
Effect of Debt Servicing on External Reserves in Nigeria

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Abstract

The management of Nigeria's external reserves, a key indicator of the nation's financial health and ability to withstand economic shocks, is at the centre of this economic investigation. This study investigates the effect of debt servicing on external reserves in Nigeria from the first quarter of 2010 to the first quarter of 2023. An ex post facto research design was adopted for the study. Quarterly time series data for external reserves, external debt servicing, and domestic debt servicing were collected from the Central Bank of Nigeria statistical bulletin and Debt Management Office reports. Philip Perron test was used to test the stationarity of the data and the ARDL test was utilized to determine the presence of a long-run relationship. The Fully Modified Ordinary Least Squares technique was used to test the effect of debt servicing on external reserves in Nigeria. The findings showed that external debt servicing and domestic debt servicing have a significant effect on external reserves in Nigeria. The study recommends that the Nigerian government through the Debt Management Office should emphasize diversification in acquiring external debts by engaging with multiple creditors, including multilateral institutions, bilateral partners, and global financial markets. Also, a strong emphasis should be placed on enhancing domestic revenue mobilization efforts. This can be achieved through fair and effective tax policies, reducing tax evasion, and promoting investments in sectors (like the finance sector) that yield sustainable revenue streams. Increased domestic revenue can alleviate the need for extensive domestic borrowing, thereby reducing the strain on external reserves for domestic debt servicing.

Keywords: External Debt Servicing, Domestic Debt Servicing, External Reserves.

Introduction

Nigeria, one of the biggest economies in Africa, holds a crucial place in the world economy. The residents of the country, as well as foreign observers, investors, and policymakers, keep a watchful eye on the economy. The management of Nigeria's external reserves, a key indicator of the nation's financial health and ability to withstand economic shocks, is at the centre of this economic investigation. The cautious management of these reserves is more important than ever as Nigeria struggles to navigate a challenging economic environment defined by shifting global commodity prices, difficult fiscal decisions, and persistent effects of currency rate volatility.

Servicing its debt commitments is a crucial component of maintaining external reserves. Like many other countries, Nigeria has built up significant domestic and external debts to pay for infrastructure improvement, public services, and other essential expenses over time. However, paying off these loans will cost the country money and might greatly impact its external reserves. The availability of finances for other crucial reasons, such as economic stabilization, investment in human capital, and infrastructure development, is impacted by the allocation of resources to pay debt commitments.

Nigeria has amassed a large amount of debt over the years, both locally and internationally. These debts require significant financial resources to be paid off continuously. Nigeria's total public debt increased to N87.38tn at the end of the second quarter of 2023 (Debt Management Office, 2023). The figure represents an increase of 75.29 percent or N37.53tn compared to N49.85tn recorded at the end of March 2023. This public debt comprises the total domestic and external debts of the Federal Government of Nigeria, the thirty-six states, and the Federal Capital Territory (Popoola et al., 2023). Data from the Debt Management Office also reveals that in the first quarter of 2023, Nigeria allocated N874.13 billion for servicing domestic debt and \$801.36 million at \$1/N770.38 (N617.35 billion) for external debt servicing, totalling N1.49 trillion. While Nigeria's debt servicing spending in the second quarter of 2023 saw a slowdown, amounting to N849.58 billion. This marked a 43.04% decline from the N1.49 trillion spent on debt servicing in the first quarter of 2023 (Sunday,2023). This made up a total of N2.34 trillion spent on debt servicing within the first six months of 2023. The external reserve for the first quarter of 2023 was \$35.50 billion, which later fell to \$ 34.12 billion at the end of the second quarter of 2023 (CBN, 2023). It is crucial to comprehend how this debt servicing load affects the country's foreign reserves. Nigeria, a significant player in the global economy, must strike a delicate balance between the need to retain sufficient external reserves and the obligation to service both domestic and external debt. Managing the country's external reserves is crucial for economic stability and resiliency in a time of erratic global financial markets. However, there are serious worries about the mounting debt service's potential effects on Nigeria's external reserves.

Some studies have discussed debt servicing and external reserves, like Osadume and Ovuokeroye (2021) who examined external debt, external reserves, debt service costs and economic growth: Implications for the Nigerian transport sector using ordinary least square, granger causality and engle-granger cointegration. Peter and Dumani (2020) studied the impact of external debt on Nigeria's foreign reserve portfolios using an error correction mechanism and least square technique. However, both Osadume and Ovuokeroye (2021) and Peter and Dumani (2020) used ordinary least squares to test their hypotheses which did not account for the problem of endogeneity and serial correlation which are associated with time series data. Therefore, this study used Fully Modified Ordinary Least Squares (FMOLS) estimation to estimate the relationship between debt servicing and external reserves after checking for cointegration among variables. FMOLS is a nonparametric approach that accounts for the problem of endogeneity and serial correlation in the OLS estimator which are associated with time series data. This made the study unique from the previous studies.

This study aims to explore the complex connection between Nigeria's external reserves and debt service. We specifically want to investigate the dynamics of Nigeria's external reserves as they are impacted by debt servicing, as proxied by both domestic and external debt servicing. This study is motivated by the realization that maintaining an acceptable level of external reserves by Nigeria is crucial for preserving macroeconomic stability, promoting exchange rate stability, and acting as a safety net against external shocks.

To achieve these objectives, the following null hypotheses were stated:

H₀₁: External debt servicing has no significant effect on external reserves in Nigeria.

H₀₂: Domestic debt servicing has no significant effect on external reserves in Nigeria.

Given the recent discussions about Nigeria's fiscal policies, debt sustainability, and economic resilience, this research is timely and pertinent. The results of this study will not only add to the body of knowledge already available about the Nigerian economy but will also offer insights that can guide policy choices, assisting decision-makers in striking a balance between debt servicing obligations and the upkeep of sufficient external reserves. The findings of this study should ultimately give insight into methods for boosting Nigeria's financial resilience in a world where the economy is becoming more linked and unstable.

Literature Review

Debt Servicing

Chinaemerem and Anayochukwu, (2013) defined debt servicing as the regular payment in tranches of loans taken by a country from domestic and external sources. Efuntade et al. (2021) viewed debt servicing as the collection of principal repayments and interest to be paid in currency, goods, or services on long and short-term debts. Debt servicing refers to the legal obligation of the state borrowing to pay the interest on a loan as and when due and to effect repayment of the principal (Egungwu, 2018). Debt servicing is the collection of principal repayments and interest to be paid in currency, goods, or services on long-term and short-term debt (Onwuka & Igwezea, 2014). It is the repayment by a country that owes the principal and interest on a loan outstanding at maturity. In negotiating debts, several parties are involved depending on the nature of the loan covenant. However, two parties known as the lender and borrower are normally involved. The two parties to a debt covenant are expected to play their parts to achieve a smooth flow of relationship. Both parties must respect the terms of the covenant binding them. There is an obligation on the part of the lender to issue the facility to the beneficiary and the beneficiary also must honour all payment terms. This is where debt servicing comes into operation.

