RISING EXTERNAL DEBT AND EXCHANGE RATE: EMPIRICAL EVIDENCE FROM NIGERIA

Chika Priscilla Imoagwu[1], Uju Regina Ezenekwe[1], Uche Collins Nwogwugwu[1]

[1]Department of Economics, NnamdiAzikiwe University,
Awka,Nigeria

Corresponding Author: Chika Priscilla Imoagwu
Corresponding Author Email: cp.imoagwu@unizik.edu.ng

ABSTRACT

The fluctuating exchange rate and massive debt burden of Nigeria necessitates a thorough investigation of trends in her foreign debt levels, its underlying causes, and implications for economic growth. This study, therefore, investigated the impact of rising external debt on the exchange rate in Nigeria with annual data from 1980 to 2021. The motivation for this study was premised on inculcating government spending and inflation rate into the traditional analysis of exchange rate volatility in Nigeria using data sourced from CBN statistical bulletin (2020), DMO (2020), and WDI (2021). The data obtained were analyzed using the Augmented Dickey-Fuller (ADF) unit root test, Autoregressive Distributed Lag (ARDL) technique, and the stability and diagnostic test in the analysis. Based on the outcomes of the preliminary test analysis, the results show that external debt has a negative but insignificant effect on the exchange rate in Nigeria. Also, external debt has a positive and significant effect on the inflation rate in Nigeria. In light of these findings, the study concluded and recommended that the Nigerian government and/ or Central Bank of Nigeria should ensure that all borrowed funds are effectively channelled into viable projects that will yield returns to service the debts as well as pay up the debt at maturity, which puts pressure on the foreign exchange market in the short term and consequently results in exchange rate fluctuations in terms of the depreciation of the naira in the country.

INTRODUCTION

External debts and exchange rates are two vital issues in Economics. The economic growth of third-world countries like Nigeria is often inhibited by the scarcity of funds since most of them rely on foreign earnings from exports of primary products, especially crude oil exports that are frequently affected by market fluctuations (Onuoha & Elegbede, 2018; IMF, 2019). Therefore, it is widely believed that developing countries that are in the early stages of development, can borrow money both domestically and internationally to augment their domestic resources to stimulate economic growth. Borrowing bridges the wider gap between expected revenue and proposed expenditure of the government which is referred to as a budget deficit.(Didia & Ayokunle, 2020). This is ideal when a country's growth potential is high or its returns on investments are higher than the interest on the borrowed fund (Adepoju, Salau, & Obayelu, 2007). Hence, the borrowed fund must be used for productive purposes such as the provision of infrastructural facilities; industrialization, investment in human capital, etc., and it must not be affected by macroeconomic instability, policy shocks, or other adverse shocks (Jibir et al., 2018).The justification for securing debt is usually based on the argument that when economic growth is achieved through debt, such growth could be used to finance the debt servicing and the eventual repayment of the debt (Egbetunde, 2012).

Despite the huge external debts that Nigeria had secured in the past few decades, there is nothing on the ground to show for it; rather, its economy is struggling. The government debt to GDP growth ratio released by the debt management office (DMO) showed that government debt to GDP in Nigeria increased to 34% in 2020 from 29.10% in 2019 (DMO, 2022) as indicated in Figure 1.
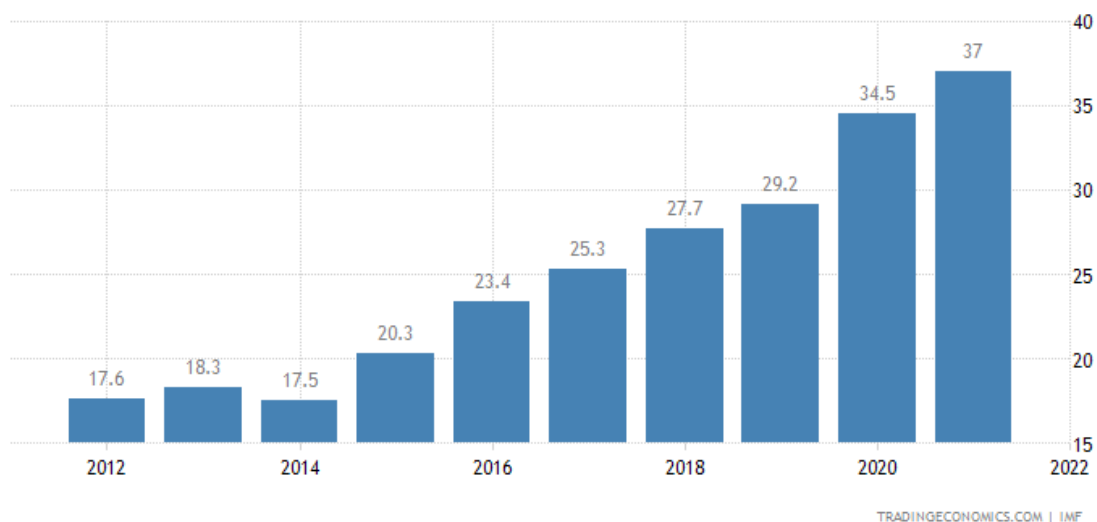

