International Journal of Academic Management Science Research (IJAMSR)
ISSN: 2643-900X
Vol. 6 Issue 7, July - 2022, Pages: 58-68

EXTERNAL DEBT (ED) AND GROWTH NEXUS (GN) IN NIGERIA

EHIEDU, Victor Chukwunweike Ph.D

Accounting, Banking and Finance Department
Faculty of Management Sciences
Delta State University, Abraka.

ABSTRACT: *This research investigated external debt (ED) and growth nexus (GN) in Nigeria. LDC countries have difficulties in managing and servicing huge stocks of external debts. These LDCs nations are geographically found within Sub-Saharan African. Nigeria's relatively soaring ED accumulation plus rising debt burden are having serious consequences for the country's development and debt sustainability initiatives. While economic performance continues to deteriorate, there has been significant net asset depletion to meet debt obligations. The research used Autoregressive Distributed Lag (ADL) estimation techniques (1981-2018). The study's findings show that Nigeria's debt steadily increased with years. ED accumulation has a depressing linkage with growth. This demonstrates debt overhang (DO) dilemma. The result, suggests that present debt inflows (DI) are stimulating private investment. Debt servicing (DS) does not appear depressing on growth, but it does indicate crowding-out outcome on private investment. The study had some policy implications. Concurrent achievement of sustainable growth levels ED dynamics appears complex now, and may remain so if aggressive policies are pursued.*

Keywords:
Ratio to GDP, Ratio to Exports, Debt Overhang, Private Investment, Crowding-Out Effect.

1. Introduction

Emerging concerns with foreign borrowing as a strategy for fostering economic growth have sparked and continue to spark a flurry of heated debate among economists, policymakers, and academics. Presently, foreign debt presents a worldwide conundrum for the existing and future growth trajectory of most emerging and developing countries around the globe, including Nigeria. According to leading economic theories, external debt boosts the economy vis-a- vis investment and productivity of the work force. External loans, on the other hand, have repeatedly failed to be channeled into viable investment projects, instead focusing on achieving short-term goals that will eventually cover the economy's emerging deficits. The rates at which countries borrow are determined by the relationship between foreign and domestic savings, investment, and economic growth, so that borrowing countries can increase their capacity output using foreign savings. External debt, on the other hand, can only be productive if it is well managed, with the rate of return exceeding the cost of servicing the debt. However, in terms of the Nigerian economy, external debt has been rising, making it one of the major sources of concern about the country's future growth path, along with other foreign policies. In recent years, the Nigerian economy has begun to borrow money from outside sources in order to stimulate economic activity and growth. spite of the apparent rationalization for borrowing externally, it is speedily exposed to be a permanent lifeline yoke, resulting in severe economic repercussions for both current and future generations. As a result, the economy is marked by a clear deterioration in the standard of life, massive social and economic overhead degradation, significant external reliance, balance of payment imbalances, currency and exchange rate depreciation, and growing inflationary rates. From 2008 to 2017, Nigeria's external debt averaged $US6375.33 million, peaking at $US10718.43 million (DMO, 2018). Nwankwo (2015) noted that Nigeria's external debt situation has increased to over $US11 billion, with a debt sustainability ratio of 2.4 percent, which is significantly below the IMF's recommended sustainable ratio of 12.51 percent of GDP.

2. Theoretical Review of Literature

Economic theory has it that there are several ways in analyzing the link between external debt and economic development. On the one hand, the neoclassical growth models claimed that there is a beneficial impact of foreign debt on economic growth. Nevertheless, they accentuated that borrowings are one of the sources for financing capital formation promoting economic growth. Alternatively, there are enthusiasts of the opposite theory who noted that 'debt overhang' causes decrease in economic growth. There are three groups of theoretical models recounting these relations. While early research on the debt-growth nexus emphasized on the good aspects of the necessity for foreign borrowing, such as in the growth-cum debt approach, critical studies examining the detrimental effects of external debt on emerging countries developed according to Ehiedu, Onuorah and Chigbo (2022), Griffin and Enos (1970). According to one of these arguments, the majority of external resources are not effectively used in achieving economic development in recipient countries, resulting in increased debt burden. Furthermore, even if they were properly used, the good benefits they produced were frequently destroyed by a variety of internal and external issues, some of which come from debt servicing procedures and the uncertainty caused by high external debt. Debt servicing consumes a significant portion of newly borrowed resources.

Furthermore, external debt can only help to boost economic growth up to a point. Once debts accumulate to critical levels, they become a major undermining factor and a serious hindrance to long-term economic growth. Ehiedu, Victor C (2022). Corporate finance alternative and shareholders' value creation in Nigeria.

