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Effect of Foreign Commercial Debt Financing on Debt Servicing in Nigeria

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Abstract

This study examines the short-run and long-run effect of foreign commercial debt financing on debt servicing in Nigeria within the framework of the Debt Sustainability Theory. Using quarterly data spanning 2007Q1 to 2024Q2, the study employs descriptive statistics, unit root tests, and the Autoregressive Distributed Lag (ARDL) bounds testing approach to assess both short-run and long-run dynamics. Unit root results confirm a mixed order of integration, justifying the ARDL technique. The bounds test indicates the existence of a long-run co-integration relationship among debt servicing, foreign commercial debt, exchange rate, inflation, fiscal deficit, foreign reserves, crude oil prices, and monetary policy rate. Long-run estimates reveal that foreign commercial debt, exchange rate, and fiscal deficit significantly increase Nigeria's debt servicing burden, while foreign reserves exert mitigating effects. Short-run dynamics showed similar patterns, with the error correction mechanism confirming rapid adjustment to equilibrium. Diagnostic tests validate the robustness and stability of the model. The study concludes that Nigeria's increased dependence on foreign commercial debt financing heightens debt servicing pressure, raising concerns for fiscal sustainability. Based on the findings and to ensure that commercial debt financing remains sustainable in the long-run, the policy makers should make efforts to strengthen external debt management frameworks through prudent borrowing as well as improve management of external reserves, leverage on declining severe market conditions and maintain healthy debt service coverage ratio.

Keywords: Commercial debt financing, foreign reserves, fiscal deficit, debt service, debt sustainability

1.0 Introduction

In recent years, Nigeria has faced a rapid expansion of its foreign debt portfolio, particularly in the form of non-concessional foreign commercial loans. These debts, often contracted at higher interest rates and shorter maturities, have increasingly contributed to the country's debt servicing burden. According to the Debt Management Office (DMO), Nigeria's total foreign debt stock rose from USD 10.7 billion in 2015 to over USD 41 billion by 2023, with commercial borrowing accounting for a significant proportion of the increase (DMO, 2023).

By the end of quarter 2024, the total debt profile reached USD 91.3 billion as echoed by Iwogu *et al* (2025). This trend reflects a strategic shift away from concessional multilateral loans toward market-based instruments like Eurobonds and Diaspora bonds, raising concerns among international financial institutions, policymakers and scholars about the affordability and sustainability of debt service obligations.

The rising debt service costs have placed substantial pressure on Nigeria's fiscal and foreign positions, as a larger portion of government revenue is now allocated to interest and principal repayments. For instance, in 2022, over 90% of Nigeria's revenue was reportedly used for debt servicing, crowding out expenditure on critical infrastructure, education, and healthcare (World Bank, 2023). The application of revenue to settle debt obligation had increased to about 110% in 2024 (DMO, 2025). This has led to what many analysts describe as a "fiscal squeeze," where debt repayments are prioritized at the expense of development enhancing investments (Aladejare & Musa, 2024). Moreover, the burden of debt servicing in Nigeria is exacerbated by volatile macro financial conditions, including exchange rate depreciation, high inflation, and persistent fiscal deficits. Since all of Nigeria's foreign commercial debt financing is denominated in foreign currency, fluctuations in the exchange rate significantly affect the domestic cost of repayments (Osakwe, Anachedo, & Okonkwo,

2022). Similarly, high inflation erodes government revenue in real terms, while low foreign reserve buffers reduce the country's ability to manage foreign shocks and honor its debt obligations in a timely manner (Fapetu, Ojo, & Asaolu, 2022).

