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Debt management and economic development of Nigeria: ARDL approach

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ABSTRACT

This study examines the effect of debt management on economic development in Nigeria using the ex-post facto research design as data for the variables were derived from secondary data sources. Specifically, annual data are obtained from the debt management bulletin, CBN statistical bulletin, and World Bank Development Indicators from 1980–2021. To reduce skewness, all the variables are transformed into their natural logarithmic form. The dependent variable in this study is gross capital formation (GCFM) while the independent variables are external debt stock (EXDB) and total debt servicing (TDSV). Autoregressive Distributive Lags (ARDL) model of Pesaran, Schuermann, and Weiner (2004) is used in this study to test the hypotheses. The result reveals that external debt stock [coeff. 0.347 (0.000)] has a positive and significant effect on the economic growth of Nigeria when measured in terms of gross capital formation in the long run but no relationship in the short run. Furthermore, the result shows that total debt servicing [coeff. -2.279 (0.001)] has a negative and significant effect on the economic growth of Nigeria when measured in terms of gross capital formation in the long run but no relationship in the short run. The study concludes that an increase in the external debt stock will significantly increase gross capital formation as a measure of economic development during the period under study. However, the study concludes that debt servicing has a negative and significant effect on the economic growth of Nigeria when measured in terms of gross capital formation in the long run but no relationship in the short run. Based on the findings of this study, we recommend that a sound borrowing policy should be enacted by the Debt Management Office in collaboration with the legislature in order to impose a legal limit on external borrowings. The policy should be subject to review so as to meet the predominant realities of the economy. A condition where the executive arm of government has a free hand to borrow funds from the external sources as much as they wish will not go down well with the economy.

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1. INTRODUCTION

Finance is an essential ingredient of economic development of any economy. Developing countries such as Nigeria require adequate financial resources to finance development projects and programs. Sometimes, the inadequacy of these resources domestically has necessitated the need to source for finance externally. This is usually the reason for most of the less developed country's excuse for foreign loans. There is no doubt that for any country to achieve a substantial expansion of its economy through infrastructural facilities, productivity improvement, sophisticated information communication and technology, profitable investment, and overall economic development, debt as an element of its capital structure has a role to play. The amount of money owed by a nation to creditors abroad, including banks, bondholders, and other nations, is referred to as its "external debt." The payments that a nation makes to its foreign creditors in order to settle the principal and interest on its external debt are referred to as debt servicing (Akanbi et al., 2022). The quantity of the debt, the terms of the debt, and the country's economic situation are a few of the variables that affect how the service of external debt affects economic growth (Ibidolapo Ezekiel, 2020; Ramzan & Ahmad, 2014). In general, having access to capital for investment and development can help the economy flourish when there is a moderate degree of external debt (Idisi et al., 2019; Law et al., 2021; Thao, 2018). However, the weight of debt repayment can become intolerable and have a negative impact on the economy if a nation takes on too much debt or is unable to service its debt because of economic issues (Law et al., 2021). Therefore, the question yet to be answered is whether the extent of debt servicing on external debt affects economic growth or not. An increase in the debt service on external debt may impact negatively on long term growth, especially when there is a high level of corruption prevailing in the productive sectors. The propositions of both neoclassical and endogenous growth theories support this negative impact of public debt on long-term economic development (Panizza, and Presbitero, 2014). However, in another scenario, debt accumulation may have a positive effect on both short-term and long-term development when little or no corruption prevails in a country where government officials are sincere in allocating the borrowed funds to productive investments. Bulow and Rogoff (1990) argue that poor economic management is a factor: most developing countries' huge external debts are the result of poor economic and resource management, which includes overvaluation of exchange rates, inflation rates, interest rates, taxes, and fiscal deficits. They further argued that when these funds are borrowed; governments of developing countries mismanage them. This is supported further by Kenen (1990), who argue that a country with a large external debt may have very low consistent economic growth rates because repaying the principal amount may be difficult while the focus is on external debt servicing. They suggest that such country should solicit for reduction in external debts through international debt relief facility. Krugman's (1989) further suggests that another means of debt servicing payment may be through increase in taxes which of course may decrease capital accumulation/savings, consumption expenditures, and investments. When this happens, economic development is negatively affected because savings, consumption, investments, expenditures are all components of national income.