It has been suggested that when foreign debt is used to fund investments, it can help to boost economic growth. Because of the purported relationship between investment and economic development, most of the debate and empirical work on debt-growth dynamics has focused on its direct or indirect influence on domestic investment. However, the impact of external debt on economic development can be mediated through many routes other than investment levels. Following Cohen, (1995), Gohar & Butt, (2012), Iyoha, (1996), Rais & Anwar, (2012), mechanisms through which excessive debt load might influence economic development have been explored primarily under the debt overhang, liquidity restriction, and uncertainty affects, among others. Then, 'debt overhang,' has since become a significant term in the discussion over debt relief programs for heavily indebted poor nations in the 1990s and 2000s, according to Kim, Ha, and Kim (2017), Ehiedu Victor C, Odita A.O. and Kifordu A.A. (2020).. The term "debt overhang" is defined as "existing, inherited debt that is sufficiently significant to be completely repaid with confidence." According to the debt overhang theory, once a country's entire debt stock is judged to exceed its repayment capabilities with a reasonable likelihood in the future, projected debt service will most likely increase as a function of current production (Clasessens, detragiache, Kanbur and Wickham, 1996). Consequently, productive investments in such an economy would be lower than necessary, as a large amount of any major economic development will be "taxed away" by foreign creditors. Accordingly, both domestic and international investors will be discouraged from investing, negatively impacting economic growth (Krugman, 1988; Sachs, 1989). ED service costs have growth linkage, creating a 'liquidity constraint,' also known as a 'crowding out' effect, because limited resources should be distributed among alternative uses, such as consumption, investment and transfers to pay exceptional debt, (Cohen, 1993; Ehiedu & Toria (2022); Fosu, 1996; Patillo et al., 2002, 2004). High public debt service can increase the government's interest payment and the budget deficit, diminishing public savings. Escalating taxes and/or rising interest rate, consequently may, crowd out private investment, limiting the amount of money available for private investment. High debt service will almost always stymie imports of intermediate and technology items, which are essential for production, stifling economic progress. Price rationing (i.e., depreciation of the home currency) or non-price rationing could be used to achieve this goal (import restriction) (Serieux and Samy, 2001). Foreign exchange liquidity limits may reduce available funds to service debt, necessitating a greater emphasis on short-term initiatives rather than long-term investments to service debt. Moreover, astronomical debt service may result in the substitution impact, which implies a shift away from productive expenditures that require costly imported resources that are vital to economic growth.

Trends and Patterns of External Debt in Emerging Economics

Macroeconomic stability is a necessary but insufficient condition for boosting population well-being and eliminating poverty, as rising economies have demonstrated. When the economy is vulnerable to external and internal shocks, particularly as a result of large external borrowings, the poor and unprotected suffer the consequences. It should be emphasized that in international practice, the examination of GDP growth, which is regarded as a major indicator of economic growth and plays a critical role in determining societal development, is given special attention. Figure 1 depicts annual GDP growth velocity and total debt service on external debt in emerging economies (see appendix 1). Figure 1, show that, on average, Nigeria's yearly GDP growth velocity were higher than those of other developing market countries. Furthermore, this metric has dramatically decreased in Nigeria from 2013 to 2018 when compared to the prior era. In terms of the debt-service-to-export-of-goods-and-services ratio, the level of payments climbed by 18 percent globally in 2015, but only by 9 percent in emerging economies. Many causes, including the degradation of macroeconomic indicators, political issues, insecurity, and market instability, have contributed to a fall in economic growth in recent years.

Empirical Review

For the period 1970-2010, Rafagat and Usman (2012) used long and short term approaches to examine the weight of foreign debt on Pakistan's growth. The researchers used GNP, education, capital, and labor force to proxy foreign debt. It had sizeable depressing weight on growth demonstrating that a high foreign debt load stifles economic expansion. Ehiedu and Toria (2022) used OLS to evaluate the weight of foreign debt on Tanzania's growth. Foreign debt stock had a large affirmative outcome on GDP, but external debt servicing had a considerable depressing outcome on GDP. However, the findings were significant, showing foreign debt promotes growth. Debt servicing is so expensive that most developing countries take out new loans for old foreign obligations, avoid compounding interest penalties, and maintain their creditworthiness in the eyes of their international lenders. Mukui (2013) determined outside liability and servicing have a sizeable outcome on Kenya's economic growth. The study determined the consequence of outside liability on Kenya's economic development (1980 – 2011), using some control variables like capital creation, domestic saving, inflation, labor force, and FDI. Outside liability and its servicing had depressing outcome on growth. National saving, labor force and price increases, are examples of control variables that have similar negative effects. However, the elements that were determined to have a favorable and significant outcome on growth were capital formation and FDI. Consequently, he recommended guidelines to advance FDI inflows into Kenya. Ehiedu, (2022) used panel data (1970-2007) of an ARDL model on

40 highly indebted nations where the findings demonstrated that these impoverished countries' outside liability had a detrimental weight on growth in long and short run.

Saxena and Shanner (2015) and Akram (2016) constructed a model that took into account the outcome of municipal liability affecting growth and translated it into an equation that could measure the same effect of municipal liability on poverty. The model was estimated using standard panel data estimation methodology, and the results revealed that municipal liability had a depressing result on growth, while both public outside liability and servicing had no significant relationship with paucity drop. Elwasila (2018) used the vector error correction method to evaluate the consequence of outside liability on Sudan's growth (1969-2015). FDI and exchange rate were also used as controlled factors in the study. The GDP was explained variable, while the outside liability to export ratio served as a proxy for the major explanatory variable, external debt. Thus, the data demonstrated that the outside liability to export ratio had a valuable consequence on Sudan's economy, but the control variables (exchange rate and FDI) had depressing consequence on Sudan's GDP growth.

3. Data and Methodology

Data from the World Development Database was used to create a time series covering the years 1981 to 2018. Two types of models are examined in order to examine debt-growth dynamics: one is a standard macroeconomic debt growth model, and the other is Ajayi's investment-debt model (1996). Mbah, Agu, & Umunna (1996), Iyoha (1996), Maureen (2001), and Iyoha (1996).
With a few tweaks, Omotor (2019) was adopted. The model is based on Chenery and Strout's Dual Gap theoretical framework (1966). There are two parts to the basic two-gap model. The first identifies the supply side of the investment-growth relationship. In the Harrod-Domar tradition, gap models assume a linear relationship between output (Y) and capital (K). Thus,

$$Y = \frac{K}{v} \quad (1)$$

Where Y is growth, K is capital, and v is capital-output ratio or ICOR (Incremental capital-output ratio).

