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AN ARDL APPROACH TO MACROECONOMIC DETERMINANTS OF FOREIGN DEBT IN NIGERIA

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Abstract

Following the desire to investigate the macroeconomic determinants of foreign debt in Nigeria, the study used the Autoregressive Distributive Lag (ARDL) with the help of gross domestic product, consumer price index, domestic credit, productivity index, population, foreign reserve and balance of payment account as the utilised macroeconomic determinants. The secondary data used was the Central Bank of Nigeria statistical bulletin and was used between the year 1981 and 2023 and unit root test augmented Dickey Fuller test was used to test the stationarity of the data set used. The unit root test value indicated that after the initial differencing, the data set were stationary whereas the ARDL value indicated that in the short term, the consumer price index, gross domestic product and population were significant in explaining the external debt in Nigeria whereas balance of payment, domestic credit, productivity index and external reserve were not. The result that should have been obtained in the error correction is that the rate of error correction during the period was at 51.3. The study concludes that the macroeconomic variables that are critical in explaining the foreign debt of Nigeria include gross domestic product, consumer price index and population and recommends that among others, deliberate effort should be consciously made by the government in providing environment that will enable business strive being a striving business will help contribute to the overall gross domestic product which have been seen to be a key determinant of foreign debt in Nigeria.

Keywords:

Macroeconomic Determinants, Foreign Debt, Keynes Theory, Dependency Theory, Autoregressive Distributive Lag.

1.0 Introduction

Governments on any level use borrowing to supplement revenue deficit or fund budget deficit. Consequently, there will always be a disparity between the assets that are available and the amount that has been budgeted to spend. In an attempt to solve the problem created by such gap, most governments venture into borrowing. Yerima and Tahir (2020) stressed that no government is an Island as they will require additional support to perform effectively, which entails foreign borrowing. The fact still recalls that all countries of the world always strive to reach economic stability that demand resources. Nevertheless, the limited availability of these resources at times

obliges the nations to pursue external resources that they need to meet the established macroeconomic goals. Countries thus borrow where they cannot make sufficient domestic savings to conduct their productive activities. The borrowed money is supposed to be used in undertakings that aim at enhancing the living standards of the citizens. In all economies, such as the Nigerian economy, the resources to finance the government operations are not available in abundance due to low domestic savings, low tax revenues, low productivity or minimal foreign exchange earnings. Essentially, it is due to these reasons that most economies such as Nigeria who are aspiring to attain her desired macroeconomic targets are bound to turn towards external funding to cover the difference between her savings and investments. Countries become debtors in the event that domestic savings are not made.

The Nigerian external debt trends and patterns have been subject to a number of notable trends and patterns over the last few decades, which can be attributed to the changing economic and political environment of the country. Among the trends is the variation in the external debt composition of Nigeria and this has been observed through variations in the relative contributions of the bilateral, multilateral and commercial creditors. During the initial years after the independence, multilateral institutions dominated in the external borrowing in Nigeria. They offered concessional loans and technical support of development works. But the opening up of commercial lending markets in the 1980s and the liberalization of the Nigerian financial sector led to the country starting to have access to external funding through a broader group of sources, such as commercial banks, bond markets, and the private investors. Such diversification of sources of funding came with its own set of chances and threats because Nigeria tried to strike a balance between its economic goals and the necessity to be fiscally responsible and be in control of the debt.

The determinant of foreign debt stock has been identified to be empirically associated with a number of macroeconomic factors. The role of macroeconomic variables in influencing debt is an important policy question that has a lengthy history (De Soyres et al, 2022). Abolon and Wafula (2020) affirm that the Keynes economic growth theory emphasizes the inefficiency of the macroeconomic indicators to affect the outcomes of the decision of the private sector in influencing the policy response of the public sector in maintaining the business cycle stability. Such microeconomic variables as low rate of growth, high inflation and low domestic credit may lead to government attempting to find external financing as a measure to maintain the stability of the economy. It is therefore high time we critically analyzed macroeconomic determinants of foreign debt in Nigeria in terms of gross domestic product, domestic credit, production index, inflation rate as proxied by consumer price index, population, foreign reserve and balance of payment as our foreign debt macroeconomic determinant. The above is the concern of the researchers as they have to address the need to do so.

2.0 Literature Review

2.1.1 Conceptual Review

As indicated by Central Bank of Nigeria (CBN) (2010), the debt obligations of the government to different entities include external debts or foreign borrowings that comprise multilateral bodies, the London club, the Paris club, foreign promissory notes, and other unclassified external

borrowings. In simple terms, foreign debt is the money that is utilized in a country but not produced locally and do not belong to the citizens of the country be it in form of corporate bodies or individuals. In the example of Nigeria, foreign debt is the debt that is owed by the public and private sector of the Nigerian economy to the non-residents, and that can be paid in the foreign currency, goods and services.