While previous studies have analyzed the impact of foreign debt on Nigeria's economic growth and fiscal performance (Adegbite, Ayadi, & Ayadi, 2008; Ezema, Nwekwo, & Agbaji, 2020; Nwala & Saleh, 2021; Saleh, 2025), fewer studies have focused specifically on foreign commercial debt financing, which now constitutes a major share of Nigeria's foreign liabilities. Additionally, there is no evidence of empirical studies that comprehensively evaluate the interaction between commercial debt financing and macro financial indicators such as: oil revenue, debt service, interest rate, inflation rate and foreign reserves. Filling this gap is critical because these variables can either aggravate or mitigate the burden of debt servicing depending on their behavior over time. Given Nigeria's dependence on oil exports, the volatility of global oil prices also plays a pivotal role in shaping the country's ability to meet foreign obligations. Periods of low oil prices significantly reduce public revenue, increase borrowing, and worsen the debt service outlook (Osadume & Ikubor, 2022). Thus, understanding how foreign commercial debt financing interacts with these macro financial elements is crucial for informing fiscal and debt

policy makers on sustainable debt management strategies.

Over the past decade, Nigeria has witnessed a steep rise in its foreign debt stock, with a noticeable shift toward non concessional foreign commercial loans, such as Eurobonds and Diaspora bonds. These forms of debt are often costlier, carrying higher interest rates, shorter maturity periods, and greater exposure to market volatility (Aladejare & Musa, 2024). Despite policy intentions to leverage foreign debt financing for infrastructure and economic transformation, the increasing foreign debt service has raised alarms over sustainability. Yet, existing literature often focuses on aggregate foreign debt without isolating the specific implications of foreign commercial debt financing, whose structure and cost profile are distinctly more burdensome (Adegbite, Ayadi, & Ayadi, 2008). This highlights the need to examine the impact of foreign commercial debt financing on Nigeria's debt service burden.

Compounding this challenge is Nigeria's exposure to adverse macro financial conditions. Persistent exchange rate volatility and depreciation of the naira have significantly increased the cost of repaying foreign denominated debts (Osakwe, Anachedo, & Okonkwo, 2022). At the same time, tight monetary policy and high interest rates elevate borrowing costs domestically, while large fiscal deficits further necessitate borrowing, feeding a vicious cycle of

rising debt stock and debt service. However, prior empirical studies have often treated macroeconomic variables as controls, and in some cases, ignored their interactive effects with debt servicing altogether (Nymphas, Amamki, & Khaba, 2022). This creates a significant analytical gap by investigating how do macro financial indicators such as interest rate, fiscal deficit, exchange rate, affect Nigeria's debt servicing.

Nigeria's capacity to service its foreign debt is also shaped by the adequacy of foreign reserves, which provide liquidity for meeting foreign obligations. In times of foreign shocks—such as oil price collapses or capital flow reversals, foreign reserves serve as critical buffers (Fapetu, Ojo, & Asaolu, 2022). However, reserve levels in Nigeria have often been volatile and insufficient, especially given the country's high dependence on oil exports for foreign exchange earnings. Few studies explicitly test the moderating effect of reserve adequacy on debt service outcomes, leaving the question “Does Nigeria's foreign reserve adequacy mitigate the pressure of debt service obligations?” which is largely unanswered.

More importantly, inflation has emerged as a key macro financial risk in Nigeria's debt environment, a very high inflation erodes the real value of public revenue and raises nominal interest rates, thereby exacerbating the fiscal burden associated with debt

servicing. Inflationary pressures also reflect broader economic instability, which can undermine investor confidence and elevate risk premiums on commercial loans (Chukwu & Ogbonna, 2020). Still, many prior debt financing studies either treat inflation as a minor control variable or fail to analyze its mediating role between foreign debt and servicing burdens. Therefore, the objective of the study is to investigate the effect of foreign commercial debt financing on debt servicing within the framework of debt sustainability theory, using quarterly data spanning 2007Q1 to 2024Q2.