This means that production growth is determined by the rate of investment (1)

$$\frac{\dot{Y}}{Y} = \frac{\dot{K}}{vY} = \frac{1}{vY} = -\delta \quad (2)$$

The depreciation rate is denoted by a dot over the variable. As can be observed, earlier investments have influenced current output. Equation (2) can be used to establish the minimal level of investment (1*) required to achieve the desired output growth rate (g*) as a planning framework. Hence;

$$\frac{I^*}{Y} = v(g^* + \delta) \quad (3)$$

The second component of the two – gap model deals with the determination of investment. From the basic national income accounting, it is seen that;

$$S_p - 1 = (G - T) \times (X - M) \quad (4)$$

With Sp as private savings, G as government (capital and recurrent) expenditure, T as taxes, X as export and M as imports. This can be re-written as;

$$L = S_p + (T - G) + (M - X) = S + F \quad (5)$$

Private savings and the budget surplus have been combined into ‘domestic savings' using equation (5). (S). Because the trade deficit (on goods and services) must equal the total of net current transfers (including foreign aid), net capital inflows (capital account plus financial account), and net factor payments, the last term is referred to as "foreign savings (F)."

All of the factors on the right hand side of equation (5) are considered to be determined exogenously in the two-gap model, resulting in the following possible investment levels:

$$I^{SG} \leq S + F \quad (6)$$

The economy would face a savings gap if the resulting investment level fell below the planned level I*. Give the assumption of full employment under the ceteris paribus condition now. If the savings gap is large, the economy is at full employment and isn't utilizing all of its foreign exchange revenues. It may have sufficient foreign exchange to purchase extra capital goods from overseas, but it lacks sufficient domestic resources to undertake additional investment projects. As a result, excess foreign exchange may be used to purchase high-end goods. Such a country could be said to have a scarcity of productive resources, which could be interpreted as a scarcity of savings. Assuming that imports are made up of capital imports (Mk) and other imports in terms of the foreign exchange gap (M0).

$$M = M_o + M_k \quad (7)$$

A fixed share of 'M' of all capital goods needs to be imported from abroad.

$$I = \frac{1}{m} M_k = \frac{1}{m} (M - M_o) \quad (8)$$

Substituting M = X + F into equation (8),

$$I = \frac{1}{M} \{ (X - M_o) + F\} \quad (9)$$

Again, the two – gap model assumes that the variables on the right hand side are either exogenous or predetermined. The investment constraint due to this foreign-exchange restriction is given by;

$$I^{PG} \quad \frac{1}{m} [(X - M_0) + f)] \quad (10)$$

For the goal of obtaining a certain rate of economic growth, the foreign exchange imbalance must be closed. Dual gap analysis is based on this concept. Assume that an economy requires savings and investment in the form of 'import' to achieve a certain rate of growth; if available funds at the domestic level fall short of the level required to achieve the desired rate of growth, a savings – investment gap exists. Similarly, an export-import foreign exchange gap exists when the greatest import demand to meet the growth target is greater than the maximum attainable level of export. As a result of the aforesaid approach, variables must be included when rigorously examining the linear relationship between growth and external debt. Table 2 gives a brief overview of the factors employed in the study. As a result, the model is as follows:

$RGDP_1 = \delta_0 + \delta_1 DBs_1 + \delta_2 DER_1 + \delta_3 INF, + \delta_4 INTR_1 + \delta_5 PRINV_1 + \delta_6 TRDOPN, + \varepsilon_1$ (11)

Where: $RGDP_1$ = Real Domestic Product; DER_1 = External debt stock (ratio to GDP); DBs_1 = External debt servicing (ratio to exports); INF_1 = Inflation rate; $INTR_1$ = Interest rate; $PRINV_1$ = Private Investment; $TRDOPN_1$ = Trade openness (sum of imports and exports ratio to GDP)

δ_1-------- δ_6 represents coefficients: ε_1 = the error term; and t represents time period

3.1 Estimation Technique

To estimate the long run relationship among the variables, the paper uses the Autoregressive Distributed Lag (ARDL) bound testing framework (Pesarana and Shin 1995 and 1999, Pesaran et al 1996, Pesaran, 1997). Both lagged values of the explained variable (autoregressive) and lagged values of the explanatory variable are included in the ARDI model (distributed lag). The ARDL cointegration is used to establish whether a long run relationship exist among the variables under consideration when the variables are integrated both of order zero. 1 (0) and order one, 1(1).

The ARDL technique has several advantages over the Johansen (1998) and Johansen and Juselius (1990) cointegration approaches in that it estimates long run connections using only a single reduced equation, whereas the latter uses a system of equations (Peasran and Shin, 1995). Furthermore, unlike the traditional cointegration test, the ARDL technique avoids establishing a higher number of specifications. Furthermore, unlike the usual cointegration test, the ARDL technique allows for the use of different optimal lags for distinct variables. Because unit root problems can occur with time series data, the Augmented Dickey Fuller (ADF), Philips-Perron (PP), and Kwiatkowski-Phillips-Schmidt-Shin (KPSS) unit root tests are used to eliminate false regression. The ARDL approach to cointegration is done as shown in equation by (12), Pesaran et al. (2001).

$\Delta RGDP_1 = + \delta_0 + \delta_1 DER_1 + \delta_2 DBs_1 + \delta_3 INF_1 + \delta_4 INTR_1 + \delta_5 + \delta_6 PRINV_1 + \delta_7 TRDOPN_1 + \delta_7 (RGDP) + \delta_8 (DER_{1-1}) + \delta_9 (DBs_{1-1}) + \delta_{10} (INF_{1-1}) + \delta_{11} (INTR_{I=1} (INTR_{1-1}) + \delta_{12} (PRINV_{1-1}) + \delta_{13} (TRODPIN_{1-1}) + \varepsilon ct_{1-1}$

The lag length test is used to determine the ideal number of lags for each variable by estimating the single equation Vector Autoregression (VAR) and applying the lag length criteria. The estimation of a single equation unconstrained Error Correction model with the number of estimated lags is then performed, as indicated in equation (13).