Figure 1: Government Debt to GDP.
*Source: IMF, 2022.

Although the country has been securing foreign loans since 1956, its goals of achieving infrastructural development, a stable exchange rate, a strong industrial base, high productive capacity, and so on remain a mirage (Nkamnebe, 2016). Nigeria has performed below World

Bank and other international economic rating agencies' expectations concerning its economic growth trajectory since independence (Yelwa et al., 2015). As depicted in figure 2, the country only experienced an average economic growth rate of 0.52% between 2019 and 2022 (NBS, 2022). Figure 2.
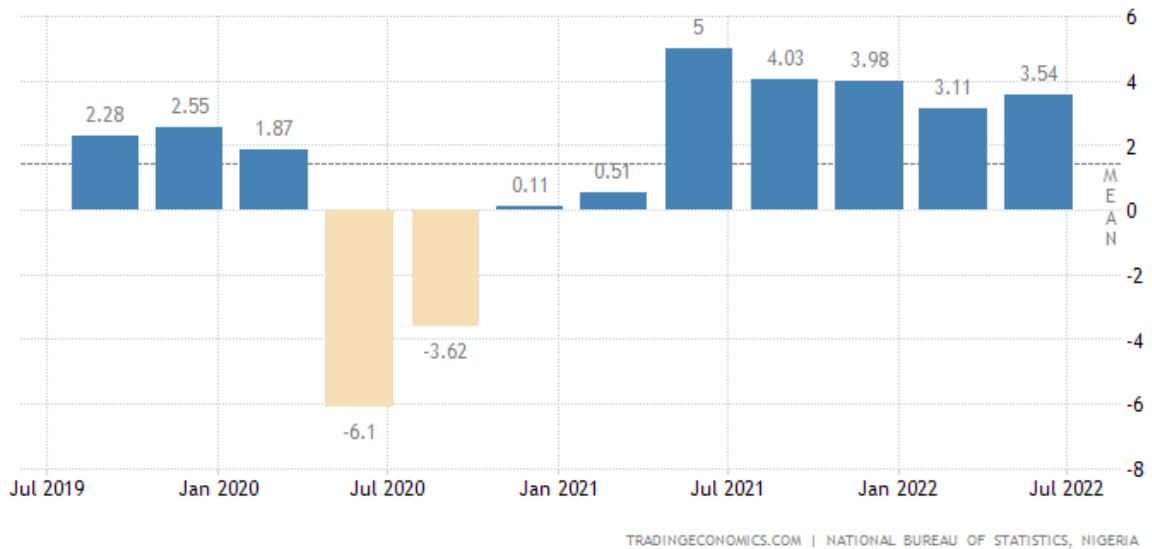

Figure 2: Economic growth rate of Nigeria.
*Source: NBS, 2022.

To this end, Apeh & Okoh (2014) argued that the expected positive effects of public debts are not achieved because the loans (both internal and external debts) are usually misappropriated. The funds were badly expended to run the government and finance recurrent government expenditures instead of financing productive projects. This created a massive infrastructural gap and economic development impediment in the country with serious socioeconomic implications like worsening unfavourable exchange rate occurrences (Okonjo-Iweala & Osafo-Kwaako, 2007; Sulaiman & Azeez, 2012).