The process of making recurring payments on debt commitments is referred to as debt servicing. It includes both interest payments, which reimburse lenders of money, and principal repayments, which entail paying back the initial sum borrowed (Aderoju,2018). Effective management and administration of financial commitments related to debt are included in debt servicing. To make sure that the provisions of debt agreements are met, this entails planning, budgeting, and carrying out payments (Uma et al., 2013). It involves transferring money from a government's budget or an organization's financial plan to pay for debt-related costs. The distribution of revenues for

debt payments has an impact on fiscal policy choices and the amount of money available for other uses (Kalu et al., 2016).

The financial health of governments, organizations, or people is directly impacted by debt servicing. It illustrates their capacity for timely repayment of debt, which is crucial for preserving reputation and creditworthiness (Chukwu,2023). Different types of debt, including internal and external debt, may be involved in debt servicing. Payments to various creditors, including banks, bondholders, global financial institutions, and other lenders, are also included (Osadume & Ovuokeroye, 2021). Considerations for debt servicing are based on the terms and interest rates of the debt instruments. Different loans may have different repayment terms, different payment schedules, and variable or fixed interest rates(Olusegun et al., 2021). Macroeconomic stability can be increased via efficient debt servicing, which lowers the chance of default and raises credit ratings. As it will boost investor's confidence and leads to greater capital inflows, stimulating economic growth and stability. However, difficulties with debt service may negatively impact economic indices like inflation, interest rates, and currency exchange rates (Kadiu, 2015). Debt sustainability, which determines whether a borrower can service their debt without jeopardizing their capacity to satisfy other important expenditure needs, is tied to the idea of debt servicing. To decide on sound fiscal and monetary policies, policymakers must have a thorough understanding of debt servicing (Ogbonna et al., 2019). Debt incurred from either external or domestic sources attracts payment of interest. The process of making payments or meeting obligations stated in the loan agreement is known as debt servicing.

External Debt Servicing

The process of making recurring payments to foreign creditors who gave government loans or financial aid is referred to as external debt servicing. This pertains to both principal repayments (returning the initial borrowed sum) and interest payments (reimbursement for the usage of borrowed funds) (Osadume & Ovuokeroye, 2021). It entails meeting financial obligations to lenders and debtors outside of Nigeria. These creditors may include foreign governments, foreign banks, or other international organizations that have given Nigeria credit, such as the International Monetary Fund or the World Bank (Peter & Dumani, 2020). The strategic management of Nigeria's obligations to foreign creditors is known as external debt servicing. This involves ensuring that payments are planned and carried out by the provisions of external loan arrangements (AL-Tamimi & Jaradat,2019). It requires allocating money from the government's budget to cover costs associated with external debt. The availability of resources for other national goals is impacted by the allocation of monies for foreign debt servicing in fiscal policy decisions (Abubakar & Mamman, 2021).

Foreign exchange reserves must frequently be used to pay foreign creditors as part of external debt servicing. This use of foreign currency may have an impact on the stability and sufficiency of Nigeria's external reserves (Akanbi et al.,2022). Nigeria's balance of payments is impacted by servicing its external debt because it necessitates substantial financial transfers between the nation and its international creditors. There may be broader macroeconomic repercussions of the effect on the balance of payments (Adekunle et al., 2021). Nigeria's reputation as a trustworthy borrower in the global financial markets depends on meeting its foreign loan obligations. The

country's creditworthiness can be raised via timely and comprehensive external debt servicing, potentially lowering borrowing costs (Antoine et al., 2021). The sustainability of Nigeria's debt profile is related to how well external debt is serviced. Effective management of external debt payments is especially important in the context of international debt relief programs, which can lessen the financial strain of debt servicing on the nation (Awan & Qasim, 2020).

According to Egungwu (2018), the higher the debt stocks of a country, the higher the severity of the impact of debt servicing obligations on the country. As presented by Adegboyega (2021), the high level of debt service payment has prevented the country from embarking on a larger volume of domestic investment which would have enhanced economic growth and stabilized her exchange rate. External debt service payments are most times made with foreign exchange. In other words, External debt service obligations can be met only through export earnings, reduced imports, or further external borrowing (Okerekeoti, 2022). There is therefore the tendency for debt servicing to rise should the composition of imports change, or should the interest rate rise significantly, causing ballooning of debt service payments or should export earnings diminish, debt servicing difficulties are likely to arise.

Domestic Debt Servicing

The process of repaying and managing financial obligations due by the government to domestic creditors typically persons, institutions, and organizations located within the nation is referred to as domestic debt servicing (Okeke et al., 2022). The regular payment of interest on the debt instruments that the government has issued within the nation is referred to as domestic debt servicing. It includes the interest payments paid to domestic creditors, such as people, businesses, and financial institutions that hold treasury bills, government bonds, and other debt securities denominated in the country's currency (Essien et al., 2016). In addition to interest payments, servicing domestic debt also entails the government paying back the principal borrowed. This entails paying back the money that was initially borrowed via a variety of debt instruments, with repayments typically planned out throughout the debt (Senibi et al., 2016). The efficient administration of the government's financial commitments to domestic creditors is included in domestic debt servicing. To ensure that the government pays its debt obligations on time and in compliance with the terms and conditions of the debt instruments, it entails planning, budgeting, and payment execution (Olusegun et al., 2021).

To pay for debt-related expenses, the government must provide funds from its budget for domestic debt servicing. Decisions about how to allocate resources and fiscal policy are directly impacted by this allocation because money set aside for debt servicing cannot be used for other government purposes (Adegboyega, 2021). The government's dedication to meeting its financial commitments to domestic creditors is reflected in the service of domestic debt. A key metric of the government's creditworthiness and financial stability is its capacity to fulfil these obligations (Ogbonna et al., 2019). Analysis of domestic debt servicing reveals information about how long-lasting the government's fiscal policies are. An excessive amount of debt servicing can put a strain on the government's budget, making it more difficult for it to maintain economic stability, invest in infrastructure, and offer public services (Uma et al., 2013). Domestic debt servicing in the meantime is not expected to decrease owing to several factors bedeviling Nigeria. The fallen

naira exchange rate, low revenue generation thereby making additional loan applications inevitable, high inflation rate and subsidy removal on petrol motor spirit makes the cost of governance increase as labour union are demanding an increase in wages.