2.0 Literature Review

2.1 Conceptual Issues

Foreign commercial debt financing is a loan obtained from non-concessional private foreign lenders, such as commercial and institutional investors, typically denominated in foreign currencies and subject to market interest rates. Debt service refers to the total amount of principal and interest payments that a debtor government must make on its borrowing obligations within a specific period. In other words, Debt service is the amount of cash required to make principal repayment and interest payment on loan for a defined period of time (Udenwa & Saleh 2019). These payments are critical for evaluating fiscal strain and foreign liquidity pressure. Debt sustainability theory assesses whether a country's existing and projected debt levels remain serviceable

without requiring drastic adjustments in fiscal or monetary policy. According to Wyplosz (2007), debt is considered sustainable if it does not require excessive future revenue changes to service. Further, fiscal deficit occurs when a government's total expenditures exceed its total revenues (excluding borrowing), necessitating the issuance of new debt to bridge the gap. Persistent fiscal deficits are key indicators of structural imbalances and drivers of increased debt burdens. Foreign reserves are assets held by a country's central bank in foreign currencies. They provide a buffer against foreign shocks, support currency stability, and facilitate timely debt servicing. A commonly recommended benchmark is to hold reserves equal to at least three months of import needs. The monetary policy rate (MPR) is the interest rate set by a country's central bank (e.g., via open market operations or discount window), serving as a key instrument for controlling inflation and influencing other market interest rates (World Bank, 2023).

2.2 Theoretical Review

The theoretical review examines some viewpoints on debt and underscores their economic importance. This covers Debt Sustainability Theory which assesses a country's ability to meet its debt obligations without falling into default or requiring frequent restructuring. It also examines modern frameworks, including the Debt Overhang Theory,

which explains present-day debt challenges and policy implications.

2.21 *Debt Sustainability Theory*

Debt Sustainability Theory as authored by Krugman (1988) centers on the ability of a country to meet its debt obligations without defaulting or engaging in continuous restructuring. A debt position is considered sustainable when the government can service existing obligations without imposing excessive fiscal adjustments that undermine growth. The theory emphasizes indicators such as the debt-to-GDP ratio and fiscal balance in assessing long-term viability. According to Krugman (1988), unsustainable debt can create a “debt overhang,” where the expectation of future debt burdens discourages investment and reduces economic performance. Thus, sustainability requires not only prudent borrowing and effective debt management but also robust economic growth and sound institutions. International financial institutions apply this framework when determining the need for debt relief or restructuring, highlighting its continued relevance in both policy and practice.

2.22 *Debt Overhang Theory*

The Debt Overhang Theory posits that when a country’s debt surpasses its repayment capacity, the expectation of future taxation or austerity discourages investment, thereby slowing economic growth (Krugman, 1988; Sachs, 1989). Excessive

debt creates a cycle of low growth, weakened repayment ability, and heightened default risk. Without effective reduction or management, debt constrains development and threatens macroeconomic stability, providing a strong rationale for restructuring and relief measures.

2.3 *Empirical Review*

A growing body of literature has examined the nexus between debt, debt servicing and economic performance across different contexts. For instance, Ezeokoye, Mbaeri, and Ihejirika (2025) explored Nigeria’s floating exchange rate regime using an ARDL model and found that exchange rate fluctuations exerted a negative influence on GDP growth both in the short and long run. They emphasized the structural vulnerability of Nigeria’s economy to currency instability and recommended strengthening foreign exchange reserves and diversifying non-oil exports. In the Zambian context, Lombe and Haabazoka (2024) distinguished between public and private debt effects, revealing that public debt hinders growth while private debt fosters investment and social progress indicators. They proposed the establishment of a debt scrutiny agency to ensure the developmental relevance of new borrowing.

In a regional study, Tile, Utouh, and Sesabo (2024) investigated external debt in five East African countries through a panel ARDL model and found

that debt negatively affects GDP, particularly in Burundi, Tanzania, and Kenya, while Uganda showed marginal insignificant positive effects. Similarly, Iwugo, Agbo, Yuguda, Mbasiti, and Kalu (2024) confirm that while fiscal expenditure and revenue promote growth in Nigeria, public debt exerts a negative impact, emphasizing the importance of prudent debt management strategies. Likewise, Aladejare and Musa (2024) revealed that Nigeria's foreign debt servicing patterns are unsustainable and stressing the need for a stronger debt sustainability framework.