Being an import-dependent country, Nigeria slipped into recession in 2016 due to its failure to diversify its economy (World Bank, 2019b). Also, Nigeria experiences imported inflation as a result of being import dependent. This has given little chance for the country's currency (naira) appreciation (Ozili, 2020). Thus, the country's currency – the naira – has experienced constant depreciation against the United States of America's dollars – the currency used by most Nigerians to make payments for importation (Muhammed & Abdulmuahymin, 2016).From 1981 to 2022, the exchange rate increases at an increasing rate as it fluctuates and depreciates from ₦2 to a dollar to ₦758 /$1. The constant depreciation is highlighted in Figure 3.
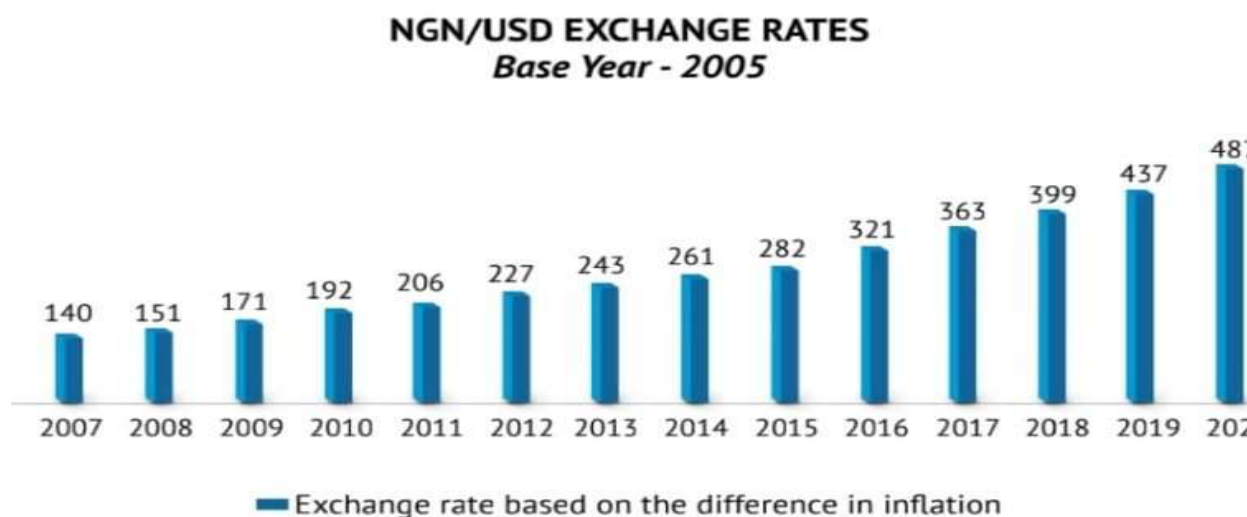
NGN/USD EXCHANGE RATES
Base Year - 2005

Figure 3: Exchange rate NGN/USD
*Source: CBN,(2021).

Consequently, the magnitude of Nigeria's foreign debt profile of about 40.1 billion US dollars which is approximately₦41.60 trillion reading an all-time high, and the high cost of servicing such debts that it spends about $83 million monthly to service debt which is about ₦9.94 billion annually of demand for foreign currency which poses corresponding effect on the exchange rate of the domestic economy (DMO, 2022). Hence, this instability has prevented the country from embarking on a larger volume of domestic investment which would have enhanced economic growth and stabilized her exchange rate. This is because the disparities and misalignments in the exchange rates between the naira and other developed currencies, such as the pounds, dollars, and Euros, are getting worse (Imoagwu et al, 2022).

Recently, the exchange rate pattern has not been completely favourable due to high import dependence which leads to imported inflation, poor exports, government spending, and exchange rate regimes practised in the country. Some economic growth experts have attributed the persistent exchange rate fluctuations to various factors and mainly economic management factors like low trades and high bills, and policy issues. (CBN, 2021).

Thus, most studies (Titus, 2013; Idris & Ahmad, 2017; and Ofurum & Fubara, 2022) on the impact of external debt on the exchange rate in Nigeria have focused only on measuring the effects of variables like external debt, cost of debt servicing, and foreign reserve on the exchange rate in Nigeria without measuring the effects of government efficiency in utilizing the external debt funds and inflation. Given the foregoing, this study aims to investigate the impact of rising external debt on the exchange rate in Nigeria given government spending and inflation.