The eighth goal of the United Nations Sustainable Development Goals requires member states to achieve an all-encompassing and workable economic growth as well as secure, productive & decent work for all by 2030 (United Nations, 2018). Member states of the United Nations have been struggling to meet this goal, making them have very huge budget deficits since most countries cannot raise adequate capital from taxation by governments alone, for such investment. The current industrial revolution necessitates the need for countries to capitalize in essential areas such as computer science, modern infrastructure, human capital, and technological advancements that would help to make the world a global village. These investments are capital intensive and dictate that countries have high savings and investments that would contribute to the capital stock. Most third-world countries do not have enough savings for investments, in addition to not being able to raise adequate revenues from taxation, unlike most developed countries. According to Robert Solomon (2021), it therefore implied that, third-world countries had to borrow to finance these budget deficits. In cases where local markets are not well-developed domestic debt provides only a little of the funds, external debt, therefore, contribute a substantial part of the funding to bridge the deficit (Charan, 2020). Continued borrowing without servicing the debts has led to a high debt burden in developing countries. This high debt burden can be attributed to; many developing countries adopted a policy of promoting exports and industrialization as they pursued diversification of their economy from agricultural to manufacturing economies. However,

corruption siphoned off a substantial proportion of these loans, only negligible amounts were used for investment in infrastructure. Based on the foreign, this study examines the effect of debt management on economic development of Nigeria. The remaining section of this study highlights the reasons for undertaking the research more analytically by relating it to a preliminary literature review dealing with the relevant theory, best practice, established approaches, techniques or research already existing in the field. This preliminary survey of the relevant literature includes the key sources, which have helped to shape the underlying ideas for the research and provide justification for the significance of the research problem. The study will also discuss the merits of the proposed methodological and theoretical approaches that will be applied with references to key research methods or industry theoretical insights. It will also indicate the practical steps for collecting research data. Other sections of study covers literature review which detailed the conceptualization of the study variables, theoretical underpinnings of the study and empirical review. The third section consist of data and methods used in achieving the study objective by specifying research design and criteria for selecting sample size. The fourth section present the data analysis and discussion of findings while the last section consist of conclusion, recommendations and policy implication of findings.

2. LITERATURE REVIEW

2.1 Economic Development

According to the Department for International Development (2008), economic development is one of the most powerful tools for reducing poverty and improving the quality of life in developing countries such as Nigeria. Growth can bring about prosperity and opportunity. Any future growth will also need to be environmentally sustainable. Both developed and developing countries, such as Nigeria, must improve their low-carbon technologies. Growth and environmental sustainability may be seen as complements, not substitutes, in a healthy economy and thriving institutions, but this is not the case in Nigeria, where carbon emissions and growth are moving in opposite directions, which is not favorable to Nigerian economic growth. The question of how to achieve environmentally sustainable, low-carbon growth in developing countries requires new impetus. This includes socioeconomic and scientific research, as well as collaboration with governments and the private sector to put research into action. International mitigation and carbon trade protocols and agreements must be refined and implemented in Nigeria. Strategies must be developed to ensure that new technological innovations are adapted to and spread in developing countries such as Nigeria. However, according to the latest report by International Monetary Fund Boss Georgieva (2019), Nigeria's current economic growth is too slow to address the country's scale of poverty. To address this issue, the Nigerian government must diversify the economy away from total reliance on crude oil and into agriculture and other productive sectors, as well as fight corruption tenaciously. The frequent occurrence of corruption in Nigeria has been attributed to a lack of sanction. The sooner people get what they deserve legally for committing crimes or engaging in any form of corruption, the better for the nation's economic growth. The crown of impunity must be snatched away.