$$\Delta RGDP_1\ \delta_0 + = \delta_1 (DER)_{1-1} + \delta_2 (DSs)_{1-1} + \Delta \delta_3 (INF)_{1-1} \Delta$$

$$\sum_{i=0}^{d} + \delta_4 \Delta(INTR)_{i-1} + \delta_5 \sum_{i=0}^{d} (PRINV)_{i-1} + \delta_6 \sum_{i=0}^{d} (TRDOPN)_{i-1} + + \delta_7 (RGDP)_{i-1}$$

$$+ \delta_8 (DER)_{i=1} + \delta_9 (DBs)_{i-1} + \delta_{10} (INF)_{i-1} + \delta_{11} (INTR)_{i-1} + \delta_{12} (PRINV)_{i-1} + \delta_{13} (TRDOPN)_{i-1+} O_1 \quad (13)$$

n is the first difference operator, d is the best lag duration, and all other variables stay the same in equation (13). The F-statistic is obtained by doing Wald tests on the coefficients of the unconstrained error correction variables, which are used to test the existence of a long run association. The F-statistics are compared with the Peasran's critical values at 5% level of significance. The test involves asymptotic critical value and lower bound critical on whether the variable is (10) or 1(1) or a mixture of both. The upper bound and lower bound critical values are derived from the 1 (1) and 1 (0) series respectively. When an F-statistic is greater than the upper bound, the null hypothesis of no cointegration among the other variables is rejected, and we conclude that there is no evidence of a long-run link. We do not reject the null hypothesis of no cointegration if it falls below the lower bound, and if it lies between the bounds, the conclusion is equivocal. In the advent that the variables are cointegrated, the short-run dynamics is derived by estimating the Error Correction Term with the Specified lags as shown in equation (14).

$$\Delta RGDP_1\ \delta_0 + \sum_{1-1}^{d} \delta_1 (DER)_{1-1} + \delta_2 \sum_{i=0}^{d} (DSs)_{1-1} \Delta \delta_3 \sum_{i=0}^{d} (INF)_{1-1} \Delta$$

$$\sum_{i=0}^{d} + \delta_4 \Delta(INTR)_{i-1} + \delta_5 \sum_{i=0}^{d} (PRINV)_{i-1} + \delta_6 \sum_{i=0}^{d} (TRDOPN)_{i-1} + \delta_7 ECT_{i-1} \quad (14)$$

ECT_{1-1} is the error correction term in equation (14)

All coefficients of the short run equation relate to the short-run dynamics of the model convergence to equilibrium, and δ_7 in equation (14) represent the speed of adjustment.

4. Empirical finding and discussions

The research examines the link between external debt and economic growth. The statistical approaches used are as follows: E-views 10 statistical software was used for this analysis, which included descriptive statistics, correlation analysis, and regression analysis, as well as pre and post diagnostic analysis that included unit root test, serial correlation test, heteroscedasticity test, normality test, and stability test.

Table 3: Summary of Descriptive Statistics

Variables	Mean	Std. Deviation	Min.	Max.	Jarque Bera	Prob.
RGDP	6.871	0.726	5.599	8.077	2.934	0.230
DEER	3.575	1.332	1.418	5.430	4.016	0.134
DBs	2.043	1.204	-0.704	3.638	4.708	0.094
INF	2.674	0.713	1.683	4.288	4.643	0.098
INTR	2.817	0.320	2.131	3.454	2.796	0.247
PRINV	1.902	0.474	0.488	2.731	2.051	0.358
TRDOPN	3.369	0.506	2.212	3.975	6.685	0.035
Observations	**38**	**38**	**38**	**38**	**38**	**38**

Source: Author's Computation, E-views 10

Table 3 shows that the mean value of economic growth for the period under consideration is 6.871, with a minimum value of 5.599 and a maximum value of 6.871. (8.077). The average value of external debt is (3.575), with minimum and maximum values of (1.418) and (5.430) respectively. External debt service has a mean of (2.043), with lowest and maximum values of (-0.704) and (3.638). The inflation rate is (2.674) on average, with minimum and greatest values of (1.683) and (4.288), respectively. On average,

the rate of interest has a mean value of (2.817), a minimum value of (2.131), and a maximum value of (3.454). The mean value of private investment is (1.903), with lowest and maximum values of (0.458). Private investment has a mean value of (1.903), with minimum and maximum values of (0.488) and (2.731), respectively, while trade openness has a mean value of (3.369), with minimum and maximum values of (2.212) and (3.985), respectively. The variables are normally distributed in general, with Jarque-Bera values that are greater than their probability values.

Table 4: Summary of Correlation Matrix

	RGDP	DER	DBs	INF	INTR	PRINV	TRDOPN
RGDP	-						
DER	-0.809	-					
DBs	-0.578	0.568	-				
INF	-0.422	0.649	0.309	-			
INTR	-0.343	0.479	-0.178	0.377	-		
PRINV	-0.020	0.051	0.504	-0.045	-0.659	-	
TRDOPN	-0.137	0.037	-0.394	0.060	0.612	0.784	-

Source: Author's Computation, E-views 10

The correction coefficient, shown in Table 4, reflects the degree of linearity between the variables. The findings show that real gross domestic product (-0.809), external debt service (-0.578), inflation rate (-0.422), interest rate (-0.343), private investment (-0.020), and trade openness (-0.137) have a negative relationship at a 5% significant level. At the 5% level of significance, debt service has a negative connection with interest rate (-0.178) and trade openness (-0.394), but a positive association with external debt stock (0.568), inflation rate (0.309), and private investment (0.504). The rate of inflation has a positive relationship with foreign debt stock (0.649) and interest rate (0.377), but a negative relationship with private investment (-0.045), Private investment is positively related to external debt stock (0.051) and external debt service (0.504), but negatively related to interest rate (-0.659) and trade openness (-0.784).