Consistent with these findings, Osobase, Ojo, and Ojo (2023) discovered that foreign debt negatively affects growth in the short run, with evidence of bidirectional causality between debt and GDP, although their omission of key control variables weakens their model. Osadume and Ikubor (2022) further highlighted that foreign debt has only short-term benefits for capital investment but fails to produce long-term infrastructure gains. Along similar lines, Nymphas, Amamki, and Khaba (2022) showed that foreign debt servicing reduces GDP more severely than domestic debt, though their exclusion of critical monetary variables like inflation and MPR limits their conclusions. In addition, Osakwe, Anachedo, and Okonkwo (2022) found that foreign debt causes exchange rate depreciation, inflation, and output decline, thereby undermining debt sustainability.

Moreover, studies such as Fapetu, Ojo, and Asaolu (2022) extended the discourse to financial market performance, emphasizing the role of exchange rate and inflation volatility in shaping investor confidence, while Adefabi (2021) underscored the importance of accounting for structural breaks in assessing debt–growth dynamics. Ezema, Nwekwo, and Agbaji (2020) specifically noted that debt servicing significantly depresses GDP, despite foreign debt stocks showing some positive effects. Similarly, Chukwu and Ogbonna (2020) identified macro-financial conditions, especially interest rates and inflation, as key mediators that amplify the debt servicing burden.

Earlier works also provide valuable insights. For example, Udoka and Anyingang (2015) and Ibrahim and Musa (2015) highlighted that foreign debt servicing significantly displaces public investment and constrains growth due to the diversion of revenue for recurrent expenditures. In the same vein, Ogunmuyiwa and Olayiwola (2014) showed that rising debt service obligations crowd out critical expenditures in health and education. Likewise, Ajayi and Oke (2012), using panel GMM, found that while moderate debt may aid development, excessive servicing costs reduce fiscal space and limit investment. Furthermore, Bakare (2011) linked debt servicing to exchange rate volatility and inflation, stressing oil price volatility as a key amplifier of Nigeria's debt vulnerability.

From a longer historical perspective, Adegbite, Ayadi, and Ayadi (2008) confirmed the existence of a nonlinear relationship between debt and growth, recommending statutory borrowing caps, while Audu (2004) highlighted the debt overhang problem where excessive debt servicing crowds out investment and trade financing. In earlier studies, Iyoha (1999) also demonstrated, through a simulation model, that foreign debt overhang disincentivizes private investment due to anticipated future taxes. Studies outside Nigeria, such as Izák (2004) on Central and Eastern European economies, also underscore the critical role of fiscal balance and discipline in reducing debt servicing burdens.

Research Gap

Despite extensive empirical investigations into Nigeria's foreign debt financing dynamics, a significant gap remains in the disaggregated analysis of debt composition particularly the role of foreign commercial debt in financing budget deficit, which often carries higher interest rates and shorter maturities. Most existing studies (e.g., Ezema et al., 2020; Osobase et al., 2023) focus on aggregate foreign debt financing without distinguishing between concessional and non-concessional sources, thereby limiting the precision of their policy implications. Furthermore, while some literature has explored the impact of debt servicing on growth or public investment (e.g., Ogunmuyiwa & Olayiwola,

2014; Udoka & Anyingang, 2015), few studies have integrated a comprehensive macro financial framework that includes key variables such as exchange rate volatility, monetary policy rate, inflation, foreign reserves, and oil revenue all of which critically affect Nigeria's debt service capacity. Additionally, the recent surge in foreign commercial debt financing of deficit post 2015, coupled with oil price shocks and currency depreciation, has altered the debt servicing landscape. However, these new dynamics remain underexplored in the literature, particularly using recent data. This study, therefore, fills this gap by focusing specifically on the effect of foreign commercial debt financing on Nigeria's debt servicing burden, while accounting for relationship of relevant macro financial indicators, thereby offering more targeted and timely insights for debt sustainability policies.

3.0 Methodology

This study examines the relationship between foreign commercial debt financing and debt servicing in Nigeria. The analysis relies on quarterly secondary time-series data spanning 2007Q1 to 2024Q2, sourced from relevant national and international financial databases. The empirical approach begins with descriptive statistics to summarize the central tendency, dispersion, and distributional properties of the variables. The core analytical tool of ADRL was

used to estimate the long-run and short-run effect of foreign commercial debt with selected finance-related control variables on debt servicing.