Some of the ways of attracting foreign debts include trade, financing of contracts, financing of supplies, personal investments as well as government borrowing. The foreign debts sources are banks, international financial markets (euro-money and capital markets), international organizations (e.g. international monetary fund (IMF) and world bank), multilateral and bilateral organizations. These foreign debts are usually handled and overseen to be duly repaid and financial stability met.

2.1.2 Microeconomic Determinants of External Debt

Economic Growth: - Economic growth that is mostly determined by gross domestic product is a major factor that determines the dynamics of the external debt in Nigeria since the government is trying to finance investment in infrastructure, human capital, and production capacity. Increased economic growth is related to the increase in the borrowing power since the government collects more revenues and is also more creditworthy to the borrowers. Nevertheless, external debt is not directly proportional to economic growth and too much borrowing may result in debt overhang and hinder the future development opportunities. Dawood et al (2021) assert that a slow rate of economic growth may strain the foreign debt demands. In case the economy has a low growth rate, the economy might pursue external funding to invest in the major infrastructures that have the potential of driving growth. That is, the rate of economic growth is an important factor in the determination of external debt.

Domestic Credit: - Domestic credit is a macroeconomic variable and it is very instrumental in determining the economic performance of a country. The domestic credit gives the required funds that businesses invest in growth, technology, and innovation in the economy. Availability of credit helps households to make huge purchases which boosts the economy in terms of demand. The Apex monetary authority controls the local credit levels in order to manipulate the interest rates to affect the cost of borrowing. Reduced rates can stimulate borrowing and consumption whereas the increased rates may aid in the dampening of an overheated economy. Too much domestic credit may result in asset bubbles and higher default risk and pose a risk to financial stability.

Population Growth: - The effect of population growth on the external debt is so significant as it affects economic and social requirements. The high rate of population growth results in increased demand on the available services to people like education, medical care, and infrastructure that in most cases translates into increased government expenditure. Governments can also borrow externally when the internal revenues are not enough to sustain these demands. As it is stated by the IMF (2023), the population growth rate in Nigeria has always been great and required significant government spending. This development places the government under the strain of spending more on basic services and infrastructural development that is commonly funded by foreign debt.

Productivity Index: The productivity index, which is the measurement of how well production is done in an economy, has a great impact on the level of external debt. Increased productivity may result in an improvement of the economy in terms of higher tax revenues and less reliance on external borrowing. On the other hand, low productivity may also slow the economy and make people more dependent on foreign debts. The empirical evidence indicates that productivity is critical in external debt management. To give an example, the International Monetary Fund (IMF, 2024) states that the reliance of a country on external borrowing can be decreased due to the enhancement of productivity by technological progress, education, and infrastructure development.

Foreign Reserves: - Foreign Reserves are of importance in that a country is able to meet its international commitments and that it will stabilize its currency. Sufficient reserve of foreign currency can limit the necessity of external borrowing since it acts as a buffer to the external shocks and the country can pay its international payments. Nations that possess large foreign reserves are typically considered lower risk by foreign lenders and this may reduce the cost of borrowing as well as minimizing dependence on foreign debt. Recent data show that the foreign reserves of Nigeria have been subject to changes because of different factors, such as the fluctuation in the oil prices as well as the foreign investment flows.

Inflation rate: - Inflation influences the true worth of debt which influences decisions to borrow and sustainability of debt. The effect of inflation on foreign debt is in terms of cost of servicing the debt and economic stability. Inflation undermines the worth of the domestic currency and consequently, foreign debt becomes costly to service in case the debt is made in foreign currencies. Furthermore, inflation may be a sign of economic instability and consequently, the cost of borrowing will be high, as well as the dependency on foreign debt. Empirical research has revealed that external debt is a strong factor which is determined by inflation. The high inflation rates have been linked to the level of debts because of the economic uncertainties and fiscal strains involved.