Stationarity Test

One of the most important considerations in time series analysis is the probability of a random walk being present in the data. The Augmented Dickey-fuller is shown in Table 5. The Kwiatkowski-Phillips-Schmidt-Shin unit root test and the Phillips-Peron unit root test

Table 5: Results of Unit root tests

Variable	**Augmented Dickey-Fuller Unit Root Test**		
Variable	**At level (prob)**	**First difference (prob)**	**Decision**
DSs	-4.352 (0.007)**	-4.548 (0.004)**	I(I)
DER (% of GNI)	-2.528 (0.313)	-4.728 (0.003)**	I(I)
Inflation rate	-3.544 (0.050?)**	-5.486 ((0.000)**	I(I)
Interst rate	-2.120 (0.517)	-5.476 (0.000)**	I(I)
Prinv	-1.694 (0.732)	-6.294 (0.0000**	I(I)
REER	-1.930 (0.618)	-4.095 (0.014)**	I(I)
RGGDP	-1.525 (0.802)	-6.903 (0.000)**	I(I)
TRDOPN	-2.124 (0.515)	-7.496 (0.000)**	I(I)
	Phillips – Perron Unit Root Test		
	At level (prob)	**First difference (prob)**	**Decision**
DSs	-4.421 (0.006)**	-8.298 (0.000)**	I(I)
DER (% of GNI)	-2.427 (0.360)	-6.372 (0.000)**	I(I)
Inflation rate	-2.870 (0.183)	-10.591 (0.000)**	I(I)
Interst rate	-2.059 (0.550)	-6.863 (0.000)**	I(I)
Prinv	-1.453 (0.826)	-13.645 (0.000)**	I(I)
REER	-2.238 (0.455)	-4.806 (0.002)**	I(I)
RGGDP	-1.536 (0.797)	-6.669 (0.000)**	I(I)
TRDOPN	-2.019 (0.571)	-11.052 (0.000)**	I(I)
	KPSS Unit Root Test		
	At level (LM stat.)	**First difference (LM stat.)**	**Decision**
DSs	0.094	0.129***	I(I)
DER (% of GNI)	0.163**	0.125***	I(I)

Inflation rate	0.123***	0.500**	I(I)
Interst rate	0.172**	0.157**	I(I)
Prinv	0.187**	0.500**	I(I)
REER	0.392***	0.061	I(I)
RGGDP	0.203**	0.101	I(I)
TRDOPN	0.190**	0.128***	I(I)

Source: Author's Computation (using E-views 10) NB ** indicate significant at the 0.050 level *** indicates Significant at the 0.1 level

The ARDL limits test is based on the theoretical premise that the variables must be integrated in distinct orders (zero or one) (1). The goal is to ensure that the aforementioned variables are not integrated to a higher order, 1 (2), in order to avoid false results due to the estimated results being unable to be integrated under the criteria of Peasaran et al F-Statistics (2001). As a consequence of the ADF and PP unit root tests, the results in table 5 reveal that the majority of the variables were not stationary at the level. When applied to the first difference, the ADF and Phillips – Perron tests reject the null hypothesis of non-stationarity for all variables. The difference is seen in the KPSS unit root test result. As a consequence of the ADF and PP unit root tests, the results in table 5 reveal that the majority of the variables were not stationary at the level. When applied to the first difference, the ADF and Phillips – Perron tests reject the null hypothesis of non-stationarity for all variables. The difference is seen in the KPSS unit root test result. The null hypothesis is accepted in the case of KPSS of stationarity based on the Akaike Information Criterion (AIC) and serial correlation diagnostic test findings from the unit root test, based on the aforementioned results.

Table 6: Summary of Results ARDL Bounds Tests

	Models	F-Statistics	t-statistics	Decision
1	F_{RGDP} (F_{RGDP}) /DBs. DER. INF. INTR, PRINV, TRDOPN)	4.336**	-3.672**	Cointegration
2	F_{DSs} (F_{DBs} /RGDP, DER. INF. INTR, PRINV, TRDOPN)	6.410**	-6.020**	Cointegration
3	F_{DER} (F_{DER}) /RGDP, DBs. INF. INTR, PRINV, TRDOPN)	3.237**	-3.062**	Cointegration
4	F_{INF}(F_{INF}) /RGDP, DSs DER. INTR, PRINV, TRDOPN)	-2.382***	-3.607***	Cointegration
5	F_{INTR} (F_{INTR}) /RGDP, DSs, DER,. INF. PRINV, TRDOPN)	3.107***	-4.429**	Cointegration
6	F_{PRINV}(F_{PRINV}) /RGDP, DSs, DER, INF, PRINV, TRDOPN)	1.467	-2.403	No Cointegration
7	F_{TRDOPN}(F_{RDOPN}) /RGDP, DSs, DER, INF, INTR PRINV)	2.891**	-3.769**	Cointegration

Source: Author's Computation (using E-views 10) NB ** indicate significant at the 0.050 level *** indicates Significant at the 0.1 level

Table 6 shows that models 1-5 and Model 7 have a long-run relationship, indicating that a long-run analysis should be performed first, as opposed to model 6, which only has a short-run relationship, indicating that a short-run analysis should be performed first.