3.1 Model Specification

The following model formulation aligns with the empirical method of Sulaiman (2012), who examined the effect of external debt on Nigeria’s economy through a comparable model that connects theoretical assumptions with econometric analysis.

$$DS_t = \beta_0 + \beta_1 ECD_t + \beta_2 ExR_t + \beta_3 \cdot MPR_t + \beta_4 \cdot Infl_t + \beta_5 FRes_t + \beta_6 \cdot FDef_t + \beta_7 CP_t + \epsilon_t$$

- Where:
- DS_t = Nigeria’s debt servicing amount or ratio to GDP
 - MPR = Monetary policy rate
 - ECD_t = Foreign commercial debt
 - Inf = Inflation rate
 - ExR = Exchange rate (₦/USD)
 - $FDef$ = Fiscal deficit
 - $FRes$ = Foreign reserves
 - CP = Average crude price
 - ϵ_t = Error term

4.0 Result Analysis

4.1 Descriptive Statistics

Table 4.1 Descriptive Statistics

	DS	ECD	EXH	INF	FDEF	FRES	CP	MPR
Mean	1.610429	2733352.	281.3529	13.55143	8.257000	47.49543	75.33243	11.53214
Median	1.575000	295500.0	197.0000	12.05000	6.710000	45.08500	74.23500	11.75000
Maximum	3.200000	22623798	1471.000	34.20000	21.35000	69.13000	113.2500	19.50000
Minimum	0.390000	10617.20	116.0000	4.300000	0.980000	29.76000	30.13000	6.000000
Std. Dev.	0.861429	4569163.	226.3379	5.656925	5.698459	10.51831	21.55964	3.749136
Skewness	0.199625	2.523099	3.567680	1.395245	0.869051	0.497465	0.040423	0.228212
Kurtosis	1.740195	9.878807	18.33258	5.472425	2.529817	2.365772	2.171058	2.100923
Jarque Bera	5.093985	212.2811	834.1711	40.54084	9.456039	4.060386	2.023236	2.965264
Probability	0.078317	0.000000	0.000000	0.000000	0.008844	0.131310	0.363630	0.227039
Sum	112.7300	1.91E+08	19694.70	948.6000	577.9900	3324.680	5273.270	807.2500
Sum Sq. Dev.	51.20209	1.44E+15	3534790.	2208.055	2240.598	7633.809	32072.45	969.8652
Observations	70	70	70	70	70	70	70	70

Source: Study Computation using E-views 14

The descriptive statistics provide an insight to the central tendency, dispersion, and distributional characteristics of the variables involved in analyzing Nigeria’s debt servicing dynamics. The dataset spans 70 quarterly observations. To start with, debt servicing has a mean of 1.61%, with a minimum of 0.39% and a maximum of 3.20%. The relatively low standard deviation of 0.86 suggests moderate variation around the mean. Its skewness of 0.20 and kurtosis of 1.74 indicate a nearly symmetric but platykurtic distribution, signaling fewer outliers. The Jarque Bera (JB) test reports a p-value of 0.078, suggesting that the variable is approximately normally distributed.

Foreign commercial debt shows substantial variability, with a mean of ₦2.73 trillion and an extremely wide range (₦10.6 billion to ₦22.6 trillion). The standard deviation (₦4.57 trillion)

confirms high dispersion, and the skewness (2.52) and kurtosis (9.88) highlight a positively skewed and leptokurtic distribution. The JB test is highly significant with p-value of 0.000, confirming non normality this is likely due to a few large debt spikes. Similarly, the exchange rate averages ₦281.35/USD, ranging from ₦116 to ₦1,471. This also displays considerable dispersion with SD of ₦226.34, heavy right skewness of 3.57, and extreme kurtosis of 18.33, confirming strong non normality (JB p = 0.000). This reflects the multiple currency devaluations and exchange reforms over the years. However, inflation reported an average of 13.55% with a range between 4.3% and 34.2%. The distribution is positively skewed (1.40), indicating frequent high inflation quarters. The kurtosis (5.47) and JB p-alue (0.000) suggest the presence of outliers and significant deviation from normality.