Balance of Payment: - Balance of Payments (BOP) is a financial statement of all the economic activities of the people of a country and the rest of the world in a given period of time usually a year or a quarter. It monitors the movement of goods, services, capital and financial assets within the country and into the country. It is classified into two major accounts, the current and the capital account. The current account is used to account the flow of goods, services, income and current transfers. It is a mirror of the net income and the balance of trade in the country. Current account balance indicates a net lender or borrower in terms of the flow of goods, services, and income whereas the capital account records capital transfers and monetary transactions between the residents and non- residents. It measures the flow of capital, investments and even loans in and out of a country. Capital account assists in the demonstration of overall financial health and investment climate in a country. It is an important factor of foreign debt since it may determine the exchange rate since the entry and exit of foreign currency will influence the value of the currency of a country and also determines the economic position of the country. Deficit might be a sign of a country living beyond its capacity and surplus might be a sign that the world has high demand of goods and services produced by a country.

2.2 Theoretical review

a. Keynesian theory

According to Keynes, the answer to the Great Depression was to stimulate the economy (inducement to invest) by means of a mix of two methods: a decline in interest rates and government expenditure in infrastructure. Government investment injects income leading to additional expenditure in the general economy which consequently causes additional production and additional investment with more income and further spending (Keynes, 1936). The original stimulation is the first of a series of events, the sum total of which is multiplied by the original investment increase in economic activity. Applying the Keynesian economics model to the situation in Nigeria, external borrowing may reduce the difference between governmental income and spending. As an example, when oil prices are low, the government of Nigeria is the main earner; hence, it can be in a budget deficit. The government spending, preservation of vital services, and economic impetus can be financed through external borrowing.

b. Dependency Theory

According to the theory, it is not the fact that the countries in the periphery are not integrated or wholly integrated into the world system as most free market economists claim, but the nature in which they are integrated into the system. In this perspective, one of the widespread schools of thought is the bourgeoisie scholars. (Ogunmuyiwa, 2011). The underdeveloped state and the regular reliance of the less developed nations on the developed nations to the former is in their view the outcome of their domestic misfortunes. They feel that this problem can be attributed to the fact that they are not well integrated, capital diffused, lack of technology, poor institutional structure, bad leadership, corruption, mismanagement, they feel that the under-development and dependency of the third world countries is not an external affliction but an internal affliction. The solution to the problem, as seen by this school of thought, is to have the third world countries request foreign aid in the form of aid, loan, investment etc and leave the Multinational to carry on its activities unhindered.

2.3 Empirical Review

Using the Autoregressive Distributed Lag (ARDL) model, Dirir and Aden (2025) examined the effect of various macroeconomic variables on the external debt in Djibouti between 1990 and 2022. According to the empirical model, the economic growth, trade, and government expenditure have a significant and positive impact on the foreign debt. Moreover, the findings showed that there was a positive relationship between the national savings and external debt of Djibouti. It is worth noting that the effects of FDI inflows on external debt were minimal in the long term and also population growth.

In research on determinants of public debt in Nigeria between 1970 and 2020, Okwoche and Nikolaidou (2024) examined the effect of armed conflict, arms import, and military spending on the public debt of Nigeria as public debt was broken down into domestic, external and gross government debts. The research has used autoregressive distributive lag method of cointegrating and the results indicate that there is conflict, arms imports, and military spending that have a

significant effect on external debt, but has no significant effect on domestic debt. The positive impacts of conflict and importation of arms on gross government debt are not surprising bearing in mind gross debt is one of the factors that capture the foreign currency debt.

In the research by Kijjambu et al (2023), the determinants of debt sustainability of Uganda were determined based on macroeconomic factors of real gross domestic product, primary balance, currency rate, real interest rate and trade openness using secondary time series data. The research indicated that primary balance, real interest rate, and real effective exchange rate had a positive and significant impact on debt implying that they are the key factors in the reduction of debt and its sustainability. Further results indicated that the current account balance significantly and negatively affects the debt and it was also found out that the debt did not affect the gross domestic product growth significantly in Uganda. This paper recommends that policymakers should focus on having a fiscal surplus and sound fiscal management.

Jarju and Njie (2023) employed the Autoregressive Distributive Lag (ARDL) cointegration bond test to determine the determinants of public debt of Gambia using the secondary annual data between the year 2000 and 2019. The determinants and the results of the study were growth rate of gross domestic product, trade openness, gross fixed capital formation, exchange rate, interest rate and government effectiveness, which revealed that trade openness and gross fixed capital formation have an increasing influence on the public debt of Gambia in the long-run. Findings also indicated that the GDP growth, exchange rate, and the government effectiveness have a declining impact on the level of public debts in the long-run. In the short run, the results showed that all the variables were not significantly related with the public debt in Gambia. Based on the findings, the research recommends that Gambian Government should enhance the effectiveness of governance in the country, especially, since the weak government institutions were observed to be one of the major causes of the country long-run public debt.