LITERATURE REVIEW AND THEORETICAL FRAMEWORK
Fundamental Equilibrium Exchange Rates (FEER)
The FEER approach is based on "ideal" economic conditions, i.e. external and internal equilibrium. Internal balance is defined as a situation where there is high employment and low inflation while the external balance is when there is a sustainable desired net flow of resources between countries when they are in internal balance (MacDonald, 2007). There are two approaches to estimating a FEER. The first involves formulating an estimated macroeconomic model, which requires imposing the internal and external balance and solving for the real

exchange rate which is called the FEER. The second method involves using a current account equation and setting it equal to a sustainable capital account. There are three steps involved in the estimation of the FEER. The first step is to obtain the current account position and the current account deficit that would materialize in a specific year if the country were producing at its potential output level and the effects of past exchange rate changes had been fully priced in. The second step is to obtain an estimate of the "medium-run-equilibrium (sustainable) current account position" (which is also the saving-investment norm or target current account position). The third and final step is to measure/calibrate the change in the exchange rate that is needed to close the gap between the underlying and the medium-run equilibrium current account position, thus yielding the FEER. This is done to set the stage for the dismantling of controls on current account transactions which leads to further liberalization of the foreign exchange market.

Several theoretical contributions have been made as regards the subject matter of public debt; The Debt – Overhang theory is premised on the fact that when a nation's debt is more than its debt repayment ability with some probability in the future, the output of the country will likely lack the capacity to support the expected debt service. Moreover, the burden of external debt is also a concern to, the threshold school of thought(Debt - Later Curve Thesis) which emphasizes the non-linear relationship between debt and growth (Calvo, 1986). It links debt and growth to the problem of capital flight where at high debt levels growth falls. Other theories include the Purchasing Power Parity Theory, the Dual Gap theory, etc.

Empirical Literature Review

Many studies have been carried out in the past, using several approaches and methodologies, in the bid to address empirically how increasing government debt impacts the growth of the Nigerian economy both domestically and externally. One such study is Zhu (2019) who noted that it is necessary to confirm and understand the role of external financial liabilities such as external debt in high exchange rates volatility as such knowledge would enhance exchange rate risk management. To achieve this, Zhu (2019) employed Generalized Autoregressive Conditional Heteroskedasticity (GARCH) and Two-Stage Least Squares (2SLS) Regression Analysis to investigate the impact of external financial liabilities on the bi-lateral real exchange rate (RER) in 31 countries based on Autoregressive conditional Jump Intensity (ARJI) model. The analysis covered the period between 2001 and 2013 with variables such as bilateral RER jump intensities, external debt/equity liabilities, business cycle asymmetry, trade openness, the ratio of domestic liquid liabilities to GDP, and GDP per capita. The results of the analyses suggest that countries with high external debt liabilities are likely to experience high exchange rate volatility if they are facing more credit constraints. However, it was found that the high exchange rate volatility could be reduced through financial deepening, and the international risk-sharing channel between two countries with a higher degree of business cycle asymmetry. Applying the bounds testing approach to cointegration and error correction modelling, Kumar, Bhutto, Mangrio, and Kalhoro (2019) explored the impact of external debt and the volatility of the exchange rate on domestic consumption in Pakistan from 1980 to 2014. Using Augmented Dickey-Fuller (ADF) test, co-integration test, and Error Correction Model (ECM), The research findings revealed that income, interest rate, exchange rate, volatility of exchange rate, and external debt have a long-term association with domestic consumption and income, interest rate and exchange rate have positive impact whereas exchange rate volatility and external debt have

a negative impact on domestic consumption both short run and long run. Ezeanyeji, Imoagwu, and Ejefobihi (2019) examined the relationship between public debt and inflation in Nigeria from 1981 to 2017. The research finding indicated that public debt, exchange rate, and money supply have a positive and significant impact on inflation in Nigeria. More so, the real GDP growth rate has a negative and statistically insignificant impact on inflation in Nigeria.

Staveley-O'Carroll and Staveley-O'Carroll (2018) used a two-country productivity-shock-driven dynamic stochastic general equilibrium (DSGE) Model to investigate the effectiveness of foreign debt in achieving three economic objectives of the central bank which are: smoothing exchange rate fluctuations; exchange rate flexibility; and low terms-of-trade externality. They employed moments and impulse response functions to analyse the data of Eleven (11) Central and Eastern European Countries (CEECs) for the period between 1980Q1 and 2011Q3.It was found that as the size of the foreign debt of a country increases closer to its GDP while local productivity improves, the exchange rate would fall due to the debt valuation effect, which would cause lower consumer welfare.