2.2 Debt Management

Debt management is any strategy that helps a debtor to repay or otherwise handle their debt better. Debt management may involve working with creditors to restructure debt or helping the debtor mange payments more effectively. A debtor may appeal to a debt management company or special unit as in government to handle issues of debt management. Debt management, by the standard financial definition, involves a designated third party assisting a debtor to repay his or her debt. Many companies specializing in credit counseling offer plans to help people with heavy debt and damaged credit get their financial situation under control. A simple definition could be the routine practice of spending less than one earns. For all intents and purposes, however, it is a structured repayment plan set up by a designated order or as a result of personal initiation. A plan to manage debt entails a series of steps, which the third-party service works on with the help of the debtor. The first step typically involves complying with a list of all creditors and the amounts owed to each. Some creditors are not eligible to be include in a debt management plan, and typically, secured debt such as car loan and home loans are not included. Debt management refers to how debt is administered or handled so as to avert/avoid adverse economic effects. Debt management is about the debt policy designed to achieve certain objectives and actual' implementation of this policy (Nnamocha, 2002). Traditionally, debt management consists of raising the necessary debt at the cheapest possible interest rate cost and paying such interest with ease in the earliest possible time. There are objectives of debt management. Debt management now belongs to monetary policy as part of general macro-economic policy of the state administered by the monetary authorities. Other objective of management of debt is to keep the interest rate cost as low as possible. There is also needed to ensure that other macro-economic objective of the government, like stabilization at economic growth etc.

2.3 External Debt Stock

Arnone, Bandiera and Presbitero(2005) described external debt as that part of a country's debt that was borrowed from foreign lenders including commercial banks, governments or international financial institutions. External debt becomes necessary when domestic financial resources become inadequate to finance public goods that increase welfare and engender economic growth. External debts are funds sourced from outside the nation's boarder usually in foreign currency and are interest-bearing to finance specific project(s). The effect of external debt on a nation's economy has been a subject of controversy among academics. Some were of the view that external debt accelerates economic growth (Hameed, Ashraf and Chandhary, 2008). This view is in line with neoclassical model of economic growth –the Keynesian theory in which capital accumulation is viewed as a catalyst to economic growth. This was confirmed by the significant growth by the Asian Tigers- Malaysia, Singapore, Indonesia and Taiwan and South American country, Brazil. These nations were able to transform their economy using external debt (Momodu, 2012). The proponents that external debt has negative impact on the economy stem from the fact that at certain level, debt accumulation becomes a burden and will no longer stimulate the economic growth (Elbadawi, Ndulu and Ndungu, 1996). Furthermore, the liquidity constraint referred to as 'crowding out' effect of debt, that is, the need to service debt reduces funds available for investment and growth. Debt servicing is like the proboscis of mosquito for sucking out blood from its victim. The guiding rules to debt to be taken into account in debts management are, debt to GDP ratio, which global maximum ratio is 40%, total debt to total revenue ratio and debt to debt service ratio. Efficient debt management strategy should result in debt service ratio between 20-25% of GDP (Omoruyi, 1996).

2.4 Total Debt Servicing

Debt serving is a contractually ixed charge on domestic real income and savings. As the size of debt grows, or as interest rate rises, debt service charge increases. Debt services payment is made is done only with the export earning, curtailed import, or with further external borrowing. hus if the export earning diminishes, debt-service diiculties are likely to arise. IMF (2003) defines debt service as the payments required to be made in respect of both principal and interest for an existing loan. According to Merriam-Webster (2019), debt service is the amount of interest and sinking fund payments due annually on long-term debt. Business Dictionary (2019b) refers to debt service as the payment of principal and interest due on existing debt. IMF (2003) seeks to highlight the difference between actual debt service and scheduled debt service. According to IMF (2003), actual debt service is the set of payments actually made to satisfy a debt obligation, including principal, interest, and any late payment fees. On the other hand, scheduled debt service is the set of payments including principal and interest, which is required to be made throughout the life of the debt (IMF, 2003). In a nutshell, debt service is the amount of money which includes the interest expense and principal – a borrower is required to pay periodically to the lender throughout the lifetime of a loan.

2.5 External Debt Stock and Economic Development

Mukui, (2013) utilized linear models examined Kenya's debt from 1980 to 2011 when studying the consequence of externally acquired debt-liability on growth of the Kenyan economy. Mukui utilized Gross Domestic Product growth rate as a linear expression of externally borrowed funds to establish that externally borrowed funds and the debt-servicing adversely affects the growth of an economy. Umaru, Aminu, & Musa (2013) argued that debt obtained from the external sources has an adverse effect on growth of the economy, while domestically acquired debt-funds was favorable to growth development of a country. According to Osewe (2013), by using Solow model, there was no long-term cause-effect affiliation of domestically acquired debt-liability and growth of the economy with a 5% significance level in Kenya. According to Rabia & Kamran (2012) in the Pakistan economy, external borrowing slackened growth in the economy more relative to domestically acquired debt-liability. They associate this to the fact that repayment of external borrowing is often in terms of overseas currency despite the worth of the Pakistan currency just like other developing countries' currency is weaker compared to the creditor countries' currency. They suggest existence of the yearning for effective external-debt management in turn therefore, the debt ought to be used in a way that it adds worth to the economy.