Using the method of Autoregressive Distributive Lag bond test to the estimation of cointegration, Atef et al (2023) analyzed the macroeconomic determinants of the external debt of Jordan using the data between the period of 1980 and 2022. Where the applied macroeconomic determinants of external debt were used, they are direct foreign investment, external debt service, gross domestic product, inflation, government spending, and real exchange rate. Results of the findings showed an inverse relationship between direct foreign investment gross domestic product and debt. The additional results indicated that government expenditure was directly linked with the growth of the external debt and exchange rate and inflation were observed to positively influence the external debt. They further added that in the short run, the variables respond to shocks with an error correction coefficient of 24% of a readjustment to the equilibrium.

Based on secondary annual data (1981-2022) of Nigeria, Olasehinde and Afolabi (2023) examined the relationship among the external debts and economic growth of Nigeria as an indicator of sustainable capacity building by employing the Autoregressive Distributed Lag bound technique and causality estimation techniques. Results obtained showed existence of long run relationship between the employed variables as well as that foreign reserves have a positive and significant long-run effect on economic growth. The causality shows that economic growth and trade openness have unidirectional causality running out of external debt and interest rate and

in the opposite direction. Following the results of the research, it was proposed that the government has to cease to contract unproductive loans and bonds to minimize excessive debt servicing, and thus be able to maintain capacity building at all levels.

Similarly, Mohammed (2022) used the Auto Regressive Distributed Lag and the Error Correction Model methods to determine the determinants of external debt in Nigeria on the basis of 1981-2020 data. The researchers established that there was a long-run relationship between the variables. The findings revealed that the effects of military spending, debt service and deficit on external debt were significant and positive whereas the effects of corruption and oil revenue were negative and significant. The research prescribed the government to take action that would encourage borrowed money to be invested in infrastructural and development of the industrial sector to lower deficit, corruption, and insecurity.

Based on annual balanced dynamic panel data based on world development indicator, Daba et al (2023) researched the short and long run impact of external debt on growth of 39 Sub-Saharan African countries between 2011 and 2021 and reported external debt to demonstrate significant negative impact in short and long run. They have found that the negative impact in the long run is more than the negative impact in the short run and further recommend that the policy makers in the Sub-Saharan African countries should consider allocating external debt funds on projects that introduce additional investment opportunities to the countries.

3.0 Methodology

A time series longitudinal research design was taken in the design of this study. As a series of data points through a time period will be gathered. Judgmental sampling method was used because it assisted the researcher to choose the samples due to the subjective mindset of the researcher in which there is no equal probability of occurrence of the selected members of the sample. The data that the study will use will be secondary, and will be obtained at the Central Bank of Nigeria Statistical Bulletin and will fall within 1981-2023.

Model Specifications

Relying on the Keynes theory, we can state that

Foreign Debt Balance = *f*(Macroeconomic Factors)……(3.1)

Factoring in our employed macroeconomic determinants of foreign debt (gross domestic product, domestic credit, production index, consumer price index, population, foreign reserve and balance of payment) into the above stated equation, we thus state further that;

FDB = *f*(GDP, DMC, PDI, CPI, PPT, FRS, BOP) ……..(3.2)

Where;

FDB = Foreign Debt Balance

GDP = Gross Domestic Product

DMC = Domestic Credit

PDI = Production Index

CPI = Consumer Price Index

PPT = Population

FRS = Foreign Reserve

BOP = Balance of Payment

For estimation purpose, equation (3.2) above can be rewritten as stated below;

$FDB_t = \alpha_0 + \alpha_1 GDP_t + \alpha_2 DMC + \alpha_3 PDI_t + \alpha_4 CPI_t + \alpha_5 PPT_t + \alpha_6 FRS_t + \alpha 7 BOP_t + \mu_i$ ……(3.3)

Where;

α_0 = Constant

α_1 to α_7 = Coefficients of the parameters

μ_i = error term and every other thing as earlier defined.

Method of data Analysis

Stationarity Test: - The unit root test is a statistical test that is applied to find out whether a time series variable is non-stationary and has a unit root. The series may be non-stationary, that is, it may have properties that vary with time, which may be a problem in analysis and prediction. The test that will be employed in the identification of the presence of a unit root in our time series is the Augmented Dickey-Fuller (ADF) test. That is, It will assist us in establishing whether a time series is stationary or non-stationary, which is crucial in making appropriate modelling and forecasting. A test statistic value that is lower than the critical value (or a low p-value) implies that you reject the null hypothesis of a unit root, indicating that the series is stationary and a test statistic more than the critical value (or large p-value) implies that you fail to reject the null hypothesis, suggesting that the series is non-stationary and has a unit root. It is noteworthy that determining the unit roots is vital in time series analysis because it determines future modeling approaches. Therefore, our unit root test result led to the decision of the estimation tools used.