Kilicarslan (2018) presents the theoretical framework for the factors that determine exchange rate volatility in Turkey from 1974 to 2016. The study used the GARCH model. However, the research finding from the FMOLS method established the direction and severity of the long-term relationship between the variables revealing that domestic investment, money supply, and trade openness positively affect exchange rate significantly, while foreign direct investment, output, and government expenditure negatively affect real effective exchange rate volatility. Also, Kouladoum (2018) adopted the generalized method of the moment to analyze the effect of external debt on the real exchange rate in Chad from 1975 to 2014. The analysis showed that external debt has a significant and positive effect on the real exchange rate in Chad.

More so, debt servicing affects negatively but significantly the real exchange rate in Chad. Furthermore, Ezeanyeji, Okeke, and Usifoh (2018) adopted the Error Correction model (ECM) estimation to examine the effect of external debt management on the exchange rate in Nigeria from 1981 to 2016. The research findings showed that the external debt stock does not affect the exchange rate of Nigeria. However, Nigeria's external service payment negatively affected the average official exchange rate in Nigeria.

Odior and Arinze (2017) applied Exploratory Data Analysis (EDA) and non-parametric approach, vector error correction model, and Granger-Causality technique to investigate the relationship between inflation, public debt, and exchange rate in Nigeria for the period between 1980 and 2016. It was found that there is a positive relationship between external debt and exchange rate in the short run, but it is not significant in the long run.

Galstyan and Velic (2017) observe that the exchange rate is relatively more stable in countries with low public and external debts, and therefore assert that it would adjust towards equilibrium when the debt levels become high. To confirm this claim, they applied panel Co-integration, and regime-switching error-correction model to examine the role of public and external debts in the dynamics of the exchange rate in ten (10) emerging market economies, namely: Argentina, Brazil, Chile, Indonesia, Korea, Malaysia, Mexico, Peru, Philippines, and Thailand with the data spanning from 1990 to 2011. The results of the analyses show that high volatility of real exchange rate misalignments characterises high debt levels. Specifically, this finding suggests that countries that have high public or external debts tend to have low exchange rates. This study is significant because it confirms that public and external debts play a significant

role in the real exchange rate adjustment process, which varies across emerging non-industrialized economies.

Nwanne and Eze (2015) assert that the effects of external public debt and external public debt servicing payments on the exchange rate of the Naira have not been satisfactorily investigated by extant studies which prompted them to examine the relationship between external debt receipts and external debt servicing with exchange rate fluctuations in Nigeria. The study was based on the monetary model of exchange rate determination and the monetary approach to international capital movements while Ordinary Least Square (OLS) multiple regression and cointegration analyses were employed to analyse the data between 1981 and 2013. The results of the analyses showed that there is a positive relationship between external debt receipts, and external debt servicing with the naira exchange rate both in the short-run and long-run.

RESEARCH METHODS

This study utilized secondary data (time series data) from CBN Statistical Bulletin, Debt Management Office (DMO), and World Development Indicators (WDI). The variables for which data were sourced include the average official exchange rate of naira vis-à-vis US dollar, external debt stock, domestic debt stock, external debt service payment, external foreign reserve, the balance of trade, government spending and annual inflation rate for the period between 1980 to 2021. The econometric software packages used for the analysis are the E-View 9 software.

Theoretical Framework

The theoretical underpinning of this study is the fundamental equilibrium exchange rate theory (FEER) and the Debt overhang theory. The FEER model was first introduced by Williamson (1994) in his internal-external approach and it was later refined and developed by Wren-Lewis (1992) while The Debt – Overhang theory propounded by Howard in 1972 is premised on the fact that when a nation's debt is more than its debt repayment ability with some probability in the future, the output of the country will likely lack the capacity to support the expected debt service. Thus, in the approach of equilibrium exchange rate determination, "ideal" economic conditions i.e. external and internal equilibrium serves as the yardstick. Internal balance is described as a situation where there is high employment and low inflation while the external balance is a situation where there is a sustainable desired net flow of resources between countries when they are in internal balance.