Scholars have held various premises on the effect on economic growth attributed to public debt for various economies, and in the Kenyan economy in particular. According to Wanjuki (2016), there exists with statistical significance that an increase in domestic debt is crowding-out

private investment. Excessive longterm external debt leads to over-indebtedness problems as all debt servicing has a negative impact on real GDP. The study was carried out in the period 1980-2013 using OLS regression techniques to model debt in real GDP and the investment function. In the long term, however, domestic loans had no significant affiliation to Gross Domestic Product with no vital shocks over a short term (Achwoga, 2016). Akram (2010) used the Solow growth model studying the national debt outcomes on Pakistan's growth of economy from 1970-2009, observed national liability almost always led to the deterioration of economic growth because of its impact on investment. This present research relies profoundly on this research, including the model used. Musyoka's (2016) study examining the result of national debt-obligation on evolution of the Kenyan economy concluded an existence of deterred economic growth adversely influenced by government debt According to Mbah (2016), the Keynesian school believes that government loans can stimulate economic growth by financing public expenditure deficits, thereby stimulating aggregate demand, thereby encouraging increased private investment, which has a positive impact. However, excessive public debt will bring a heavy debt burden to the country, so this investigation attempted to bridge this breach through examining the impression of government obligation as well as all its components on Kenya's economic growth. Hence, we state our first hypothesis as:

$H0_1$:External debt stock insignificantly increases the economic development of Nigeria

2.6 Total Debt Servicing and Economic Development

IMF (2003) defines debt service as the payments required to be made in respect of both principal and interest for an existing loan. According to Merriam-Webster (2019), debt service is the amount of interest and sinking fund payments due annually on long-term debt. Business Dictionary (2019b) refers to debt service as the payment of principal and interest due on existing debt. IMF (2003) seeks to highlight the difference between actual debt service and scheduled debt service. According to IMF (2003), actual debt service is the set of payments actually made to satisfy a debt obligation, including principal, interest, and any late payment fees. On the other hand, scheduled debt service is the set of payments including principal and interest, which is required to be made throughout the life of the debt (IMF, 2003). In a nutshell, debt service is the amount of money which includes the interest expense and principal – a borrower is required to pay periodically to the lender throughout the lifetime of a loan. The effect on economic growth is that, if debt servicing is judiciously done, it portrays the borrowing country as a credit worthy country before the creditor countries and other lending organizations. In other words, the economy grows with the inflow of more borrowed funds. The danger is that it may lead to too much dependency on foreign loans and debt overhang. The borrowing country will become so highly indebted, in such a manner that their available resources may not be able to satisfy the debt obligations. Management of debt crisis inhibits economic growth because it involves payment of accumulated interest, principal and interest penalties emanating from failure to keep to the terms. The Highly Indebted Poor Countries (HIPCs) that find themselves in this net attempt debt rescheduling or cancellation negotiations. However, the best option is usually to exercise proper control over foreign borrowing and to do it with a lucrative capital investment in mind. When the borrowed fund is exclusively channeled to profitable projects and their completion, the returns from the investment will help to service the loan in the future and the desired economic growth will be achieved. Hence, we state our second and final hypothesis as:

$H0_2$:Total debt servicing insignificantly increases the economic development of Nigeria.

2.7 Theoretical Review

This study is hinged on the debt overhand theory. Howard first proposed this theory in 1972. In 1988, Paul Krugman coined the phrase "debt overhang" to describe the undesirable consequences of government borrowed funds on growth of an economy: furthermore, capacities for repayment for outstanding facilities falls below the signed value. When the cost of possible forthcoming resource transfers is less than the debt, a country faces a debt overhang problem; a situation in which certain nations' inheritable debt exceeds the present worth in expected funds transference that lenders anticipate these nations to forego during repayment (Krugman, 1988). Both debt and its servicing have an effect on growth by depressing private investment. The country's deficit continually will increase because of higher external interest payments, thus, decreasing public savings if private savings don't counter the resulting effect. Debt servicing adversely affects the growth of an economy by decreasing amounts for which public funds are available for physical and human capital ventures (Clements et al., 2005). Debt overhang is well-known as a primary source of economic distortion and stagnation in economies with significant debt obligations (Sachs, 1989; Bulow and Rogoff, 1990). Since these nations lose their grip on private investors, economic development has slowed.