Autoregressive Distributive Lag Test: - Autoregressive Distributed Lag (ARDL) test- This is a statistical test that is used to test the long-run relationship between two or more variables in a time series environment. It is usually applied when the variables can be aggregated at various levels or when time horizon is less than 30 periods (i.e. they can be at various levels of stationarity). The ARDL test enables estimation of the model parameters in a dynamic model considering the short term as well as long term effects. It may be especially helpful when the analysis is done in terms of cointegration, in which variables are long-term correlated, but can exhibit short-term dynamics.

4.0 Results and Discussions

4.1.1 Unit Test Results

Table 4.1: Unit Root Test Result at Levels

Variables	ADF Statistic	Mackinnon Critical value at			Probability	Order of Integration
		1%	5%	10%		
FDB	1.378894	3.621023	2.943427	2.610263	0.9986	I(0)
GDP	0,575390	3.621023	2.943427	2.610263	0.9870	I(0)
CPI	1.144283	3.621023	2.943427	2.610263	0.6873	I(0)
DMC	0.848465	3.621023	2.943427	2.610263	0.7931	I(0)
PPT	0.959189	3.661661	2.960411	2.619160	0.9950	I(0)
BOP	1.244001	3.621023	2.943427	2.610263	0.9979	I(0)
MFI	1.345321	3.621023	2.943427	2.610263	0.9921	I(0)
RSV	1.589773	3.626784	2.945842	2.611531	0.4774	I(0)

Source: Extract from E-views 10 Output

As can be seen in the table above of our stationarity test at levels, that all the variables were not stationary considering that the Augmented Dickey Fuller (ADF) statistics of the individual variables fell below the three critical levels of 1, 5 and 10 percent respectively. This necessitated the need for conduct a first order stationarity test as shown in the below table.

Table 4.2: Unit Root Test Result at First Differencing

Variables	ADF Statistic	Mackinnon Critical value at			Probability	Order of Integration
		1%	5%	10%		
FDB	6.429080	3.626784	2.945842	2,611531	0.0000	I(1)
GDP	4,835170	3.626784	2.945842	2,611531	0.0000	I(1)
CPI	8.687201	3.626784	2.945842	2,611531	0.0000	I(1)
DMC	4.488951	3.626784	2.945842	2,611531	0.0000	I(1)
PPT	3,122966	3.832900	2.948404	2,612874	0.0339	I(0)
BOP	4,814495	3.626784	2.945842	2,611531	0.0000	I(1)
MFI	5.033584	3.621023	2.943427	2.610263	0.0002	I(1)
RSV	4,271827	3,626784	2.945842	2.611531	0.0018	I(1)

Source: Extract from E-views 10 Output

The above table shows the result of the first differencing stationarity test which a mixed order of integration was observed. All the variables were stationary after first order differencing at the given various critical values except population which was only stationary at 1% and not stationary at 5% and 10% since the value of the associated Augmented Dickey Fuller (ADF) statistic was higher than the given critical value at 1% and lower than the given critical values at 5% and 10%. Given these findings, the Autoregressive Distributive Lag (ARDL) estimation

technique with its associated bond test will be further applied for further to determine the short and long run effect of external debt determinants on external debt stock in Nigeria.

4.1.2 Short-Run ARDL Model Estimate

Short-Run ARDL Model Estimate Result Showing Effect of External Determinants on Foreign Debt Balance

Table 4.3: Short-Run ARDL Result

Dependent Variable: FDB
Method: ARDL
Dynamic regressors (1 lag, automatic): BOP CPI DMC GDP MFI PPT RSV
Fixed regressors: C
Number of models evalulated: 128
Selected Model: ARDL(1, 1, 1, 1, 0, 0, 0, 0)

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
FDB(-1)	0.486623	0.310565	1.566893	0.1297
BOP	-0.000340	0.000269	-1.263423	0.2181
BOP(-1)	0.000448	0.000247	1.814524	0.0816
CPI	79.46941	18.25677	4.352873	0.0002
CPI(-1)	53.91667	27.43766	1.965061	0.0606
DMC	-0.000336	0.000258	-1.301200	0.2051
DMC(-1)	0.000498	0.000309	1.610070	0.1199
GDP	-0.190874	0.055364	-3.447649	0.0020
MFI	0.710312	29.99885	0.023678	0.9813
PPT	-7.46E-05	3.19E-05	-2.335111	0.0279
RSV	0.003110	0.002956	1.052102	0.3028
C	6864.769	3271.102	2.098611	0.0461