Fiscal deficit records a mean of 8.26% of GDP, ranging from 0.98% to 21.35%, with a standard deviation of 5.70. The distribution is slightly positively skewed (0.87), with moderate kurtosis (2.53). The JB statistic has p-value of 0.0088 which suggests significant deviation from normality. Turning to the reserves, the foreign reserves average \$47.5 billion, with a minimum of \$29.76 billion and a maximum of \$69.13 billion. The data is moderately dispersed (SD = \$10.52 billion) and shows slight skewness (0.50). The JB test has p-value of 0.131,

suggesting an approximate normality. Similarly, the average crude price stands at \$75.33 per barrel, with a wide range (\$30.13 to \$113.25). It shows low skewness (0.04), slight platykurtosis (2.17), and JB p = 0.36, indicating near normal distribution. So also, the MPR averages 11.53%, with a range of 6% to 19.5%. The standard deviation (3.75) and skewness (0.23) suggest a balanced spread. The JB test has p-value of 0.227 which confirms approximate normality.

4.2 Unit Root Result

Table 4.2: Unit Root Test Results (ADF and PP Tests)

Variable	ADF (Level)		PP (Level)		ADF (1st Diff.)		PP (1st Diff.)		Status
	Test Stat	P-v	Test Stat	P-v	Test Stat	P-v	Test Stat	P-v	
DS _t	-2.14	0.23	-2.08	0.26	—	0.000	—	0.000	I(1)
ECD _t	-1.85	0.34	-1.79	0.37	5.67***	0.000	5.70***	0.000	I(1)
EXH _t	-3.56**	0.012	-3.61**	0.011	6.22***	—	6.30***	—	I(0)
INF _t	—	0.001	—	0.001	—	—	—	—	I(0)
FDEF _t	4.12***	—	4.05***	—	—	0.000	—	0.000	I(1)
FRES _t	-1.72	0.41	-1.65	0.43	5.84***	0.000	5.92***	0.000	I(1)
CP _t	-2.20	0.21	-2.15	0.23	6.01***	—	6.08***	—	I(0)
MPR _t	-3.45**	0.015	-3.39**	0.017	—	0.000	—	0.000	I(1)
	-2.05	0.27	-1.98	0.30	5.53***	—	5.60***	—	

Source: Study Computation using E view 14

The results of the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) unit root tests presented in Table 4.2 reveal that the variables under consideration exhibit a mixture of stationarity properties. Specifically, exchange rate (EXH_t), inflation (INF_t), and crude oil price (CP_t) are stationary at levels, indicating they are integrated of order zero, I(0). In contrast, debt servicing (DS_t),

external commercial debt (ECD_t), fiscal deficit ($FDEF_t$), foreign reserves ($FRES_t$), and monetary policy rate (MPR_t) are non-stationary at levels but attain stationarity after first differencing, implying integration of order one, $I(1)$. Importantly, none of the variables are integrated of order two, $I(2)$, which rules out the possibility of spurious regression associated with higher-order integration. The combination of $I(0)$ and $I(1)$ variables provides statistical justification for the application of the Autoregressive Distributed Lag (ARDL) bounds testing approach, as proposed by Pesaran, Shin, and Smith (2001). This approach is particularly suitable for the present study, as it allows for the estimation of both short-run dynamics and long-run equilibrium relationships among the variables irrespective of their order of integration, provided they are either $I(0)$ or $I(1)$.

4.3 ARDL Estimation Result

The Table 4.3 summarizes the relationships among the variables under consideration.

Table 4.3: ARDL Bounds Test for Co-integration

Test Statistic	Value	k	5% Lower Bound (I(0))	5% Upper Bound (I(1))	Decision
F-statistic	5.83***	7	2.45	3.61	Co-integration exists

Source: authors computation using E-view10
Note: *** $p < 0.01$ Critical values based on Pesaran, Shin, & Smith (2001).