Furthermore, debt servicing depletes the revenue of the indebted country to a larger extent than the possibility for revamping the initial paths of growth is reduced (Chowdhury & Levy-Livermore, 1998). Debt overhang occurs not just when a nation acquires considerable amounts of debt; this also happens when the circumstances of a country change, thus becoming problematic to regulate and service the accumulating debt stock, this is according to Arslanalp and Henry (2004). These situations may arise as a result of negative economic shocks or ineffective economic policy. Bamidele & Joseph, (2013) debt servicing burdens thwarts rapid growth and development, worsening societal welfare. As debt service tends to be increasing proportion of a country's output, resources that could otherwise be employed for growth and development are taxed away by the lenders. This increases uncertainty in an economy thus, foreign investors are discouraged, and private investment in the economy is reduced. The debt overhang theory suggests that if a country is highly indebted to the extent that the debt is more than its repayment capacity, debt service will strangulate investments and hinder economic growth (Gordon & Cosim, 2018) . Debt overhang is a circumstance where the debt burden is so huge that a country cannot secure further debts to finance new project. Coccia (2017) stated that the theory posits that public debt and public debt servicing impact economic growth by making debt repayment priority rather than other expenditure. Excessive public borrowing has a dual effect to the domestic economy. The first is crowding out effect and also hike in increase interest rate. High interest payment obligation can raise a country's budget shortfall. Huge debt service will hamper growth by reducing the public resources productive spending to stimulate growth (Yusuf & Mohammed, 2021).

2.8 Empirical Review

Akpansung, & Gidigbi, (2020), examine the causal relationship between the two variables, as well as identifying the structural breaks in the variables. The study utilized Nigerian annual time-series data stretching from 1981–2018. Data were analysed using Johansen-Juselius cointegration, vector error correction modelling, Granger causality, Augmented Dickey-Fuller and Bai-Perron˝s multiple structural breaks procedures. The result provides convincing support for the existence of stable short-run and longrun relationships between public domestic debt and economic growth. The study neither found any causal relationship between public domestic debt-to-GDP ratio and real GDP growth rate nor established any lagged effect of domestic debt-to-GDP ratio on the growth rate of the gross domestic products in Nigeria. Bai-Perron's test found strong evidence of five structural breaks in the variables, with identifiable economic and political shocks in the country during the sampled period. Yusuf and Mohd, (2021) investigated the effect of government debt on Nigeria's economic growth using annual data from 1980 to 2018 and the Autoregressive Distributed Lag technique. The empirical results showed that external debt constituted an impediment to long-term growth while its short-term effect was growth- enhancing. Domestic debt had a significant positive impact on long-term growth while its shortterm effect was negative. In the long term and short term, debt service payments led to growth retardation confirming debt overhang effect. The findings suggested that the government should direct the borrowed funds to the diversification of the productive base of the economy. This will improve long-term economic growth, expand the revenue base and strengthen the capacity to repay outstanding debts as at when due.

Victoria (2021) investigates the effect of Nigeria's domestic debt on economic development of Nigeria spanning from 1981-2018. The secondary data used in the study were sourced from Central Bank of Nigeria Statistical Bulletin, Debt Management Office of Nigeria, World Bank Development Indicators and United Nations Development Program. The study made use of Ordinary Least Square Regression tools to determine the statistical relationship between Nigeria's domestic debt profile and Human Development Index as well as private sector investment. The outcome of the study in the first model showed that domestic debt servicing and state governments˝ domestic debts are significantly related to economic development. On the other hand, Federal domestic debt and State domestic debt are significantly related to private sector investment. Thao (2018) analyzed the effect of government debt on economic growth in six ASEAN countries, namely, Indonesia, Malaysia, Philippines, Singapore, Thailand, and Vietnam over the period 1995–2015. The General Method of Moments (GMM) estimation technique was adopted to measure the effect of government debt indicators on economic growth. The findings revealed a significant and positive impact of public debt, Foreign Direct Investment (FDI), GFCF and real effective exchange rate on economic growth while population growth had a significant negative effect on the growth rate of these countries. However, the study was based on ASEAN countries data whose findings cannot be directly

applied to Nigeria. Akhanolu (2018) examined the effect of public debt on economic growth of Nigeria using annual data from 1982 to 2017 and two-stage least square regression technique. The study modelled GDP as a function of internal debt, external debt, savings, and capital expenditure. The results revealed that external debt had a significant negative impact on growth while internal debt showed a positive impact. However, the study suffered from significant variable omission bias and the methodology used was inadequate in accounting for complex relationship between the study variables. The result showed that internal debt positively affects the economy.