R-squared	0.971352	Mean dependent var	4097.789
Adjusted R-squared	0.958747	S.D. dependent var	7260.506
S.E. of regression	1474.666	Akaike info criterion	17.68686
Sum squared resid	54365993	Schwarz criterion	18.20932
Log likelihood	-315.2069	Hannan-Quinn criter.	17.87105
F-statistic	77.06070	Durbin-Watson stat	2.329789
Prob(F-statistic)	0.000000		

Source: Extract from E-views 10 Output

Out of the out above short-run Autoregressive Distributive Lag (ARDL), we have found out that the R-SQ which shows the extent to which the independent variables can explain the variability of the dependent variable is 0.971352 (97.13%). This shows that the independent variables explain the variability of the Nigerian external debt stock jointly by about 97.13%. Once this had been adjusted, the R-SQ was 0.958747 which shows a more viable measure to our model since the adjusted R-SQ is used to corrects the number of predictors. The F-statistic that the joint significance of the model coefficients are 77.06070 with a probability value of 0.00000 that

indicate that the variables have a significant effect since the F-statistic is considerably large. The test statistic (Durbin -Watson) that checks whether there is an autocorrelation (serial correlation) in the residues of a regression model is 2.329789. Given its value that falls with the region of 2, implies that there is no autocorrelation in our model.

The coefficients that indicated the effect of each independent variable on the dependent variable. As seen in our table above, the GDP had negative coefficient of 0.190870, which implied that the previous gross domestic product values had negative effect of approximately 19.08% on the external debt in the short-run. It also demonstrated a high P-value of 0.0020 that indicated that the result was statistically significant whereas DMC had a negative coefficient value of -0.000336 and was statistically not significant. This indicates that the stock of past values of domestic credit has negative short-run effects on external debt stock in Nigeria. CPI on the contrary had a positive coefficient of 79.46941 and was statistically significant implying that the previous values of consumer price index have a positive effect on external debt stock in Nigeria in the short run.

The BOP coefficient value has been found to be -0.000340 and it was not statistically significant implying that in the short-run, the past values of balance of payment have a negative effect on external debt stock in Nigeria. In addition, MFI had a positive value of 0.700312 and was statistically insignificant indicating also that in the short-run manufacturing index also positively contribute to the changes in the value of external debt stock in Nigeria. PPT was observed to have a positive coefficient of 7.4600 and was found to be statistically significant which means that external debt stock has a positive relationship with the population of Nigeria in the short-run whereas RSV had a negative coefficient of -0.003110 and it was found to be insignificant. It means that external reserve has negative effects on external debt stock in Nigeria.

4.1.3 Long-Run ARDL Model Estimate

Long-Run ARDL Model Estimate Result Showing Effect of External Determinants on Foreign Debt Balance

Table 4.5: Long-Run ARDL Result

ARDL Long Run Form and Bounds Test
Dependent Variable: D(FDB)
Included observations: 37

Conditional Error Correction Regression

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	6864.769	3271.102	2.098611	0.0461
FDB(-1)*	-0.513377	0.310565	-1.653041	0.1108
BOP(-1)	0.000108	0.000294	0.365778	0.7176
CPI(-1)	133.3861	29.49218	4.522761	0.0001
DMC(-1)	0.000162	0.000177	0.914370	0.3693
GDP**	-0.190874	0.055364	-3.447649	0.0020
MFI**	0.710312	29.99885	0.023678	0.9813
PPT**	-7.46E-05	3.19E-05	-2.335111	0.0279
RSV**	0.003110	0.002956	1.052102	0.3028
D(BOP)	-0.000340	0.000269	-1.263423	0.2181
D(CPI)	79.46941	18.25677	4.352873	0.0002
D(DMC)	-0.000336	0.000258	-1.301200	0.2051

Levels Equation
Case 3: Unrestricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
BOP	0.000209	0.000565	0.370967	0.7138
CPI	259.8207	121.2894	2.142155	0.0421
DMC	0.000316	0.000490	0.644702	0.5250
GDP	-0.371801	0.202495	-1.836103	0.0783
MFI	1.383606	58.53483	0.023637	0.9813
PPT	-0.000145	0.000119	-1.217712	0.2347
RSV	0.006058	0.006926	0.874727	0.3900

EC = EDS - (0.0002*BOP + 259.8207*CPI + 0.0003*DMC -0.3718*GDP +
1.3836*MFI -0.0001*PPT + 0.0061*RSV)

Source: Extract from E-views 10 Output

Based on the above ARDL bond test result, it is possible to notice that the F-Statistics value is 4.867163 and the several given asymptotic levels of 10% (3.13), 5% (3.5), 2.5% (3.84) and 1% (4.26) are lower than the given F-Statistics value. This implies that our used variables are cointegrated. That is, it implies the gathering of our variables data to some degree where it ceases to change thus, we can proceed to interpret our long-term coefficients.

