the probability of the F-statistic shows that at 5 percent level of significance, the variables are jointly significant.

The Ordinary Least Squares (OLS) Estimation Result

The OLS result depicts the long-run relationship between foreign reserves accretion and Nigeria's debt profile.

Table 5: Ordinary least squares regression result

Variable	Coefficient	Standard Error	t-statistic	Probability
C	7.370997	0.489185	15.06790	0.0000
DOD	0.178267	0.057909	3.078386	0.0049
EXD	-0.237382	0.124894	-1.900670	0.0685
PDS	0.602787	0.146795	4.106304	0.0004
R^2	**0.769528**		**F-statistic**	**28.93735**
Adj ($R^{2)}$	**0.742935**		**Prob(F-statistic)**	**0.000000**
			D-W Statistic	**0.814187**

Source: Author's Computation Using Eviews Version 9.0

The result of the regression equation in table 4revealed that the intercept is 7.370997which is the value of FOREV when DOD and PDS are zero. Also, the regression value of DOD showed that the coefficient of DOD is 0.178267 which shows a positive relationship between domestic debt stock and foreign reserves accretion in Nigeria. This implies that borrowing from domestic sources improves the foreign reserves of the country in the long-run. Similarly, the EXD had a coefficient of-0.237382 which depicts a negative relationship between external debt stock and foreign reserves accretion in Nigeria. Likewise, the regression value of PDS showed that the coefficient is 0.602787which depicts a positive relationship between debt servicing and foreign reserves accretion in Nigeria. This is not in line with apriori expectation but can be attributed to the fact that the Nigerian government spends a high percentage of its revenue and not just foreign reserves on servicing of debt.

Discussion of Findings

From the results of this study, the cointegration test establishes a long run relationship between Nigeria's debt profile and foreign reserves accretion. Also, from the analysis, the causality test result indicates a unidirectional causality between domestic debt and external debt and also between debt servicing and domestic debt. In addition, the result reveals that neither domestic debt, external debt nor debt servicing granger cause foreign reserves accumulation in Nigeria, which explains the depleting state of its foreign reserves.

Furthermore, the ECM result reveals that the speed of adjustment in the short run to equilibrium was 89% annually and the coefficients reveal a negative relationship between both domestic and external debt on foreign reserves accumulation in the short run. However, the relationship between debt servicing and foreign reserves is positive though quite low in the short run.

Also, the coefficients of the OLS model show that the long run impact of domestic debt and debt servicing on foreign reserves is positive while that of external debt is negative. This implies that in the long run, the coefficient of domestic debt becomes positive as opposed to the short run result. Hence, domestic debts do not hinder the accumulation of foreign reserves in the long run because repayments will be ploughed back into the economy.

6.0 Conclusion and Recommendation

Debt is necessary to meet shortfall internal resources, and stimulate the economy. However, it must be properly utilized to avoid serious consequences. Borrowing is not the most important issue but the use to which the fund is deployed. It should be approached with caution, ensuring optimal utilization and

higher return than the interest. To sum, domestic and external debt have negative impact on the foreign reserves of the Nigerian economy.

Based on the findings, the following recommendations are given:

1. External debts should be contracted solely for economic reasons and not for social or political reasons. This is to avoid accumulation of external debt stock to enable the accretion of foreign reserves overtime. The authorities responsible for managing Nigeria's external debt should adequately keep track of the debt payment obligations and the debt should not be allowed to exceed a maximum limit so as to avoid debt overhang.

2. The Nigerian government should promote exportation of domestic products as a high exchange rate will make our goods more attractive in the foreign market and will increase foreign exchange earnings. This is relevant because foreign reserves are held in foreign currency.

3. The government should as a matter of urgency begin the process of diversifying its economic base to avoid over reliance on external and domestic borrowing to finance its deficits since both external and domestic debt depletes the foreign reserves of the nation.

4. The government should lay more emphasis on domestic debt since in the long run it has a positive impact on foreign reserves accretion. This will cause the funds for loan repayment to be ploughed back into economic activities within the economy.

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APPENDICES

UNIT ROOT

Null Hypothesis: D(DOD) has a unit root
Exogenous: Constant
Bandwidth: 7 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-5.251331	0.0002
Test critical values:	1% level	-3.679322	
	5% level	-2.967767	
	10% level	-2.622989	

Null Hypothesis: D(PDRD) has a unit root
Exogenous: Constant
Bandwidth: 1 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-3.766429	0.0081
Test critical values:	1% level	-3.679322	
	5% level	-2.967767	
	10% level	-2.622989	

Null Hypothesis: D(TPD) has a unit root
Exogenous: Constant
Bandwidth: 17 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-5.410890	0.0001
Test critical values:	1% level	-3.679322	
	5% level	-2.967767	
	10% level	-2.622989	

Null Hypothesis: FOREV has a unit root
Exogenous: Constant
Bandwidth: 12 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-4.401910	0.0016
Test critical values:	1% level	-3.670170	
	5% level	-2.963972	
	10% level	-2.621007	

*MacKinnon (1996) one-sided p-values.

Null Hypothesis: D(EXD) has a unit root
Exogenous: Constant
Bandwidth: 3 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-4.509935	0.0013
Test critical values:	1% level	-3.679322	
	5% level	-2.967767	
	10% level	-2.622989	

Dependent Variable: D(FOREV)
Method: Least Squares
Date: 11/28/17 Time: 15:02
Sample (adjusted): 1988 2016
Included observations: 29 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.069381	0.111659	-0.621364	0.5402
D(LOG(DOD))	-0.011968	0.071424	-0.167562	0.8683
D(LOG(EXD))	-0.015361	0.148275	-0.103600	0.9183
D(LOG(PDRD))	0.290663	0.214524	1.354922	0.1881
ECM(-1)	-0.889472	0.202675	-4.388657	0.0002

R-squared	0.528637	Mean dependent var	-0.006170
Adjusted R-squared	0.450076	S.D. dependent var	0.699054
S.E. of regression	0.518396	Akaike info criterion	1.679431
Sum squared resid	6.449625	Schwarz criterion	1.915172
Log likelihood	-19.35175	Hannan-Quinn criter.	1.753262
F-statistic	6.729041	Durbin-Watson stat	1.852283
Prob(F-statistic)	0.000883		

Dependent Variable: FOREV
Method: Least Squares
Date: 01/25/18 Time: 14:06
Sample: 1986 2016
Included observations: 30
HAC standard errors & covariance (Bartlett kernel, Newey-West fixed bandwidth = 4.0000)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	7.370997	0.489185	15.06790	0.0000
DOD	0.178267	0.057909	3.078386	0.0049
EXD	-0.237382	0.124894	-1.900670	0.0685
PDS	0.602787	0.146795	4.106304	0.0004

R-squared	0.769528	Mean dependent var	9.991367
Adjusted R-squared	0.742935	S.D. dependent var	0.586891
S.E. of regression	0.297563	Akaike info criterion	0.537182
Sum squared resid	2.302132	Schwarz criterion	0.724008
Log likelihood	-4.057728	Hannan-Quinn criter.	0.596949
F-statistic	28.93735	Durbin-Watson stat	0.814187
Prob(F-statistic)	0.000000	Wald F-statistic	16.93543
Prob(Wald F-statistic)	0.000003		