External Reserves

Asogwa et al. (2018) defined external reserves as money or other assets held by a central bank or other monetary authority so that it can pay its liabilities. External reserves according to the Central Bank of Nigeria (2021), are assets held on reserve by a monetary authority in foreign currencies. Nzotta (2014) sees external reserves as balances of foreign exchange surpluses of a country that accumulated over time. External reserves are official international reserves which are assets of Central Banks held in different foreign currencies such as the United States Dollar, British Pound Sterling, Euro, and Japanese Yen (Chinedu & Edet, 2019).

External reserves include government reserves in international institutions that are controlled by the monetary authorities (IMF, World Bank) for the direct financing and regulation of the balance of payments through intervention in the exchange markets (Osadume & Okene, 2019). Umeora (2013) defined external reserves as foreign currencies, foreign deposits and bonds held by Central Banks and monetary authorities of a nation. Adhikari (2018) defines external reserves as the external stock of assets that a country's monetary authorities hold and are composed of foreign banknotes, bank deposits in foreign currencies, foreign bonds, treasury bills, and other government securities. These assets serve many purposes but are most significantly held to ensure that a government or its agency has backup funds if their national currency rapidly devalues (CBN, 2021). This study adopts the definition of Adhikari (2018) as it considered not only foreign banknotes but also foreign securities and investments.

In most cases reserves are used to intervene in the foreign exchange market to influence the exchange rate, payment for the importation of goods and services, source of finance for domestic fiscal expenditure, to insure against currency crisis by allowing relevant authorities to support their currency (Akanni & Bukola, 2016). Nnamaka et al. (2021) stated that countries attach much relevance to the holding of large stocks of external reserves for some reasons which include; to settle out random and temporary balance of payments shocks, preservation value of the local currency, sustenance of the exchange rate parity, the settlement of international payment responsibilities, the levelling of exchange rate instability in illiquid foreign exchange markets and improving the credit worthiness of an economy. External reserves are used by nations to aid monetary and exchange policies in a bid to ensure the stability of the local currency (Nnamaka et al., 2021). Akanni and Bukola (2016) state that these reserved currencies are used to support the Central Bank's liabilities, such as the local currency issued, the reserves deposits of various deposit money banks (DMBs), government or other financial institutions.

Since most currencies depend on the potency of stronger currencies like the British Pounds Sterling, American Dollar and the European Euro, most transactions between different nations are being conducted using these currencies. Countries still hold reserves as an important monetary tool which could serve as a means of self-insuring against major financial crises. A larger stock of external reserves serves as a shock absorber if there are internal liquidity crises. Therefore, the stocks of reserves become a significant source of financing external imbalances

(Senibi et al., 2016). Where it is not feasible for a country to draw from internal resources to offset bills, a reserve could help assuage the dilemma. Chinedu and Edet (2019) stated that external reserves are managed to optimize a nation's external resources to meet the economic needs of a country.

Furthermore, adequate external reserves enhance the value of a country's currency; encourage traders to embark on import and export transactions that will boost the economy; it provide an economy with a buffer against external shocks as well as provide a cushion against such backdrop in revenue and facilitates the recovery of such economies (CBN, 2016). A country with a large stock of external reserves can boldly trade with the rest of the world because of its capacity to pay up. Reserves increase significantly in economies with unlimited exchange rate flexibility, as countries with flexible exchange rates are not expected to maintain currency pegs, thereby requiring fewer amount of foreign exchange reserves (Akpan & Timiepere, 2016). External reserves therefore are the aspect of responsibility of the monetary authorities that explain the clear articulation and proper understanding of the global economic space to promote a sound interface with the rest of the world. As debts are mostly settled in foreign currencies that have stable values, debt, and reserve accumulation affect, and are affected by, a country's incentives to default (Alfaro & Kanczuk, 2017).

Therefore, external reserves over time have helped many countries to secure international creditworthiness recognition and it also facilitates obtaining external loans more easily, hence the international community places confidence on any country with adequate external reserves (Nwafor, 2017). The volume of external reserves is an indicator of the economic performance of that country and its ability to obtain loans when needed. External reserves have been seen as having a large influence on external debts because they represent a significant source of financing for external imbalances (Ogege & Ekpudu, 2010). Due to the stability of using foreign currencies to settle international trade among nations, it becomes imperative to use external reserves which are majorly dominated by these foreign currencies. Therefore, an important area of concern is the decision of what currency to hold in a reserve.

Most nations of the world locally transact with currencies approved by monetary authorities. However, in the international scene, it is pertinent to make a wise choice in which currency to select to preserve and meet the demand of international trade partners. As stated by Yugudo (2011), choosing the appropriate currency composition for reserves is an important decision because currency risk typically constitutes a significant part of the total market risk on reserve holdings. The currency composition is thus dictated by the following: Currency of intervention in the country's foreign exchange market; Currency of net imports; Currency used for debt payments; and Dividend transfers overseas by resident foreign companies. As a result, the United States dollar is the dominant currency in Nigeria's external reserves followed by the euro and the Great Britain pound sterling.

In most cases, foreign debt as well as servicing of these debts is being paid back with the use of foreign currencies and that is why most countries would want to hold a larger part of their reserves in American dollars or other popular currencies whose values are stable. This study, therefore, intends to examine how the reserves have been affected through their use for servicing

external and domestic debts. Economic realities make the proper use of external reserves an inevitable task by monetary authorities since they are charged with the responsibility of maintaining price stability.

Empirical review

External Debt Servicing and External Reserve

Using annual data from the World Bank, Member et al. (2023) used an asymmetric method to examine the impact of external debt service (EDS) on the real effective exchange rate (REER) in Nigeria for the years 1981 to 2020. External Debts (EXD), Official Development Assistance (ODA), Foreign Reserves (FRZ), and Trade Balance were other factors utilized in the study (TBAL). The variables' stationarity and co-integration were confirmed, allowing for the use of error correction and Nonlinear Autoregressive Distributed Lag (NARDL) models to determine both the variables' long- and short-term effects on REER. It was discovered that while FRZ had no significant short-run effects and other factors had no short-run effects, starting REER caused a considerable short-run depreciation of REER. The Nonlinear Autoregressive Distributed Lag results showed that ODA and EXD greatly increased REER but TBAL and FRZ did not. While both positive and negative changes in EDS were found to have a significant depreciating effect on Nigeria's REER, the impact of the positive adjustments in EDS was greater. The report suggested that the government overhaul the manufacturing industry to enhance TBAL, increase ODA through increased public accountability, expand her FRZ to boost REER, and reduce EXD as EDS's impact has nullified EXD's positive effects in Nigeria. The study provides policy suggestions based on its findings. However, the rationale behind these recommendations could be more detailed. For instance, why and how would overhauling the manufacturing industry enhance Trade Balance? A more in-depth analysis of the policy implications would strengthen the study.