Based on bond test result above, GDP registered a coefficient of -0.190874 with P-value of 0.0020 which is statistically significant. This means that the long-run levels of gross domestic product negatively affect external debt stock in Nigeria whereas CPI with positive coefficient of -133.3861 with P-value of 0.0001 which is statistically significant affects consumer price index in the long-run, positively in Nigeria. The coefficient of DMC was also positive with the probability value of 0.3693 that is not significant. This means that domestic credit had a positive impact on external debt stock in Nigeria in the long-run.

MFI has shown a positive coefficient of 0.710312 and P-value of 0.9813 that is not statistically significant. This indicates that manufacturing index has a positive influence on external debt stock in the long-run in Nigeria and PPT with a negative value of -7.4600 with a probability value of 0.0279 that is statistically significant. This implies that population in the long-run, have negative effect on external debt stock in Nigeria. BOP, however, had a positive coefficient of 0.000108 and P-value of 0.7176 that is not significant. This implies that in the long term, the effect of balance of payments on external debt stock is positive as RSV had a positive coefficient of 0.0003110 and probability value of 0.3028 that is statistically insignificant. This implies that the external reserve was positively associated with external debt stock in the long-run in Nigeria.

4.2 Discussions

Based on our short and long run estimation using ARDL, the gross domestic product was largely negative in both the case of short and long run. This finding implies that rise in foreign borrowing in Nigeria will adversely impact the growth of the economy represented by gross domestic product. This could be linked to the fact that the managers of the borrowed fund are unable to invest such borrowed fund in economic activities that are able to produce income with which the contracted loan can be repaid and also improve economic growth. One of the main macroeconomic factors of external debt is economic growth. An expanding economy usually offers increased ability to repay debt hence reduced cost of borrowing. Research has revealed that

the higher the economic growth of a country, the lower the burden of the external debt since the country can raise more revenues to pay debt. The relationship between economic growth and foreign borrowing has been stressed not be linear as Essien et al (2016) reported external borrowing to have no influence on economic growth and that public borrowings were not growth oriented in Nigeria. On the other hand, Atef el Ta (2023) also reported and negative correlation between foreign borrowing and gross domestic product in Jordan.

Domestic credit was seen to insignificant negative impact on foreign borrowing in the short run and positive insignificant impact in the long run implying that domestic credit in the short run will have a negative effect on external borrowing as it availability on the short run basis will reduce reliance on external debt given that domestic borrowers are more interested in lending only in the short run. The foreign exchange can also be obtained through the external debt to finance imports or to invest in productive infrastructure which increases the domestic availability of credit. This has been witnessed in those countries that have the export-oriented growth models. Conversely, when the external debt levels are high, then the domestic banks have a restricted capacity to lend to the private sector especially when it would be a burden to service the debt. This may squeeze out the domestic credit, with money being channeled to settle external debt. This can be empirically verified in the highly indebted developing countries in which the external debt servicing constrains the domestic credit expansion. Other studies such as Faini (2007) have indicated evidence that in some situations, external borrowing tends to complement domestic credit.

A major factor in determining external debt is inflation since it determines the capacity of a country to service the debt. Inflation rate may reduce the value of debt, and at the same time, it may impact the real cost of borrowing. The proxied inflation in terms of consumer price index was found to have positive significance indicating that high levels of inflation lead to high levels of the value of external borrowing. It is observed that inflation influences the real value of debt that can influence the decision on borrowing and the sustainability of debt. The study of Hlogwane and Daw (2022) found the inflation of consumer prices to be significant determinants of the public debt in the two regimes under examination and Carrascon and Tover-Garcia (2024) through their study reported inflation as a key influencer of the public debt in the countries of transition and post transition. With inflation, there is an increase in the cost of servicing debt.