Model Specification

To achieve the objective of the study, the linear regression model is adopted to estimate the impact of rising external debt on the exchange rate in Nigeria. The functional form of the model is specified thus:

$$REER = f(EDS, DSP, BOT, GS, INF) \tag{3.1}$$

The mathematical form of the model is:

$$REER = a_o + \Delta REER_t = C_0 + \delta_1 REER_{t-1} + \delta_2 EDS_{t-1} + \delta_3 DSP_{t-1} + \delta_4 BOT_{t-1} + \delta_5 GS_{t-1} + \delta_6 INF_{t-1}$$
$$+ \sum \Phi_i REER_{t-i} + \sum \delta_j ED_{t-j} + \sum \Phi_j EDS_{t-k}$$

i=0   i=0   i=1

q3   q4   q5

$$+ \sum_{i=1} \Phi_i BOT_{t-i} + \sum_{i=1} \delta_j GS_{t-j} + \sum \Phi j INF_{t-k} \qquad (3.2)$$

The econometric form of the model can be expressed as:

$$\Delta REER_t = C_0 + \delta_1 REER_{t-1} + \delta_2 EDS_{t-1} + \delta_3 DSP_{t-1} + \delta_4 BOT_{t-1} + \delta_5 GS_{t-1} + \delta_6 INF_{t-1} + \sum_{i=0} \Phi_i REER_{t-i} + \sum_{i=0} \delta_j ED_{t-j} + \sum_{i=1} \Phi j EDS_{t-k}$$

$$q3 \qquad q4 \qquad q5$$

$$+ \sum_{i=1} \Phi_i BOT_{t-i} + \sum_{i=1} \delta_j GS_{t-j} + \sum_{i=1} \Phi j INF_{t-k} + \mu_t \qquad (3.3)$$

Where:

REER = Real exchange rate (proxied as volatility of exchange rate)

EDS = External debt stock in the previous year, measured as the ratio of GDP

DSP = Debt service payment in the previous year measured as the ratio of GDP

BOT = Balance of Trade measured as the ratio of GDP

GS = Government spending as a percentage of GDP

INF = Inflation rate, measured by the annual year-on-year inflation rate

LnFR = Natural logarithm of Foreign Reserve

α_0 = Constant

$\alpha_1 - \alpha_5$ = Estimation parameters

μ_t = Stochastic error term

t = Period (1980-2021)

A' priori expectation: $\alpha_0 > 0$, $\alpha_1 < 0$, $\alpha_2 < 0$, $\alpha_3 > 0$, $\alpha_4 < 0$, and $\alpha_5 < 0$, based on theoretical justifications, it is expected that the estimation parameters will turn out with signs and magnitude that would conform with economic theory. It is expected that external debt stock, external debt service payments, government spending, and the inflation rate would have an inverse relationship with the exchange rate while the balance of trade is expected to have a direct relationship with exchange rate fluctuation in Nigeria.

RESULT AND DISCUSSION

Descriptive Statistics

This section presents the descriptive statistics of the research where the mean, median, minimum, maximum, and standard deviations of the coefficients were described. The summary of the descriptive statistics are shown below:

Table 1

Descriptive Statistics Output of the Independent and Dependent Variables

	REER	EDS	DSP	BOT	GS	INF
Mean	66.66206	34.53925	5.047500	6.518000	3.680250	15.05550
Median	76.34591	25.05500	5.555000	6.095000	2.085000	12.69500
Maximum	154.2900	120.8400	11.20000	23.05000	9.450000	25.16000
Minimum	0.041573	4.080000	0.750000	-2.990000	0.910000	9.150000
Std. Dev.	46.57903	30.56778	3.518942	5.610165	2.820890	5.224736
Skewness	-0.058168	0.894114	0.101430	0.744788	0.834656	0.725771
Kurtosis	1.998849	3.101517	1.541618	3.838240	2.228230	1.887815
Jarque-Bera	1.693064	5.346780	3.613384	4.869137	5.637050	5.573219
Probability	0.428900	0.069018	0.164196	0.087636	0.059694	0.061630
Sum	2666.482	1381.570	201.9000	260.7200	147.2100	602.2200
Sum Sq. Dev.	84614.65	36441.17	482.9352	1227.484	310.3395	1064.617
Observations	40	40	40	40	40	40

*Source: Authors' Compilation with the use of E-views 9, 2022.