Table 7: Summary of Long- Run Error Correction analysis

Variables	**Coefficient**	**T-Statistics**
Δ(LNRDDP (-1)	0.529	2.793**
Δ(LNDBS (-1))	-.0.036	-0.892
Δ(LNDER (-1))	-0.141	-1.776***
Δ(LNINF ((-1))	-0.035	-0.776
(LNINTR (-1))	-0.385	-1.713***
Δ(LNPRINV(-1))	-0.114	-0.994
(LNTRDOPN (-1))	0.087	0.813
ECM (-1)	**-0.858**	**-3.349****
C	-0.013	-0.427
R-Squared	**0.420**	
Adjusted R-Squared	**0.241**	
Durbin Watson stat.	**1.799**	

Source: Author's Computation N.B: ** (***) represents significant at % and 10% level

In terms of the growth equation, the findings of the long run relationship in table 7 reveal that the lagged value of real gross domestic product, foreign debt, and interest rate are statistically significant at the 5% and 10% levels, respectively, based on the lag selection criterion. While the lagged value of external debt service, inflation rate, interest rate, and trade openness are not statistically significant in explaining changes in economic growth, the lagged value of external debt service, inflation rate, interest rate, and trade

openness are. In the long run, the debt to GDP ratio was adversely and statistically significant. The debt to GDP ratio coefficient of (-0.141) indicates that a 1% change in the debt to GDP ratio corresponds to a 0.14 percent increase in growth. The conclusion points to the validity of Krugman's liquidity constraint hypothesis and debt overhang theory (1989). According to the hypothesis, an increase in cumulative debt results in a larger tax on future output, which crowds out private investment and slows growth. This evidence of a substantial negative link between economic growth and external debt in Nigeria is consistent with Akram (2010), Presbitero (2012), and Patillo (2011) findings, showing that external debt does not boost economic growth. Although statistically insignificant, variables like the lagged value of inflation rate and trade openness showed expected signs. The Durbin Watson statistics (1.799), which is about equivalent to 2, suit the model well. The coefficient of the error term is also (-0.858), meaning that the null hypothesis of no cointegration is rejected. This reflects the rate at which the short-run equilibrium is adjusted to the long-run equilibrium, implying that 0.85 percent of the error is corrected annually. Figures 1 and 2 show that the Cumulative Sum Chart (CUSUM) and Cumulative Sum Chart Q (CUSUMQ) stability tests show that the model is stable at the 5% level since the blue line never deviates beyond the 5% critical lines.

Figure 1: Stability Test (CUSUM)

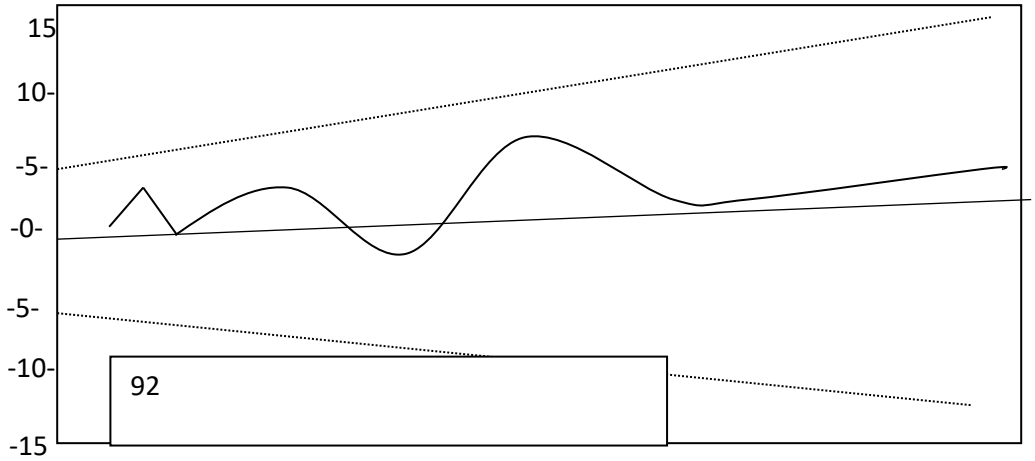

Figure 2: Stability Test (CUSUMQ)

The results of the short run relationship, as shown in table 8, show that the first and second period lagged values of private investment are positive but statistically insignificant to themselves, while the third period lagged value of private investment is statistically significant in explaining changes to itself at 5%, based on the lag selection criterion. In the near run, at a 5% level, the first, second, and third period lagged values of real gross domestic product and debt service are statistically negligible to private investment. In explaining changes in private investment in the short term, the first period lagged value of foreign debt has a negative and statistical significance. To summarize, the negative debt-to-GDP ratio coefficient in the first lagged period shows a crowding-out effect in earlier eras. As a result, the first period delayed value of the foreign debt-to-GDP ratio deters investment in the short run, as expected. This evidence supports Maureen's (2001) findings, which suggest that growing debt stock slows private sector investment. The second period lagged value of inflation has a positive and significant association with private investment, meaning that, ceteris paribus, the previous year's level of inflation promotes private investment. The model is well-fitting, with a high R-squared (0.825) and Durbin Watson statistics (1.764), which is close to 2. Because the blue line never deviates beyond the 5 percent crucial lines, Figure 3 shows that the Cumulative Sum Chart (CUSUM) supports the model's stability at the 5% level.

Dependent Variable: Economic Growth (PRINV)		
Variables	**Coefficient**	**T-Statistics**
△ (LNPRINV (-1)	0.033	0.162
△ (LNPRINV (-2))	0.231	1.035
△ (LNPRINV (-3))	0.701	3.150**
△ (LNRGDP (-1))	0.182	0.580
△ (LNRGDP (-2))	-0.122	-0.313

△ (LNRGDP (3))	0.235	1.136
△ (LNDBS(-1))	0.147	1.762
△ (LNDBS (-2))	0.150	1.628
△ (LNDBS (-3))	0.003	0.042
△ (LNDER (-1))	-0.583	-2.733**
△ (LNDER (-2))	0.022	0.163
△ (LNDER (-3))	-0.033	-0.221
△ (LNINF (-1))	0.055	0.695
△ (LNINF (-2))	0.185	2.600**
△ (LNINF (-3))	-0.033	-0.221
△ (LNINTR (-1))	0.691	1.296
△ (LNINTR (-2))	0.602	1.605
△ (LNINTR (-3))	-0.375	-1.176
△ (LNTRDOPN(-1))	0.361	1.965***
△ (LNTRDOPN(-2))	0.403	1.673
△ (LNTRDOPN(-3))	-0.664	-2.524
C	-0.021	-0.520
R-Squared	**0.825**	
Adjusted R-Squared	**0.493**	
Durbin Watson stat.	**1.765**	
Model Diagnostics		