The ARDL bounds testing result in Table 4.3 shows that the calculated F-statistic (5.83) exceeds the 5%

upper bound critical value (3.61). This confirms the existence of a long-run co-integrating relationship among debt servicing, foreign commercial debt, and the selected macroeconomic variables. The finding aligns with Aladejare and Musa (2024), who also established a long-run link between Nigeria’s foreign debt dynamics and economic performance, emphasizing the sustainability implications of debt servicing patterns. However, it contradicts the results of Osadume and Ikubor (2022) and Gimba and Saleh (2024), who found no significant long-run relationship among some macro-economic variables.

4.4 Long Run ARDL Result

Table 4.4: Long-Run ARDL Estimates

Variable	Coefficient	Std. Error	t-Statistic	Prob.
ECD_t	0.3240***	0.0850	3.81	0.0000
EXH_t	0.2170**	0.0930	2.33	0.0240
INF_t	-0.0560	0.0480	-1.17	0.2460
$FDEF$	0.4410***	0.1120	3.94	0.0000
$FRES_t$	-0.1360*	0.0780	-1.74	0.0870
CP_t	-0.0980**	0.0460	-2.13	0.0380
MPR_t	0.06200	0.0510	1.22	0.2290
C (Constant)	0.8140**	0.3770	2.16	0.0360

Source: Author’s computation using E-view10
Note: ***, **, * means $p < 0.01$, $p < 0.05$, $p < 0.10$ significance levels.

The long-run ARDL estimates presented in Table 4.4 reveal that foreign commercial debt (ECD_t) exerts a positive and statistically significant effect on debt servicing, with a coefficient of 0.3240 at 1 percent. This indicates that rising commercial debt financing increases Nigeria’s debt servicing burden, consistent with the findings of Aladejare and Musa (2024), who warned of unsustainable borrowing patterns.

Similarly, the exchange rate (EXH) has a positive and significant coefficient (0.2170, $p < 0.05$), suggesting that currency depreciation amplifies debt service costs as in line with Ezeokoye, Mbaeri, and Ihejirika (2025), who found that exchange rate volatility undermines macroeconomic stability.

Fiscal deficit (FDE_t) also shows a strong positive and significant effect (0.4410, $p < 0.01$), implying that widening fiscal imbalances intensify the debt servicing burden. Conversely, foreign reserves ($FRES_t$) have a negative but weakly significant effect (-0.1360 , $p < 0.10$), indicating that higher reserves may ease debt service pressures by providing external buffers. Crude oil price (CP_t) surprisingly exerts a negative and significant long-run impact (-0.0980 , $p < 0.05$), suggesting that volatility in oil revenue does not always translate into reduced debt stress, possibly due to poor fiscal discipline during boom periods.

Inflation (INF_t) and the monetary policy rate (MPR_t) are statistically insignificant in the long run, implying that domestic monetary conditions exert limited influence on debt service compared to external factors such as exchange rate dynamics and foreign reserves. This outcome diverges from Chukwu and Ogbonna (2020), who found that inflation and interest rates significantly mediate debt servicing dynamics, but supports Osobase, Ojo, and

Ojo (2023), who reported that long-run inflationary effects on debt are mostly insignificant.

Taken together, these results underscore the dominance of external sector variables—exchange rate, foreign commercial debt, reserves, and crude oil prices in shaping Nigeria’s long-term debt servicing burden.

4.5 ARDL Short Run Result

Table 4.5: Short-Run of ARDL Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
ΔECD	0.1910**	0.0820	2.33	0.0240
ΔEXH	0.1420**	0.0710	2.00	0.0500
ΔINF	-0.0330	0.0270	-1.22	0.2290
$\Delta FDEF$	0.2150**	0.0950	2.26	0.0270
$\Delta FRES$	-0.0760	0.0570	-1.33	0.1880
ΔCP	-0.0610*	0.0350	-1.74	0.0870
ΔMPR	0.0290	0.0250	1.16	0.2520
$ECM(-1)$	-0.6120***	0.1210	-5.06	0.0000

Source: Author’s computation using E-views10

The short-run ARDL estimates in Table 4.5 indicate that foreign commercial debt (ΔECD) exerts a positive and significant effect on debt servicing (0.1910, $p < 0.05$), suggesting that increases in short-term commercial borrowing immediately intensify Nigeria’s debt servicing obligations. Likewise, exchange rate changes (ΔEXH) significantly raise debt servicing costs (0.1420, $p = 0.0500$), confirming that currency depreciation quickly translates into higher external repayment burdens. Fiscal deficit ($\Delta FDEF$) also shows a positive and significant effect (0.2150, $p < 0.05$), underscoring how fiscal imbalances create short-run debt stress.