Osadume and Ovuokeroye (2021) examined the relationship between external debt (EXDT), external reserves (EXRS), total debt service costs (TDS) and Nigeria's economic growth (RGDP) and how these variables impact the Nigerian transport economy employing profligacy theory. The study used secondary data for Nigeria for the period 1979 to 2019 obtained from the International Debt Office (WBG). The econometric techniques used OLS, Granger causality and Engle-Granger cointegration at a 0.05 confidence level. The results show that EXDT has a statistically significant negative relationship with EXRS, with no statistically significant relationship existing with RGDP and TDS in the short term. All the variables showed significant cointegration over the long term, with the conclusion that the relationship between EXRS and EXDT is negatively significant in the short term, while the other variables are insignificant. The recommendations of the study include, that the government and monetary authorities should endeavour to reduce the creation of foreign debt for non-reproductive projects in key sectors due to its adverse effect on external reserves, and instead pursue aid, grants, and domestic long-term loan options necessary for effective growth of the transport and other key sectors of the economy. While the study employs the profligacy theory, it does not discuss the limitations or criticisms associated with this theory. Acknowledging the limitations of the theoretical framework would provide a more balanced perspective.

The effect of Nigeria's external debt and external debt servicing on the country's foreign reserves was studied by Peter and Dumani in 2020. The dual gap theory and the self-insurance idea of external reserves served as the study's theoretical pillars. The components of the investigation were examined in hindsight using the after effect research approach. The World Development Indicators were used to compile historical data from 1981 to 2018, which was then analyzed using the error correction mechanism as the unit of analysis and approximated using the least square method. The empirical results show that Nigeria's foreign exchange reserve portfolios are negatively and statistically significantly impacted by the stock of external debt. It also came to light that Nigeria's foreign reserves are positively impacted by payments made to repay its external debt, but this effect is statistically small. According to the study's findings, Nigeria's international reserve portfolios are not significantly impacted by the country's external debt stock or external debt service payments. According to the report, Nigeria's fiscal management should use caution while borrowing from abroad to prevent the country's foreign reserves from being depleted by concurrent payments for external debt service. The study suggests caution in borrowing from abroad to prevent the depletion of foreign reserves, but it does not elaborate on specific policy implications or recommendations. A more robust discussion of policy implications would enhance the practical relevance of the study.

Domestic Debt Servicing and External Reserves

Senibi et al. (2016) assessed the impact of public debt on external reserves in Nigeria. This study's objectives include assessing the trends and relationship between public debt and external reserve in Nigeria, using the Johansen cointegration and FMOLStechnique on the secondary data from 1981 to 2013. The result revealed that public debt has a positive and significant effect on external reserve stock in the long run suggesting that the nation's debt crisis can be attributed to both exogenous and endogenous factors such as the nature of the economy, economic policies, high dependence on oil, and swindling foreign exchange receipt. The study recommends that the federal government should employ superior methods to negotiate for fixed interest payment and varying amortization schemes and seek multiyear rescheduling rather than a year-by-year basis. The study utilizes both the Johansen cointegration technique and the FMOLS (Fully Modified Ordinary Least Squares) method. The use of multiple techniques enhances the robustness of the analysis, providing a comprehensive view of the relationships between variables. The study did not discuss limitations, such as the assumptions made in the analysis, potential biases, or the generalizability of the findings. Addressing these limitations would provide a more comprehensive understanding of the study's scope and applicability.

Theoretical Framework

Debt Overhang Theory

The debt overhang theory was propounded by Howard in 1972. Debt overhang occurs when a nation's debt is more than its debt repayment ability. The debt overhang theory suggests that when a country accumulates a substantial amount of debt, it might create a situation where the weight of the debt itself becomes a burden on the economy. This burden arises not just from the current debt obligations (debt servicing) but also from the anticipation of future taxation or reduced government spending to service the debt in the future. Eme and Olugboyega, (2012) explain debt overhang as one whereby the expected repayment amount of debt exceeds the actual

amount at which it was contracted. Eduardo (2009) also defined debt overhang as one where the debtor nation benefits very little from the returns on additional investment due to huge debt service obligations. The "debt overhang effect" comes into play when accumulated debt stock discourages investors from investing in the private sector for fear of heavy tax placed on them by the government. This is known as tax disincentive.

Bamidele and Joseph (2013) relate the concept of debt overhang to Nigeria's debt situation. He stated that the debt service burden has prevented rapid growth and development and has worsened social issues. Nigeria's expected debt service is seen to be an increasing function of her output and as such resources that are to be used for developing the economy are indirectly taxed away by foreign creditors in the form of debt service payments. This has further increased uncertainty in the Nigerian economy which discourages foreign investors and reduces the level of private investment in the economy. The tax disincentive here implies that because of the high debt and as such huge debt service payments, it is assumed that any future income accrued to potential investors would be taxed heavily by the government to reduce the amount of debt service and this scares off the investors thereby leading to disinvestment in the overall economy and as such a fall in the rate of growth. In addition, Atique and Malik (2012) stated that external debt accumulation can promote investment up to a certain point where debt overhangs it and the willingness of investors to provide capital starts to deteriorate.

This study is therefore anchored on the Debt Overhang theory. This is based on the premise that the theory goes to a great extent to explain the consequences of public debt and its costs of debt (both domestic and external debt servicing) on a nation as it discourages private investors due to high tax rates, brings about economic stagnation, and decreased external reserves. When a significant portion of government revenue is allocated to debt servicing, it leaves fewer resources for investments that could stimulate economic growth.

Methodology

The research design adopted for this study is ex post facto design. This study uses quarterly time series data covering the period 2010Q1 to 2023Q1 (Appendix 1). This is a period after the 2008/2009 financial crisis and it is a period where the nation has witnessed various debt accumulation, servicing, and depletion of external reserves. The variables of the study are external debt servicing, domestic debt servicing, and external reserves. Data for the study was obtained from the Central Bank of Nigeria Statistical Bulletin and Debt Management reports. Descriptive statistics were used to explain the data. A stationarity test was conducted to test for the presence of unit roots in the time series data. In addition, the co-integration test was conducted to investigate possible correlations among the variables of this study. A vector error correction model was also used: The vector error correction model is a restricted type of VAR designed for the use of non-stationary series that are known to be co-integrated. The data obtained was also analyzed using fully modified ordinary least squares through Eviews 10 Statistical Package. The analysis process of this study follows the following steps:

Unit Root

The Phillips-Perron (PP) unit root test was employed to determine the order of integration of the variables to establish the stationarity level of the variables. The PP unit root test is

conventionally said to have greater unit root detection ability when compared with the ADF unit root test. The PP test is thus preferred to the Augmented Dickey-Fuller (ADF) because it deals with the potential correlated error by employing a correction factor that estimates the long-run variance of the error process.