Source: Author's Computation N.B: ** (***) represents significant at % and 10% level

Figure 3 Stability Test (CUSUM)

5. Conclusion

The goal of this work was to provide a policy addition to the study of debt-growth dynamics using data from a small open economy from 1981 to 2018. The aforementioned link was established using the Autoregressive Distributed Lag estimation technique. Since the development of the ground-breaking literature, the empirical relationship between external debt and economic growth has been studied. The findings of the analysis, on the other hand, are far from conclusive. As a result, the empirical examination of the growth–debt dynamics in Nigeria verified the theoretical premise about the negative linear effect of external debt on output and private investment. The debt stock appears to be the primary mechanism via which foreign debt has an impact on growth. High indebtedness creates uncertainty, which can deter new investment (private) and skew investment decisions, resulting in less efficient and short-term investment choices that stifle economic progress. The degree of external debt that promotes growth is determined by other macroeconomic factors such as investment productivity and the proportion of debt committed to domestic investment versus consumption and non-productive investment.

Recommendations

1) In general, determining the amount of debt that promotes growth is challenging since economies differ in terms of economic, institutional, and political variables. As a result, given the detrimental impact of external debt on economic growth, the studies are essential for implementing appropriate policies to redirect external debt toward long-term growth and productive investments.
2) Proper macroeconomic management of the economy is critical since it influences the volume and servicing of external debt as well as creditworthiness.

3) The international community must provide a growth-producing environment in revamping the economy through suitable export-oriented policies as part of a bigger strategy, since this will provide a scenario of limiting debt difficulties in comparison to other debt relief/reduction programs.

References

Adedoyin, L.I., Babalola, B.M., Otekinri, A.O., & Adeoti, J.O. (2016). External debt and economic growth: Evidence from Nigeria. Acta Universitatis Danubius Economica, 12(6), 179-194.

Afolabi, B., Laoye, A., Kolade, A.R., & Enaholo, J. (2017). The nexus between external debt and economic growth in Nigeria. *British Journal of Economics, Finance and Management Sciences, 14 (1), 1-17.*

Ajayi S.I (1996) Macroeconomic approach to external Debt: the case of Nigeria. AERC 8:1-78

Ajayi, L.B., & Oke, M.O. (2012). Effect of external debt on economic growth and development of Nigeria. *International Journal of Business and Social Science,* 3 (12), 297-304.

Akram, N. (2011) Impact of Public Debt on the economic growth of Pakistan. The *Pakistan Development Review:* 599-615

Akram, N. (2016).Public debt and pro-poor economic growth: Evident from South Asian Countries. Economic Research Ekonomska Istrazivanja, 29(1), 746-746-757, doi: 10.1080/1331677X.2016.1197550.

Ali L.B, Mshelia M.O (2007) Effect of external debt on economic growth and development of Nigeria. *International Journal of Business and Social Science* 3: 297-304

Al-Tamimi, K.A.M., & Jaradat, M.S. (2019). Impact of external debt on economic growth in Jordan for the period (2010-2017). *International Journal of Economic and Finance* 11(4), 114-118. Doi: 10:5539/ijef.v11n4p114.

Arnone, M., Bandiera, L. and Presbitero, A.F. (2005) "External Debt Sustainability: Theory and Empirical Evidence", Catholic University of Milan (Piacenza) Working Paper, No.33, December.

Claessens, S., Detragiache, E., Kanbur, R. and Wickham, P. (1996), 'Analytical aspects of the debt problems of heavily indebted poor countries;, *World Bank Policy Research Working Paper Series,* No. 1618

Clement B., Bhattacharya, R. and Nguyen, T.Q, (2003) "External Debt, Public Investment, and Growth in Low-Income Countries", IMF Working Paper, No.03/249

Cohen, D. (1993) 'Low Investment and Large LDC Debt in the 1980s', *America Economic Review,* 83(3), 437-449.

Debt Management Office (DMO) (2018) Service reports on debt management Debt Management Office

Ehiedu, Victor C (2022). Corporate finance alternative and shareholders' value creation in Nigeria. International Journal of Academic Accounting, Finance and Management Research, (IJAAFMR). International Journals of Academic Research World (IJARW). 6(6), 26-33

Ehiedu, Victor Chukwunweike, ONUORAH A.C. and CHIGBO Nkeiruka Chiyere (2022). Innovative banking models and banks fragility in post covid-19 era in Nigeria. International Journal of Academic Accounting, Finance and Management Research, (IJAAFMR). International Journals of Academic Research World (IJARW). 6(5), 91-100

Ehiedu, V.C, and Toria, G. (2022). Audit indicators and financial performance of manufacturing firms in Nigeria. Linguistics and Culture Review, 6(SI), 14-41

Ehiedu Victor C, Odita A.O. and Kifordu A.A. (2020). Financial deepening estimators and economic growth nexus: evidence from a small open economy. Webology. 17(1), 1-12.

Elwasila, S.E.M. (2018). Effect of external debt on economic growth of Sudan: Empirical analysis (1969-2015). *Journal of Economic Cooperation and Development*¸39(1), 39-62.

Fosu, A.K.F. (1996) "The Impact of External Debt on Economic Growth in Sub-Saharan Africa", *Journal of Economic Development,* 21 (1), 93-118

Gohar, M., and Butt,F. (2012) The Impact of External Debt Servicing on the growth of Low Income Countries, Sukkur Institute of Business Administration. In Proceedings of 2nd International Conference on Business Management (ISBN: 978-969-06-6).

Griffin, K. and Enos,J.(1970) "Foreign Assistance: Objectives and Consequences". *Economic Development and Culture Change*, 18, 313-327.