From the result in table 1, the null hypothesis from the Jarque-Bera test is that the distribution is normal. All the probability values of the variables are seen to be above the significant value of 0.05, therefore REER, EDS, DSP, BOT, and GS have a normal distribution curve, and only the probability of the value of inflation (INF) is seen to be below the significant value of 0.05 making it not to have normal distribution but other values are normally distributed because their probability value is above the significant value of 0.05.

Unit Roots Test Result

Table 2

Abridged ADF Unit Root Test

Variables	ADF-Statistic	Critical Value			Order of Integration	Durbin-Watson stat.
		1%	5%	10%		
REER	-4.285925	-3.615588	-2.941145	-2.609066	1(1)	1.950977
EDS	-5.885366	-3.615588	-2.941145	-2.609066	1(1)	1.997246
DSP	-7.916999	-3.615588	-2.941145	-2.609066	1(1)	2.078250
BOT	-4.926864	-3.610453	-2.938987	-2.607932	1(0)	1.913225
GS	-5.752216	-3.615588	-2.941145	-2.609066	1(1)	1.972864
INF	-5.976211	-3.615588	-2.941145	-2.609066	1(1)	1.999590
LnFR	-4.713652	-3.610453	-2.938987	-2.607932	1(0)	1.453836

Source: Authors' Compilation with the use of E-views 9 Output, 2022.

The result of a diagnostic test for unit root is presented in table 2. The result indicates in the model, that balance of trade (BOT) and log of foreign reserves are stationary at levels, that is 1(0) in the model, while real effective exchange rate volatility (REER), external debt stock

(EDS), debt service payment (DSP), government spending (GS), and inflation rate (INF) were stationary at the first difference, that is 1(1) in the model. According to Ouattara (2004), the bounds test approach is valid only when the variables are a mix of I(0) and I(1). Therefore, this research employed the ARDL – Bound testing method of co-integration analysis rather than the Johansen method.

The Results of the ARDL Co-integration Test

Table 3
Abridged ARDL Bound Test
Sample: 1980 - 2022
Included observations: 40

Null Hypothesis: No Long-run Relationships Exist

Test Statistic	Value	K
F-statistic	4.916659	5
Critical Value Bounds		
Significance	10 Bound	11 Bound
10%	2.26	3.35
5%	2.62	3.79
2.5%	2.96	4.18
1%	3.41	4.68

*Source: Authors' Compilation Using E-views 9 software, 2022.

The estimated results report shown in table 3 revealed that the bound test F-statistics of the model is 4.916659 and it's greater than the upper bound critical values of the lower and the upper bound at all levels of significance. This indicates that there is a unique long-run relationship among the variables. In other words, the calculated F-statistic exceeds the upper critical bound. Therefore, the null is rejected and the alternative hypothesis of the existence of a long-run relationship is accepted. Hence, the null hypothesis of no long-run relationship shall be rejected based on this empirical finding.

Estimation of Long-run Elasticities and Short-Run Dynamics

Table 4
Abridged Estimated Long-run and short-run Coefficients Based on ARDL (1, 2, 1, 2, 1, 0) for the Model

	Regressor	Coefficient	Std. Error	t-Statistic	Prob.
	EDS	-0.257350	0.433529	-0.593616	0.5581
	DSP	-16.509691	4.775779	-3.456963	0.0020*
	BOT	-8.425243	3.134032	-2.688308	0.0126*
Long-run	GS	-29.207034	7.204764	-4.053850	0.0004*
	INF	24.041553	3.360379	7.154417	0.0000*
	C	1.146578	69.702364	0.016450	0.9870
	R-squared =0.693280				
	Adjusted R-squared = 0.582054				
	F-statistics = 6.350429				
	Prob (F-statistics) = 0.000181				
	Durbin Watson = 1.542021				
Short-run	D(EDS)	-0.326404	0.212051	-1.539269	0.1363
	D(EDS(-1))	-0.453340	0.218535	-2.074449	0.0485*
	D(DSP)	1.012714	1.604307	0.631247	0.5336
	D(BOT)	0.373634	0.500494	0.746531	0.4623
	D(BOT(-1))	1.668856	0.516280	3.232465	0.0034*
	D(GS)	-1.530528	2.504025	-0.611227	0.5466

D(INF)	7.337323	1.689448	4.343031	0.0002*
CoinEq(-1)	-0.305193	0.080228	-3.804088	0.0008*

*Source: Authors' Compilation Using E-views 9 Output,2022.