$$\Delta y_{t-1} = \alpha_0 + \lambda y_{t-1} + \dots + \lambda y_{t-p} + \varepsilon_t$$

Cointegration

The cointegration test determines if the integrated variables are cointegrated. Cointegration regressions measure the long-term relationship between the dependent and the independent variables. The bound test cointegration approach allows the researcher to test for cointegration using variables that are stationary at different orders. It also helps to estimate a dynamic error correction specification, which provides estimates of both the short and the long run dynamics.

$$\Delta Y_t = \mu + \sum_{i=1}^{n-1} \Gamma_i \Delta Y_{t-i} + \sum_{i=0}^{m-1} \gamma_i \Delta X_{t-i} - ECM_{t-1} + \varepsilon_t$$

where Δ is the first difference operator, Y_t is a $p \times 1$ vector of stochastic variables, X_t is the independent variable, ECM is the error-correction coefficient and is also called the adjustment coefficient, 1 is a vector of constants, and ε_t is a vector of normally, independently, and identically distributed errors with zero means and constant variances and p is the number of variables.

Error Correction Model

Granger (1987) showed that if two variables are cointegrated, then they have an error correction representation. The Error Correction Model (ECM) provides information about the long-run, and short-run relationship as well as the speed of adjustment between the variables in incorporating into the estimated equation, the error correction term (ECT).

$$\Delta Y_t = a_0 + b_1 \Delta X_t - \lambda \hat{u}_{t-1} + Y_t$$

The model is specified as follows:

$$EXR = f(EDS, DDS) \dots \dots \dots (1)$$

The econometric form of equation (1) is represented as:

$$EXR_t = \alpha + \beta_1 EDS_t + \beta_2 DDS_t + \mu_t \dots \dots \dots (2)$$

Where: EXR = External Reserves; EDS = External Debt Servicing; DDS =Domestic Debt Servicing; α =Intercept or Constant; β = Slope of the regression line concerning the independent variables; μ =Error Term. The Cointegration model of the study is represented by:

$$\Delta EXR_t = \mu + \sum_{i=1}^{n-1} \Gamma_i \Delta EXR_{t-i} + \sum_{i=0}^{m-1} \gamma_i \Delta EDS_{t-i} + \gamma_2 \Delta DDS_{t-i} + ECM_{t-1} + \varepsilon_t \dots \dots \dots (3)$$

Where: EXR = External Reserves; EDS = External Debt Servicing; DDS = Domestic Debt Servicing; and ECM = Error-correction coefficient; ε = Error term; Δ = First difference operator; μ = Intercept or Constant; $t-i$ = Time lagged; $\gamma_1 - \gamma_2$ = Coefficient of independent variables.

Results and Discussion

The data presented in Appendix 1 were analyzed using descriptive statistics, unit root test, ARDL, error correction model, and Fully Modified Ordinary Least Squares regression, while post-estimation analysis such as normality test, serial correlation test, heteroskedasticity test, and stability test was also carried out.

Table 1: Descriptive Statistics

	EXR	EDS	DDS
Mean	9848.793	84.57094	335.3125
Maximum	27348.49	617.3500	874.1300
Minimum	4935.924	8.110000	57.84000
Std. Dev.	4729.334	119.1958	213.8243
Observations	53	53	53

Source: Eview Version 10 Output, 2023

The descriptive statistics Table 1 above displayed the characteristics of three variables: External Reserves (EXR), External Debt Servicing (EDS), and Domestic Debt Servicing (DDS) based on 53 observations. These descriptive statistics provide a preliminary understanding of the distribution and variation of the data, offering insights into the behaviour of external reserves and debt servicing in Nigeria.

The mean external reserve over the observed period is approximately N9,848.79 billion. This represents the average value of external reserves during the 53 observations in Nigeria. The highest value observed for external reserves is N27,348.49 billion. This indicates the peak level of reserves recorded during the period. The lowest value observed for external reserves is N4,935.92 billion. This represents the lowest level of reserves recorded during the period. The standard deviation of approximately N4,729.33 billion indicates the extent to which external reserves varied from the mean. A higher standard deviation suggests greater variability in the data points.

The mean external debt servicing is approximately N84.57 billion. This represents the average value of external debt servicing during the 53 observations. The highest value observed for external debt servicing is N617.35 billion. This indicates the peak level of external debt servicing recorded during the period in Nigeria. The lowest value observed for external debt servicing is N8.11 billion. This represents the lowest level of debt servicing recorded during the period in Nigeria. The standard deviation of approximately N119.20 billion indicates the extent to which external debt servicing varied from the mean.

Finally, the mean domestic debt servicing is approximately N335.31 billion. This represents the average value of domestic debt servicing during the 53 observations in Nigeria. The highest value observed for domestic debt servicing is N874.13 billion. This indicates the peak level of

domestic debt servicing recorded during the period in Nigeria. The lowest value observed for domestic debt servicing is N57.84 billion. This represents the lowest level of domestic debt servicing recorded during the period. The standard deviation of approximately N213.82 billion indicates the extent to which domestic debt servicing varied from the mean.

The standard deviations for all three variables are relatively high, indicating significant variability from the mean. This suggests fluctuations in external reserves, external debt servicing, and domestic debt servicing over the observed period in Nigeria. The means, maximum, and minimum values, show a sense of the range and average levels of external reserves and debt servicing. For instance, external reserves have a wider range compared to debt servicing, indicating more significant fluctuations.

Table 2: Unit Root Test

Variables	Adj. T-Statistic	Prob. Values	Order of Integration
EXR	-2.257601	0.0245	I(1)
EDS	-6.953485	0.0000	I(0)
DDS	-5.552366	0.0000	I(0)

Source: *Researcher's Computation 2023.*

For External Reserves (EXR), the adjusted t-statistic is -2.257601. When conducting a unit root test, a t-statistic value lower than the critical value (usually -1.96 for a 5% significance level) suggests rejecting the null hypothesis of a unit root. In this case, the t-statistic is -2.257601, indicating that you reject the null hypothesis. This suggests that the series is stationary after differencing once, making it integrated of order 1, denoted as I(1).

For External Debt Servicing (EDS), the adjusted t-statistic is -6.953485. The highly negative t-statistic far below -1.96 strongly suggests rejecting the null hypothesis. Therefore, EDS is stationary in its original form, indicating it is integrated of order 0, denoted as I(0).

Like EDS, Domestic Debt Servicing (DDS) also has a highly negative t-statistic (-5.552366), suggesting rejection of the null hypothesis. DDS is stationary in its original form (I(0)).