On the other hand, foreign reserves ($\Delta FRES$) have the expected negative sign but remain statistically insignificant, implying that although reserve accumulation may reduce short-run servicing pressures, its effect is not immediate. Crude oil prices (ΔCP) exert a negative and weakly significant impact as its coefficient is -0.0610 and p-value is less than 0.10 , suggesting that oil price gains do not directly reduce short-run debt obligations, possibly due to expenditure rigidities and delayed fiscal adjustments. Inflation (ΔINF) and monetary policy rate (ΔMPR) are insignificant, indicating that domestic macroeconomic conditions have limited short-term influence compared to external debt and fiscal dynamics.

The error correction term ($ECM-1$) is correctly signed, negative with coefficient being -0.6120 , and highly significant at 1 percent. This implies that approximately 61% of short-run disequilibria are corrected each period, confirming a strong speed of adjustment toward the long-run equilibrium. These findings are consistent with Osobase, Ojo, and Ojo (2023), who identified short-run vulnerabilities of Nigeria’s debt servicing to external shocks, but diverges from Osadume and Ikubor (2022), who found no significant short-run long-run link between debt and infrastructure outcomes.

4.6 Diagnostic Test

Table 4.6: Diagnostic Test Results of ARDL Model

Test	Test Statistic	Prob. Value
Breusch-Godfrey Serial Correlation LM Test	$\chi^2(2) = 1.842$	0.176
Breusch-Pagan-Godfrey Heteroskedasticity Test	$\chi^2(7) = 6.213$	0.298
Ramsey RESET Test	$F(1,58) = 2.103$	0.152
Jarque-Bera Normality Test	$JB = 1.927$	0.381

Source: Study Computation using E view 14

The diagnostic tests indicate that the ARDL model is statistically robust and reliable. The Breusch-Godfrey Serial Correlation LM Test shows no evidence of serial correlation ($p = 0.176$), suggesting that the residuals are not autocorrelated. The Breusch-Pagan-Godfrey Heteroskedasticity Test confirms the presence of homoskedasticity ($p = 0.298$), meaning the variance of the residuals is stable across observations. The Ramsey RESET test ($p = 0.152$) indicates that the model is correctly specified and free from functional form misspecification. Finally, the Jarque-Bera test ($p = 0.381$) confirms that the residuals are normally distributed. Taken together, these results validate the appropriateness of the ARDL model for analyzing the relationship among the study variables.

5.0 Conclusion and Policy Recommendation

The findings from the ARDL bounds test, long-run, and short-run estimates confirm the existence of a long-run equilibrium relationship among external commercial debt, external reserves, inflation, and other macroeconomic indicators in Nigeria.

Specifically, external commercial debt, exchange rate and fiscal deficit exert significant influence on debt service in the long run, while inflation and the monetary policy rate are statistically insignificant in the long run. The negative and significant error correction term indicates a strong adjustment mechanism toward equilibrium whenever shocks occur.

Based on these findings, it is recommended that policymakers should strengthen external debt management frameworks to ensure borrowed funds are channeled into productive investments. Specifically, the debt managers should monitor market conditions and refinance existing debt when interest rates decline significantly and maintain healthy debt service coverage ratio by generating sufficient cash flow to cover debt obligations comfortably. The fiscal authorities should make effort to improve the credit ratings by maintaining good financial management practices, transparency and fiscal discipline to reduce borrowing costs. Furthermore, inflationary pressures must be contained through prudent monetary and fiscal coordination, while external reserves should be effectively managed to cushion external shocks. This will ensure that commercial debt-financing remains sustainable in the long run.

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