It is documented in the long – run, that the coefficients of the constant (C) have a value of 1.146578. Although the positive coefficient of the constant term does not have any economic meaning, it meets our a priori expectation. This indicated that the value is positive but statistically insignificant with a p-value of 0.9870 which is greater than a 0.05% level of significance. Therefore, this shows that regardless of the change in the explanatory variables, the exchange rate will be increased by 114.6% in the study. It is observed that external debt has a negative and insignificant impact on the real exchange rate in Nigeria. The result conforms with the a priori expectation of this study. Similarly, external debt servicing (EDS), the balance of trade (BOT), and government spending (GS) have a negative but significant impact on the exchange rate in Nigeria. This implies that a one percent increase in external debt (EDS), debt service payment (DSP), the balance of trade (BOT), and government spending (GS) is associated with a 25%, 1650.9%, 842.5%, 2920.7% decrease in the real exchange rate (REER) respectively. On the contrary, the inflation rate (INF) has a positive and significant impact on the exchange rate in Nigeria. This indicates that a one percent increase in money supply will improve the exchange rate by 2404.1%.

However, in the short run, the coefficient of external debt stock D(EDS) and government spending D(GS) has a negative and insignificant impact on the exchange rate in Nigeria. Similarly, lag one of external debt D(ED(-1)) has a negative but significant impact on the exchange rate in Nigeria. It is documented that a one percent increase in the coefficient of external debt stock D(EDS), lag one of external debt D(ED(-1)) and government spending D(GS) is associated with a 32.6%, 45.3%, and 153.05% reduces exchange rate in Nigeria. It is further revealed that external debt servicing (DSP) and balance of trade (BOT) have a positive but insignificant impact on the exchange rate in Nigeria. Similarly, lag one of the balance of trade D(BOT(-1)) and inflation rate D(INF) have a positive and significant impact on the exchange rate in Nigeria. This probe that a one percent increases throughout the study increased, the exchange rate for the current year in Nigeria by 101.27%, 37.36%, 166.88%, and 733.7% respectively.

The result obtained from the estimation indicates that the overall coefficient of determination (R^2) shows that 0.693280 (69.3%) of changes in the exchange rate are explained by the variables in the equation. As the adjusted (R^2) tends to purge the influence of the number of included explanatory variables, the adjusted R^2 of 0.582054 showed that having removed the influence of the explanatory variables, the dependent variable is still explained by the equation with 58.2%. Coincidentally, the goodness of fit of the regression remained too high after adjusting for the degree of freedom. However, the problem of autocorrelation has been removed with the help of the autoregressive process, which is an efficient technique to tackle this problem. The *f*-statistics of 6.350429, which is a measure of the joint significance of the explanatory variables, is found to be statistically significant at a 1% level as indicated by the corresponding probability value of 0.000181. This indicates that the model is of good fit and external debt is significant. When governance variables are considered, the adjusted R^2 indicates that a reasonable amount of variation in the exchange rate is explained by the model. Moreover, the Durbin-Watson statistic of (1.542021) indicates the presence of a positive serial correlation. Finally, the

negative and statistically significant estimate of CointEq(-1) validates the established long-run relationship among the variables in Nigeria. The results also indicate that the estimate of CointEq(-1) is -0.305193 and is statistically significant at a 5% level. This implies that about 30.5% of the deviations from long-run equilibrium are corrected in the current year.

CONCLUSION AND RECOMMENDATION

The study investigated the impact of rising external debt on the exchange rate in Nigeria. From the empirical results, rising external debt has a negative but insignificant impact on exchange rate fluctuations in Nigeria both in the long run and short run. However, external debt service payment and government spending have a negative but significant positive impact on exchange rate fluctuations in the long -run in Nigeria, while in the short run, external debt service payment has a positive but insignificant impact on the exchange rate in Nigeria and government spending has negative and insignificant impact on the exchange rate in Nigeria. Based on these findings, the study recommends that the Nigerian government should minimise its increasing expenditures and external debt as a means of financing budget deficit since its servicing and repayment mounts pressure on the foreign exchange market and leads to exchange rate fluctuations in terms of depreciation of the naira in the country.

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