The variables EDS and DDS are stationary at their original levels (I(0)), meaning they do not require differencing to achieve stationarity. On the other hand, EXR becomes stationary after differencing once (I(1)). The very low probability values (close to 0.0000) for both EDS and DDS indicate high statistical significance, strengthening the evidence against the presence of a unit root. For EXR, the probability value is 0.0245, which is below the conventional 0.05 significance level, suggesting statistical significance but with a slightly higher probability than the other variables. In summary, the Phillips-Perron unit root test results imply that EDS and DDS are stationary in their original forms, while EXR becomes stationary after differencing once. These findings are crucial for further time-series analysis, as stationary data is necessary for various econometric models. Since the variables were found stationary at level I(0) and first

order I(1), the Autoregressive Distributed Lag (ARDL) test approach was applied to determine the long-run relationship among the variables.

Table 3: Autoregressive Distributed Lag Bounds Test

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
			Asymptotic: n=1000	
F-statistic	6.183420	10%	2.63	3.35
k	2	5%	3.1	3.87
		2.5%	3.55	4.38
		1%	4.13	5

Source: *Eview Version 10 Output, 2023*

The null hypothesis states that there is no long-run relationship among the variables being tested. The F-statistic value is 6.183420. This value is compared to critical values to determine statistical significance. Significance levels (10%, 5%, 2.5%, and 1%) provide critical values against which the test statistic is compared to determine statistical significance. The decision criteria are: if the value of the F-statistics is lower than the I(0) bound we cannot reject the null hypothesis of no cointegration, but if the F-statistics is higher than the values of the I(1) bound we reject the null hypothesis.

In this study, we obtained 6.183420 F-statistics which is greater than the I(0) bound values of 2.63(10%), 3.1 (5%), 3.55 (2.5%), 4.13 (1%) and I(1) bound values of 3.35(10%), 3.87 (5%), 4.38 (2.5%), 5 (1%). Since the F-statistics were greater than I(1) bound values of 10%, 5%, 2.5% and 1% respectively, we reject the null hypothesis that there is no cointegration. Therefore, this means that there is a long-run relationship between external reserve, external debt servicing and domestic debt servicing. This implies that the series are related and can be combined in a linear fashion, that is, even if there are shocks in the short run, which may affect movement in the individual series, they would converge with time (in the long run).

Based on the provided information, it appears that the F-statistic is statistically significant at various significance levels (10%, 5%, 2.5%, and 1%) across different sample sizes. Therefore, there is evidence to reject the null hypothesis of no long-run relationship among the variables. This suggests the presence of a long-term relationship among the variables tested in the ARDL model.

Table 4: Fully Modified Ordinary Least Squares Regression

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EDS	24.32290	6.414804	3.791682	0.0004
DDS	9.435866	3.622343	2.604907	0.0121
C	4539.463	951.5813	4.770442	0.0000
R-squared	0.687917	Mean dependent var		9920.825
Adjusted R-squared	0.675179	S.D. dependent var		4746.027
S.E. of regression	2704.905	Sum squared resid		3.59E+08
Long-run variance	9988517.			

Source: *Eview Version 10 Output, 2023*

The coefficient for External Debt Servicing (EDS) is 24.32290. This means that holding other variables constant, a unit increase in external debt servicing is associated with an approximate increase of 24.32 units in external reserves. The coefficient for Domestic Debt Servicing (DDS) is 9.435866. Holding other variables constant, a unit increase in domestic debt servicing is associated with an approximate increase of 9.44 units in external reserves. The intercept term is 4539.463. This represents the value of external reserves when both EDS and DDS are zero.

The t-statistics for both EDS and DDS are greater than 2 in absolute value, indicating that these coefficients are statistically significant at conventional levels (usually 95% confidence level) and this is supported by their p-values of 0.0004 and 0.0121 for EDS and DDS respectively.

The R-squared value is 0.6879, indicating that approximately 68.79% of the variance in external reserves can be explained by the regression model. The adjusted R-squared, which accounts for the number of predictors in the model, is 0.6752. It provides a more accurate measure of the proportion of variance explained by the model when compared to R-squared.

The mean value of the dependent variable (external reserves) is 9920.825. The standard deviation of the dependent variable is 4746.027, indicating the extent of variation in the external reserves data points around the mean. This represents the sum of the squared differences between the observed and predicted values of external reserves. A lower value indicates a better fit of the model. The long-run variance is 9988517. This represents the estimated long-term variability in external reserves based on the model.

The FMOLS regression results suggest that both external debt servicing (EDS) and domestic debt servicing (DDS) have a statistically significant positive relationship with external reserves (EXR) in Nigeria. The model explains approximately 68.79% of the variance in external reserves, indicating a relatively good fit. The intercept (C) represents the baseline value of external reserves when debt servicing variables are zero. Overall, this analysis provides insights into the relationship between debt servicing and external reserves in Nigeria.

Table 5: Post Estimation Test

Description	Probability values
Normality Test:	
Jarque-Bera	2.642094
P-value:	0.266856
Serial Correlation	
F-statistics	0.449767
P-value	0.5056
Heteroskedasticity Test	
F-statistics	3.013545
P-value	0.0581

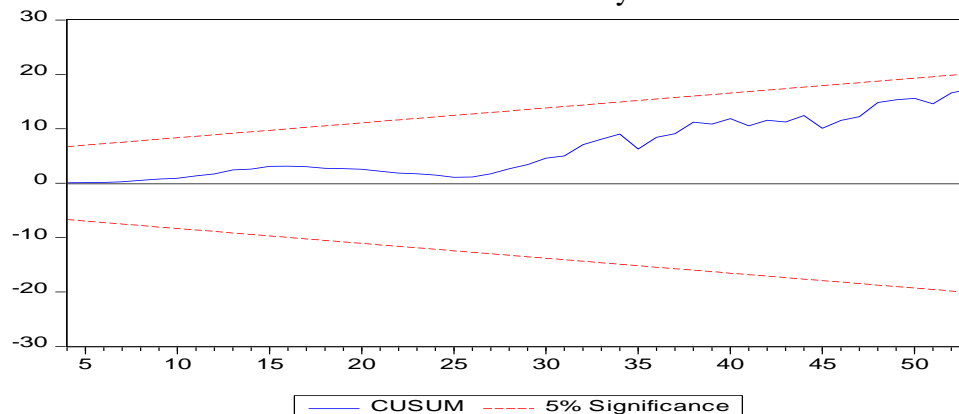
Source: Researcher's computation, 2023

The null hypothesis of the Normality Test (Jarque-Bera Test) is that the data has a normal distribution. The p-value is 0.266856, which is higher than the typical significance level of 0.05. Since the p-value is greater than 0.05, there is no statistically significant evidence to reject the null hypothesis. This suggests that the data does not deviate significantly from a normal distribution according to the Jarque-Bera test.