Ijirshar, V.U., Jospeh F., Godoo, M. (2016). The relationship between external debts and Economic growth in Nigeria. *International Journal of Economics & Management Sciencew,*6 (1), 1-5. Doi: 10.4172/2162-6359. 1000390.

Iyoha, M.A (1996) , 'External Debt and Economic Growth in Sub-Saharan African Countries: and Econometric Study', paper presented at AERC workshop in Naiirobi, Kenya, March 1999.

Johanse,. S. and Juselius, K. (1990) Maximum likelihood estimation and inference on cointegration with applications to the demand for money. Oxford Bulletin of Eonomics and Statistics, 52.

Kasidi,F., & Said, M. (2013)). Impact of external debt on economic growth: A case study of Tanzania. Advances in Management & Applied Economic, 3(4), 59-82.

Kim, E, Yoohee Ha, and S.Kim (2017), "Public Deb, Corruption and Sustainable Economic Growth," Sustainability (9) 433-463. DOI: 10.3390/su9030433

Krugman, P (1998) "Financing vs. Forgiving a Debt Overhang", *Journal of Development Economics,* 29,253-268.

Matuka, A., & Asafo, S.S.(2019).External debt and economic growth in Ghana: A cointegration and a vector error correction analysis. Theoretical and Practical Research in the Economic fields, 1(10). 45-53.

Mba, S.A., Agu O.C. and Umunna G. (2016) Impact of External Debt on Economic Growth in Nigeria: An ARDL Bound Testing Approach. *Journal of Economics and Sustainable Development*, 7(10).

Mba, S.A., Agu, O.C., & Ummunna, G. (2016). Impact of external debt on economic growth in Nigeria: An ARDL bound testing approach. *Journal of Economics and Sustainable Development,* 7(10). 16-26.

Monogbe, T.G. (2016).Intergenerational effect of external debt on performance of the Nigeria Economy. *NG-Journal of Social Development, 5 (2), 51-65*

Ndubuisi, P. (2017) Analysis of the impact of external debt on economic growth in an Emerging Economy: Evidence from Nigeria. *African Research Review*, 11(4), 156-173. Doi: 10.431/afrrev.v11i4.13.

Nwankwo, A. (2015) Nigeria's Foreign Debt Profile. Thisday live, p.1.

Omotor D.G. (2019) A Thrify North and an inmpecunious South: Nigeria's external debt and the tyranny of black political economy. Presented at the eight-first inaugural lecture delivered at the Delta State University, Abraka.

Onakoya, A.B., & Ogunade, A.O.(2017). External debt and Nigeria economic growth connection: Evidence from autoregressive distributed lag approach. *Journal of Economics and Development Studies, 5 (1), 66-78, doi: 10.15640/jeds.v5n1a7.*

Patillo, C.; Poirson, H., and Ricci, L. (2002) "External Debt and Growth". IMF Working Paper, No.02/69 (also published as Patillo, C.; Poirson, H., and Ricci, L. (2011) "External Debt and growth", Review Economics and Institutions, 2(3), 1-30)

Patillo, C.; Poirson, H., and Ricci, L. (2004) "What Are the Channels Through Which External Debt Affects Growth?" IMF Working Paper, No.04/15.

Pesaran, H.M. (1997) The role of economic theory in modeling the long-run. Economic Journal, 107: 178-191.

Pesaran H.M. and Shin, Y. (1995). Autoregressive Disttributed Lag Modelling Approach to Cointegration Analysis. DAE Working Paper Series No. 9514 (Cambridge: Department of Applied Economics, University of Cambridge).

Pesaran. H.M. and Shin, Y. (1999) Autoregressive distributed lag modeling approach to cointegration analysis, in S. Storm (Ed.) Econometrics and Economic Theory in the 20th Century: The Ragnar Frisch Centennial Symposium, Chapter 11 (Cambridge: Cambridge UNviersity Press).

Pesaran, H.M. et al (2001) Bounds testing approaches to the analysis of level relationships. *Journal of Applied Econometrics, 16:289-326*

Presbitero, A.F. (2012) Total public debt and growth in developing countries. The European *Journal of Development Research, 24 (4): 606-626.*

Presbitero, A.F. (2005) "The Debt-Growth Nexus: a Dynamic Panel Data Estimation", Universita POlitecnica Delle Marche, Department of Economics Working Paper, No.243.

Rais, S.I., & Anwar, T. (2012) Public debt and economic growth in Pakistan: A time series analysis from 1972 to 2010. Academic research international, 2 (1): 535.

Rifagat, A., & Usman, M. (2012), External debt accumulation and its impact on economic growth in Pakistan. *The Pakistan Development Review*, 51(4), 79.96

Sachs, J. (1989) "The Debt Overhang of Developing Countries" in Calvo, G.A.; Findlay, R; Kouri, P and De Macedo, J.B (*eds)* Debt Stabilization and Development: Essays in Memory of cArlos Diaz Alejandro. Oxxford: Basil Blackwell, 80-102.

Saxena, S.P., & Shanker, I.(2015). External debt and economic growth in India. Social Science Asia, 4 (1), 15-25

Serieux, J. and Samy, Y. (2001) "The Debt Service Burden and Growth: Evidence from Low-Income Countries", presented at WIDER Conference on Deb Relief, 17-28 August 2001, Helsinki, Finland.

Siddique, A. Selvanathan, E.A., & Selvanathan, S. (2015). The impact of external debt on economic growth: Empirical evidence from highly indebted poor countries. Economics Discussion/Working Papers 15-10. University of Western Australia.

Sulaiman, L.A., & Azeez, B.A (2012). Effect of external debt on economic growth of Nigeria. *Journal of Economics and Sustainable Development*¸3(8), 71-79

Udeh, S.N., Ugwu, J.I., & Onwuka, I.O. (2016). External debt and economic growth: The Nigeria Experience. European Journal of Accounting, Auditing and Financial Research, 4(2),33-48