Fasoye, (2018) examined the Nigeria's Domestic Debt Profile for the period 1980 to 2017 using the pooled OLS regression technique on secondary data on loans from CBN, Commercial banks, Merchant Banks and Non-Banking public sourced from the CBN statistical bulletin as its variables. The result indicated that all the variables were statistically significant and that all the available domestic debts instruments are pivotal to the country's development adding that they should be handled with caution as they portend a serious fiscal crisis unless the government will access greater domestic loans from the entire Banking system in Nigeria. The study, therefore, recommend that, Nigerian should carefully re-examine her local borrowing culture in order to prevent fiscal crisis. Mhlaba (2019) employ the ARDL method and quarterly data from 2002 to 2016 to examine the long-run and short-run effects of public debt on economic growth for South Africa. The study modelled GDP as a function of gross and net debt, investment, inflation and terms of trade. The empirical results indicated a significant negative impact of public debt on economic growth. The study was based on South African data and provided a basis to examine the impact of government debt on economic growth from a Nigerian-specific perspective. Saungweme and Odhiambho (2019) explored the causal relationship between government debt, debt servicing and economic growth in Zambia for the period 1979 to 2017 using a dynamic multivariate ARDL approach. To achieve this objective, RGDP was modelled as a function of stock of public debt, fiscal balance, and savings as a share of GDP. The empirical results indicated a unidirectional causal relationship from economic growth to public debt in Zambia. The study findings supported the hypothesis that the pace of economic growth matters in defining the level of public sector indebtedness. The study setting was in Zambia thereby creating a geographic gap and the need for a Nigerian- specific study.

Nwikina, Gbarato and Meekor (2020) analyzed the Nigeria Debt Nexus from 1981 -2019; using the Error Correction Model, and was discovered that, although debt servicing exerts negative relationship with economic growth, it is obvious that debt financing in Nigeria is a blessing as external and domestic debt stocks all exert positive influence on economic growth. However, only domestic debt stock is efficient enough to spur economic activities, which suggests that prudent employment of domestic debt which is not affected by exchange rate is a strong catalyst for rapid increase in economic activities in Nigeria the study recommends the choice for internally borrowed fund as the best benign financing option as well as its optimal utilization for meaningful commensurate economic activities.

3. METHODOLOGY

This study examines the effect of debt management on economic development in Nigeria using the *ex-post facto* research design as data for the variables were derived from secondary data sources. Specifically, annual data are obtained from the debt management bulletin, CBN statistical bulletin, and World Bank Development Indicators from 1980–2021. This period produces a larger number of observations compared to prior studies of Raza, Ali, Malik, Ahmad, Ul-Abidin, and Masood (2022). To reduce skewness, all the variables are transformed into their natural logarithmic form. The dependent variable in this study is gross capital formation (GCFM) while the independent variables are external debt stock (EXDB) and total debt servicing (TDSV). Autoregressive Distributive Lags (ARDL) model of Pesaran, Schuermann, and Weiner (2004) is used in this study to test the hypotheses. This technique calculates the impacts and uses a limits testing strategy to determine whether the variables in the model have a long-run relationship. One of the benefits of the ARDL method is that it may be used to simulate a mixture of I(0) and I(1) in the same specification, which is not possible with classic methods like Johansson's and Engel Granger's. Furthermore, the ARDL limits testing technique is more appropriate for small sample sizes and produces better estimates. The dynamics of both short-run and long-run parameters, as well as the speed of adjustment when there is a shock, are estimated simultaneously using this technique. Furthermore, because robust lag lengths are critical to this strategy, it avoids the problem of over-parameterization. However, the ARDL methodology has a flaw in that it is unable to include I(2) variables in its analysis (Nkwatoh, 2014). Mathematically, the econometric specification of the ARDL with the influence of structural breaks is given as:

However, the short-run estimate from the error correction mechanism derived from the long-run relationship is presented below:

Where:
GCFM=Gross Capital Formation
GDPC=External Debt Stock
ENCO=Total debt servicing
=First Difference Operator
=White-noise Disturbance Error Term
=Time
=Denotes the lag(s) being considered.
=Parameter Coefficients
ECT=Error Correction Term
= ECT coefficient, which must be negative, less than zero and significant sign for causality to exist in the long run

4. EMPIRICAL RESULTS AND DISCUSSION

In using ARDL approach, there is need to determine the optimal lag length using the Schwartz Information Criterion (SIC). The result is presented below.

Table 1: Lag Selection Criteria

Selection-order criteria
Sample: 1985 - 2021 Number of obs = 37

lag	LL	LR	df	p	FPE	AIC	HQIC	SBIC
0	-363.687				81417.7	19.8209	19.867	19.9516
1	-295.193	136.99*	9	0.000	3274.56*	16.605*	16.7892*	17.1275*
2	-288.875	12.636	9	0.180	3828.44	16.75	17.0723	17.6643
3	-281.904	13.942	9	0.124	4391.2	16.8597	17.3202	18.1658
4	-276.835	10.138	9	0.339	5723.5	17.0722	17.6708	18.7702

Endogenous: gcfm exdb tdsv
Exogenous: _cons

From the result presented in Table 1, the optimal lag length suggested for the stochastic equation based on Schwartz Information Criterion (SBIC) is 1. Hence, the optimal Lag for this study is 1.

4.1 Unit Root Test

In testing the time series properties of the variables in the model, the study performs a univariate regression analysis using the conventional Dickey Fuller Unit Root Tests in order to ascertain whether each of these variables has unit root (non-stationary) or does not have unit root (stationary series). The results are presented below:

Table: 2: Dickey Fuller (DF) Test for Stationarity

Variables			Interpolated Dickey-Fuller Critical Values		
At Levels-I(o)	DF t-statistics	MacKinnon p-value	1%	5%	Decision
GCFM	-3.789	0.0030	-3.648	-2.958	Reject Ho
EXDB	-1.328	0.6163	-3.641	-2.955	Accept Ho
TDSV	-2.110	0.2405	-3.641	-2.955	Accept Ho
At 1st difference - I(1)					
EXDB	-6.029	0.0000	-3.648	-2.958	Reject Ho
TDSV	-6.336	0.0000	-3.648	-2.958	Reject Ho

Source: Authors computation

Following the summary results of the unit root tests presented in Table 2 above, it is clearly shown that the variables considered are stationary at a mixture of levels {I(1)} [GCFM-{DF—3.789 (0.0030)}] and first difference {I(1)} [EXDB-{DF—6.029 (0.0000)}; TDSV-{DF—6.336 (0.0000)}] series. Therefore, given this scenario, there is need to test for the presence of long-run relationship among the variables in the model, which the ARDL technique is capable of capturing.

4.2 Cointegration Test

To determine the existence of long-run relationship or trend among the variables, a cointegration analysis is performed using ARDL bounds test. In this case, the null hypothesis of no cointegration (H0: $\beta 0 = \beta 1 = \beta 2 = 0$) is tested. The results obtained is presented below:

Table: 3: Pesaran, Shin, & Smith (2001) Bound Test for Cointegration

	Pesaran, Shin, & Smith (2001) Critical Values				
	5%		1%		
Bounds	Io	I1	Io	I1	Decision
F-Statistics	3.79	4.85	5.15	6.36	Reject Ho
t-Statistics	-2.86	-3.53	-3.43	-4.10	Reject Ho
F = 5.770					
t = -3.301					

Source: Authors Compilation

The results in Table 3 above depicts that the Wald F-statistic of 5.770 is greater than the upper critical values or bound of 3.79 at 5% level of significance as established by Pesaran, Shin, & Smith (2001). Similarly, in absolute terms, the study finds that the t-statistics of -3.301 is less than lower critical or bounds of -2.86 at 5% level of significance. Based on this, the study rejects the null hypothesis of no relationship and conclude that there is a long-run relationship between the series in the model for the period between 1980 and 2021. In testing for the long-run contribution of each of the explanatory variables on the dependent variable of concern, the long-run estimates of the relationship being analyzed are presented in the table below:

Statistics	Long Run		Short Run		
	EXDB	TDSV	EXDB	TDSV	ECM (ADJ)
Coefficient	0.347	-2.279			-0.150
t-statistics	3.34	-2.90			-3.30
p-value	0.000 ***	0.001 **			0.002 **
Number of Obs. 40; R-Squared: 0.6847; Adjusted R-Square: 0.6684; Prob>F: 182.43 {0.0000}					

Note: t & z -statistics and respective probabilities are represented in () and {}

From Table 4 above, the P-value of the F-statistic (0.0000) shows that the overall fitness of the model is at 1% significant level. The results of adjusted R-squared reveals a value of 0.6847. This connotes that about 68% of the systematic changes in economic development when measured in terms of gross capital formation are accounted for by the variation in the debt management as measured in terms of external debt stock and total debt servicing.

5. DISCUSSION OF FINDINGS

This study provides evidence on the effect of debt management on economic growth of Nigeria. Since the study is an extension of prior studies, only few studies in the literature are not in line with the findings of the present study. Particularly, we show that external debt stock [coeff. 0.347 (0.000)] has a positive and significant effect on the economic growth of Nigeria when measured in terms of gross capital formation in the long run but no relationship in the short run. This implies that the null hypothesis that external debt stock insignificantly increases the economic development of Nigeria is rejected. The finding is against those of Hamebed *et al.,* (2008) who opined that the much of external debt could dampen growth by hampering investment and productivity growth because of the fact that when greater percentage of reserves (foreign currency) are consumed in meeting debt service exchange rate fall and creditors outlines erodes causing reduction in access to external financial resource. Furthermore, the study negates those of Boyce and Ndikumanu (2002) noted that the inability of many Sub Sahara African countries to meet their social needs and escape from debt is, to a large extent, a result of the fact that the borrowed funds has not been used productively, instead of financing domestic investment or consumption, a substantial fraction of the borrowed funds was captured by African political elites and channeled abroad in the form of capital flight, the revealed. Particularly, we find that an increase in the external debt stock will significantly increase gross capital formation as a measure of economic development during the period under study. However, we find that total debt servicing [coeff. -2.279 (0.001)] has a negative and significant effect on the economic growth of Nigeria when measured in terms of gross capital formation in the long run but no relationship in the short run. This implies that the null hypothesis that total debt servicing insignificantly increases the economic development of Nigeria is rejected. The finding is in line with the studies of Clements, et al., (2005) and DMO (2016) who viewed external debt servicing as a form of embedded tax, which make investment virtually impossible and suffocates economic growth. Furthermore, the study is in line with those of Austin (2014) who investigated the correlation between debt servicing and economic and found that debt payments to Nigeria's creditors have a significant negative impact on GDP.

6. CONCLUSION AND RECOMMENDATION

This study examines the effect of debt management on economic development in Nigeria using the *ex-post facto* research design as data for the variables were derived from secondary data sources. Specifically, annual data are obtained from the debt management bulletin, CBN statistical bulletin, and World Bank Development Indicators from 1980–2021. The study concludes that an increase in the external debt stock will significantly increase gross capital formation as a measure of economic development during the period under study. However, the study concludes that debt servicing has a negative and significant effect on the economic growth of Nigeria when measured in terms of gross capital formation in the long run but no relationship in the short run. Based on the findings of this study, we recommend that a sound borrowing policy should be enacted by the Debt Management Office in collaboration with the legislature in order to impose a legal limit on external borrowings. The policy should be subject to review so as to meet the predominant realities of the economy. A condition where the executive arm of government has a free hand to borrow funds from the external sources as much as they wish will not go down well with the economy. Furthermore, the country should place more emphasis on diversifying the economy in order to move away from depending on oil earnings. This will secure it against external shocks that have their genesis from oil prices. This diversification should be: (a) tax diversification – by tax diversification, it implies that the government should make an effort to identify other new taxable bases while holding the tax rate constant. This, if well implemented, will provide the government with alternative funds for financing capital projects instead of securing a loan from external sources, (b) Agricultural diversification – will make the country become self-sufficient in food production. Not only that, but the economy also stands a good chance to earn forex for exporting the surplus of agricultural produce to other countries of the world. This, however, will go a long way to discourage importation and which will subsequently improve the status of our balance of payments.

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