Based on our findings, population also produced a strong impact on the external debt which means that when population increases, the demand levels on economic and social amenities also increase and when the government lacks sufficient resources to satisfy the social and economic needs, the government may turn to external borrowing. An example here is population growth which boosts demand of such public services like education, health care, and infrastructure, and consequently, government expenditure. In cases where the domestic revenues cannot cover such demands, governments will be forced to external borrowing because such growth will strain the government to spend more on basic services and infrastructure, which in most cases are financed by external debt. Clements et al. (2003) demonstrated that the excessive amount of external debt might lead to a debt overhang, i.e. the countries might not spend on the health and education as much as they should, as they have to pay the debt. This has the ability to impact the demographic indices, including infant mortality rates and life expectancy, in a negative way, which may affect population growth trends. Gulati and Krueger (2001) discovered that nations that have high levels of external debt experience high levels of poverty which can affect the rate of population growth since the poor population can have a high fertility rate.

The manufacturing index that is used to determine the efficiency of production in an economy was observed to be insignificant which implies that the manufacturing index in Nigeria do not have a significant effect on the Nigerian external debt though positive. In theory, economic

growth, subsequent growth in tax revenues, and the necessity of low external borrowing and vice versa may be the results of greater productivity and low productivity, respectively. Research claims that external debt may have both positive and negative impact on the economy of a country including manufacturing. The adverse effect is usually due to debt overhang and costs of servicing those debts that limit the amount of funds to invest in manufacturing or other industrial activities. Krugman (1988) noted that the government is spending more resources on debt service and hence less productive investments are possible and this may directly reduce the growth of manufacturing. Corden (1994) also indicated that as governments borrow more to pay off existing debt which results in an increase in interest rates and availability of capital to invest in the private sector (including manufacturing) decreases, the effect is also transferred to the manufacturing sector. Chadli, (2015) claimed that exchange rates are one of the greatest means of transmission of the influence of external debt on the manufacturing industry.

Balance of Payments (BOP) that is a financial account of all the economic activities between the nationals of a country and the rest of the world over a particular time had a negligible influence on the external debt. The fact that a country registers a positive balance of payment will ensure that the country can be able to pay the goods that it imports in the long run and that it will not have to depend on foreign borrowing. Research highlights that external debt is commonly employed to fund BoP deficits, particularly in developing nations where capital market access is not easily available. The short-term outlook of the BoP can be stabilized by using the funds borrowed externally to offset the current account deficits. Nevertheless, too much borrowing may cause unsustainable debt levels and this may exacerbate the BoP over time. Empirical evidence on the issue is given by Patillo et al (2004), who also found that high levels of external debt, especially when applied to low-income countries, are linked with a decrease in economic growth and aggravated BoP positions. Their analysis indicates that the debt burden impacts negatively on current account, which creates feedback in terms of difficulty in repaying debt in future. According to IMF (2013), the management of BoP is a major challenge to countries that have a high external debt to GDP ratio particularly when their debt serving obligation is higher than their exports.

5.0 Conclusions and Recommendations

Conclusions

The macroeconomic determinants of external debt in Nigeria were explored based on the gross domestic product, inflation which was measured by consumer price index, domestic credit, productivity index, population, balance of payment and foreign reserve as the macroeconomic determinants of external debt in Nigeria. Therefore, the research concludes its results that gross domestic product, consumer price index and population were statistically significant predictors of external debt in Nigeria whereas domestic credit, production index, balance of payment and foreign reserve were not found to be significant predictors of external reserve in Nigeria. Based on the above, we can broadly conclude that the macroeconomic variables that dictated the determination of the Nigerian external debt during 19862023 were the gross domestic product, consumer price index and inflation.

Recommendations

Based on our results, we can therefore recommend that;

i. The government should consciously make conscious efforts in availing environment that will enable business to struggle since a struggling business will add to the gross

domestic product that have been observed to be a major determinant of external debt in Nigeria.

ii. The government is being urged to subsidize major business commodities that will assist in reducing inflation as the high inflation is putting strain on the economy that will directly affect the value of external debt.

iii. Financial institutions must also do their best in the provision of credit because when credit is provided in the country, focus on foreign borrowing will be on bare minimum leading to less foreign debt and servicing.

iv. Increased population of the country should be engaged in productive activities, which would assist in improving the level of output. This is possible by the job provisions in the private and public sector of the economy.

v. The manufacturing industry must be prepared with the support and friendly policies which will enhance their manufacturing capacity as local manufacturing in case of its best achievement will lead to the reduction of much dependence on the external borrowing.

vi. Export will be highly encouraged because this will give rise to a positive balance of payment as the country will have surplus foreign currency to cover her imports instead of having to depend on the high rate of borrowing of foreign currency to finance imports.

vii. One thing that should be encouraged in government is to sure-up the external reverse in the boom period in the economy since this will assist in financing imports in case of need.

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