The null hypothesis of the serial correlation test is that there is no autocorrelation (no serial correlation) in the residuals. The p-value is 0.5056, which is higher than 0.05. Since the p-value is greater than 0.05, there is no statistically significant evidence to reject the null hypothesis. This suggests that there is no significant serial correlation in the residuals of the regression model.

The null hypothesis of the heteroskedasticity test is that there is no heteroskedasticity in the residuals (i.e., constant variance). The p-value is 0.0581, which is very close to the typical 0.05 significance level. However, the p-value is greater than 0.05, there is no statistically significant evidence to reject the null hypothesis. This suggests that there is no problem of heteroskedasticity in the regression model.

Table 6: CUSUM Stability Test



Source: Eview Version 10 Output, 2023

The stability of the model was checked using the CUSUM test and it shows that the model is stable as it is within the 5% boundary.

Test of Hypotheses

H₀₁: External debt servicing has no significant effect on external reserves in Nigeria.

From Table4, where the effect of external debt servicing was tested on external reserves, it was shown that external debt servicing has a positive significant effect on external reserves because both p-values and t-statistics show that external debt servicing has a significant effect on external reserves in Nigeria. Therefore, the study rejects the null hypothesis (H₀₁).

H₀₂: Domestic debt servicing has no significant effect on external reserves in Nigeria.

From Table4, where the effect of domestic debt servicing was tested on external reserves, it was shown that domestic debt servicing has a positive significant effect on external reserves because both p-values and t-statistics show that domestic debt servicing has a significant effect on external reserves in Nigeria. Therefore, the study rejects the null hypothesis (H₀₂).

Conclusion and Recommendations

This study examined the effect of debt servicing on external reserves in Nigeria for the period 2010Q1 to 2023Q1. Based on the findings of the study, it can be concluded that there is an existence of equilibrium relationship between debt servicing and external reserves in Nigeria. This is in line with the debt overhang theory. The study concludes that external debt servicing has a significant effect on external reserves. The findings unequivocally demonstrate a substantial impact, underlining the importance of prudent management and strategic planning concerning external debt obligations. Understanding the impact of external debt servicing on external reserves holds paramount importance for ensuring economic stability and safeguarding the nation's financial integrity. The study also found that domestic debt servicing has a significant effect on external reserves. The findings underscore the critical importance of domestic debt management in safeguarding the nation's external financial resources.

Based on the findings of this study, the following recommendations were made:

Nigerian government through the Debt Management Office should emphasize diversification in acquiring external debts by engaging with multiple creditors, including multilateral institutions, bilateral partners, and global financial markets. This diversification not only mitigates risks associated with dependency on a single source but also allows for the negotiation of favourable terms and conditions, thereby easing the burden of debt servicing. They should also institute comprehensive and forward-looking debt management policies that factor in economic fluctuations and potential external shocks. Establish clear guidelines for debt acquisition, ensuring that new debts are invested in projects that generate sustainable economic returns, ultimately contributing to increased revenue and, consequently, bolstering external reserves.

For domestic debt servicing significant effect on external reserves in Nigeria, the Federal Ministry of Finance should formulate a holistic and adaptive debt management strategy that encompasses short-term and long-term objectives. This strategy should consider the economic

climate, revenue projections, and potential external shocks. Regularly update this strategy to align with changing economic conditions, ensuring a proactive response to emerging challenges. Also, a strong emphasis should be placed on enhancing domestic revenue mobilization efforts. This can be achieved through fair and effective tax policies, reducing tax evasion, and promoting investments in sectors (like the finance sector) that yield sustainable revenue streams. Increased domestic revenue can alleviate the need for extensive domestic borrowing, thereby reducing the strain on external reserves for domestic debt servicing.

References

- Abubakar, A. B. & Mamman, S. O. (2021). Effect of public debt on private investment in Nigeria: Evidence from an Asymmetric Dynamic Model. *Central Bank of Nigeria Economic and Financial Review*, 59(3) September 2021
- Adegboyega, R. R. (2021). Debt Service Payments and Economic Growth in Nigeria. *Journal of Business*, 10(2), 2021.
- Adekunle, W., Adeniyi, O., & Orekoya, S. (2021). Non-Linear Relation between External Debt and Economic Growth in Nigeria: Does the Investment Channel Matter? *Iranian Economic Review*, 25, 45-56.
- Aderoju, B. R. (2018). External debt, internal debt, debt servicing and economic services provision in Nigeria: An empirical exploration (1981-2016). *Journal of Economics and Sustainable Development*, 9(6).
- Adhikari, D.(2018). Impact of Exchange Rate on Trade Deficit and Foreign Exchange Reserve in Nepal: An Empirical Analysis. *Nepal Rastra Bank Economic Review*, 30(1), pages 35-48, April.
- Akanbi, A., Uwaleke,U. J., & Ibrahim, U. A. (2022). Effect of External Debt Service on Economic Growth in Nigeria. *Journal of Service Science and Management*, 15, 437-451. <https://doi.org/10.4236/jssm.2022.154026>
- Akpan, E. S. & Timiepere, C. A. (2016). Causality between external reserves, economic growth, import, money supply and public debt servicing: Evidence from Nigeria. *Research Journal of Finance and Accounting*, 7(2).
- Alfaro, L., & Kanczuk, F. (2017). Debt Redemption and Reserve Accumulation. *HBS Working Paper*.
- AL-Tamimi, K.A.M., & Jaradat, M.S. (2019). Impact of external debt on economic growth in Jordan for the period (2010-2017). *International Journal of Economics and Finance*, 11(4). 114 - 118. doi: 10.5539/ijef.v11n4p114.
- Antoine, N., Stanislas, E., & Rollfe, N. (2021). Effects of external public debt on economic growth: The Case of the Republic of Congo from 1997-2012. *Open Journal of Business and Management*, 9. <https://doi.org/10.4236/ojbm.2021.94108>
- Asogwa, J. O., Okechukwu, E. U. & Onyekwelu, U. L. (2018). Evaluation of the Effect of Federal Government External Debts and Reserves on Economic Growth in Nigeria. *Journal of Economics and Sustainable Development*, 9(6), 2018.
- Atique, R. & Malik, K. (2012). Impact of domestic and external debts on the economic growth of Pakistan. *World Applied Science Journal*, 20(1):120-129.
- Awan, A. G., & Qasim, H. (2020). The impact of external debt on the economic growth of Pakistan. *Global Journal of Management, Social Sciences and Humanities*, 6, 30-61.

- Bamidele, T. B. & Joseph, A. I. (2013). Financial crisis and external debt management in Nigeria. *International Journal of Business and Behavioural Sciences*, 3(4): 16-24.
- Central Bank of Nigeria (2021). Reserve Management. <https://www.cbn.gov.ng/intops/reservemgmt.asp>
- Central Bank of Nigeria (2023). *Movement in reserves*. <https://www.cbn.gov.ng/IntOps/Reserve.asp?MoveDate=9/18/2023%20:18:51%20PM>.
- Chinaemerem, O. C. & Anayochukwu, O. B. (2013). Impact of External Debt Financing on Economic Development in Nigeria. *Research Journal of Finance and Accounting*, 4(4), 2013
- Chinedu, N.G., & Edet, A.S. (2019). Macroeconomic Implications of External Reserves Management in Nigeria: 1986–2016. *IOSR Journal of Humanities and Social Science (IOSR-JHSS)*, 24(10): 41-54
- Chukwu, B. C. (2023). *Impact of public debt and debt servicing on economic growth in Nigeria (1980-2019) (February 13, 2023)*. Available at SSRN: <https://ssrn.com/abstract=4447361> or <http://dx.doi.org/10.2139/ssrn.4447361>
- Debt Management Office (2023). *Nigeria's total public debt as of 30th June 2023*. <https://www.dmo.gov.ng/debt-profile/total-public-debt>.
- Eduardo, B. (2009). The effect of external debt on Investment. *European Journal of Accounting Auditing and Finance*, 4(2), pp.33-48.
- Efuntade, A. O., Adegboyo, O. & Olubunmi, E. O. (2020). The impact of external debt on economic growth in Nigeria. *International Journal of Scientific and Research Publications* 10(4). DOI:10.29322/IJSRP.10.04.2020.p10077
- Egungwu, I. C. (2018). Impact of External Debt on Human Capital Development in Nigeria. *International Digital Organization for Scientific Research (IDOSR) Journal of Current Issues in Social Sciences*, 4(1): 1-33, 2018.
- Eme, O.A & Olugboye, O.A (2012). Exchange rate and macroeconomic aggregate in Nigeria. *Journal of Economics and Sustainable Development*, 3(2): 93-102.
- Essien, S.N., Ngozi, T.I., Michael, K.M., & Ogochukwu, G.O. (2016). An Empirical Analysis of the Macroeconomic Impact of Public Debt in Nigeria. *CBN Journal of Applied Statistics*, 7(1). <http://hdl.handle.net/10419/142116>
- Kadiu, F. (2015). Public debt and economic growth: Case of Albania. *Global Advance Research, Journal of Management and Business Studies*, 186-189
- Kalu, E. U., Okai, E. D. J., Chukwu, N. O. & Amadi, I. E. (2016). Debt servicing and economic growth: The Nigerian experience (1981 To 2013). *Researchjournal's Journal of Economics*, 4(4).
- Member, A., Emmanuel, A. A. & Vaachia, J. I. (2023). Asymmetric Effect of External Debt Service on Real Effective Exchange Rate in Nigeria. *Lafia Journal of Economics and Management Sciences*, 8(1).
- Nwafor, M. C. (2017). External Reserves: Panacea for Economic Growth in Nigeria. *European Journal of Business and Management*, 9(33)
- Nzotta, S.M. (2014). Money, banking, and finance: Theory and practice. Hudson-Jude Nig. Publishers. *Finance and Banking Research*, 5(5). Retrieved July 20, 2020, from <https://ssrn.com/abstract=1534212>

- Ogbonna, K.S., Ibenta, S.N., Chris- Ejiogu, U.G. & Atsanan, A.N. (2019). Public Debt Services and Nigerian Economic Growth: 1970-2017. *European Academic Research*, 6(10), Pp. 5714 – 5740.
- Ogege, S. & Ekpudu, J.E. (2010). The Effect of Debt Burden on the Nigerian Economy. *Journal of Research in National Development*, 8(2).
- Okeke, V., Nwakoby, C. & Okeke, N. (2022). Excessive Internal Borrowings and Debt Management: Implications on the Nigerian Economy. *Journal of Financial Risk Management*, 11, 116-141. doi: [10.4236/jfrm.2022.111006](https://doi.org/10.4236/jfrm.2022.111006).
- Okerekeoti, C. U. (2022). Effect of external debt on economic growth in Nigeria (1999-2021). *African Journal of Business and Economic Development*, 2(9) (September 2022).
- Olusegun, E. A., Oladipo, O. N. & Omotayo, E. O. (2021). The impact of debt service in stimulating economic growth in Nigeria: Mediating on its role on public sector financial management. *ACTA Universitatis Danubius*, 17(1), pp. 315-329
- Onwuka, E. M. & Igweze, A. H. (2014). Impact of external reserve and foreign debt on the naira exchange rate. *Journal of International Academic Research for Multidisciplinary* 2(6), July 2014.
- Osadume, C.R. & Okene, J.A. (2019). External reserves, external debts and economic development: Lesson Nigeria, 1980-2018. *British Intl. Journal of Education and Social Sciences*, 6(1). ISSN 2222-2855.
- Osadume, R. C. & Ovuokeroye, E. U. (2021). External debt, external reserves, debt service costs and economic growth: Implications for the Nigerian Transport Sector. *LOGI – Scientific Journal on Transport and Logistics*, 12(1). DOI: 10.2478/logi-2021-0017
- Peter, E. A. & Dumani, M. (2020). Impact of External Debt on Nigeria's Foreign Reserve Portfolios. *Asian Journal of Economics and Empirical Research*, 7(1): 1-7, 2020. DOI: 10.20448/journal.501.2020.71.1.7
- Popoola, N., Olatunji, S., Ikpoto, E. & Jaiyeola, T. (2023). *Nigeria's debt jumps by 75% in three months, hits N87tn*. Punch Newspaper. <https://punchng.com/nigerias-debt-jumps-by-75-in-three-months-hits-n87tn/>
- Senibi, V., Oduntan, E., Uzoma, O., Senibi, E. & Akinde, O. (2016). Public debt and external reserves: the Nigerian experience (1981-2013). *Economic Research International*. doi: 10.1155/2016/1957017.
- Sunday, M. O. (2023). *N2.34trn Spent on Debt Servicing in 6 Months – DMO*. Daily Trust Newspaper. <https://dailytrust.com/n2-34trn-spent-on-debt-servicing-in-6-months-dmo/>
- Uma, K. E., Eboh, F. E. & Obidike, P. C. (2013). Debt and debt service: implications on Nigerian economic development. *Asian Journal of Social Sciences & Humanities*, 2(2). 257- 284.
- Umeora, C. E. (2013). Accumulation of External Reserves and Effects on Exchange Rates and Inflation in Nigeria. *International Business and Management*, 6(2) 105-114.
- Yuguda, L. A. (2011). *Establishing a more balanced currency composition: Is there a need to diversify?* A lecture delivered to the National Asset-Liability Management Africa Symposium, from December 1 - 2, Johannesburg, South Africa.