Innovative Research Journal of Sociology and Humanities

ISSN(print): Applied, ISSN(online): Applied

Volume 01 Issue 01 September 2024

Page No: 11-21

Public Debts and Exchange Rate Nexus in Nigeria

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ABSTRACT

This paper examined the effect of public debt on exchange rate in Nigeria. Public debt was proxy by external debt, internal debt, debt servicing and inflation rate while exchange rate was proxy by the Nigeria's exchange rate. The study employed secondary data, which was sourced from Central Bank of Nigeria Statistical bulletin and Debt Management Office over a period of 25 years from 1999 to 2023. Ex post facto research design was adopted for the study. The result of the study revealed that public debt was a positive determinant of exchange rate in Nigeria with a p-value of 0.0000 and f statistics of 212.10. Regression to test the hypothesis at a significance level of 5% showed that external debt, internal debt, and debt servicing positively and significantly affected the exchange rate in Nigeria with to statistics of 6.14, 5, 4.60 and p-value of 0.000,0.000 and 0.000 respectively. While inflation rate was positive but insignificantly affected exchange rate in Nigeria with t-statistics of 1.61 and p-value of 0.122. The study therefore recommends that Policymakers in Nigeria are advised to minimize external debt to finance budget deficits, minimise expenditures by eliminating corruption and boost domestic revenue generation. In addition, government of Nigeria should ensure it obtains self-liquidating, production or project-based loans for funding projects; and extended maturity periods; promptly and consistently service foreign loans to prevent problem associated with compound interest accumulation.

KEYWORDS: debt servicing, exchange rate, external debt, inflation rate, internal debt, public debt.

ARTICLE DETAILS

Published On:
19 September 2024

Available on:
https://irijsh.com/

1.0 INTRODUCTION

An understanding of how the economy reacts to changes in exchange rates is essential to understanding many of the issues surrounding economic policy. Exchange rate is the price of a nation's currency in relation to another country's currency. It is the relationship between domestic currency and foreign currency. Movement in exchange rate can either appreciate or depreciate between local and or foreign currency. Exchange rate in Nigeria, most especially Naira and Dollar has been on downward trend from one administration to the other (Anyawu, 2017). Rate of Dollar to Naira at the beginning of President Tinubu's administration on 29th of May, 2023 in Nigeria was N465/$ and it has depreciated to official rate of N1,562/$ in August 2024. This downward trend in exchange rate and its associated effect on public debt and inflation rate has made its management to be of paramount importance to the government of Nigeria. Depreciated and uncontrolled exchange rate has impacted the economy negatively (Adam, 2022; Blessy, *et. al*,2020)). This is the reason why any serious-minded government should pay keen attention to fluctuations in exchange rate (Salako, 2022).

Continuous depreciation in the value of Naira against other currencies has impacted negatively on the Nigeria economy (Adam, 2022). Prices of goods and services keep on climbing up the ladder making it out of reach of commoners. This downward trend in exchange rate has affected the economy of Nigeria badly to the extent that the cost of servicing debt is so enormous (Chika *et.al*,2023). Despite the fact that the actual foreign currency contracted as loan remains unchanged yet the depreciation of local currency against foreign counterpart has made value of foreign loan to increase, therefore making its servicing or repayment a huge burden on the borrowers (Ayunku, *et.al* 2020). Most companies that depend on imported raw materials for production in Nigeria are going into extinction or exiting Nigeria. Few examples are Unilever Nigeria PLC, Procter & Gamble Nigeria, Sanofi-Aventis Nigeria Ltd, Equinox Nigeria and Bolt Food & Nampak Nigeria Limited (Arinze, 2024). Reduction in purchasing power of Nigerian currency resulting from high prices of goods and services has led to total collapsing and or relocation of many multinational companies away Nigeria such as GlaxoSmithKline Consumer Nigeria Ltd, ShopRite Nigeria e t.c (Arinze, 2024). Monica (2023) stated that one of the main effects of the Naira's devaluation on the Nigerian economy is that it becomes less costly relative to other currencies. This suggests that exports from the nation become comparatively less expensive for consumer of our export (Monica 2023).

Rising cost of goods and services without corresponding increase in internally generated revenue has made the government of Nigeria to result to borrow fund from both within and outside the country with the aim of financing project that are of public utility. However, continuous changes in government has turned many of the projects into white elephant as each government chose to follow and run its own programs and manifestos. This has made Nigeria to have a huge debt from home and abroad without any social infrastructural facilities to show for it. All debts contracted have repayment period and associated interest (Yusuf & Mohd 2021). Nigeria as a country continues rescheduling the debt payback period as a result of inability to repay as stated in the contract. This repayment and payment rescheduling keep on increasing the cost of servicing debt. This debt servicing has caused lender to dictate the pace of economy for Nigerian government. Any approach to run the economy prescribed by the lender, whether good or bad has to be accepted by the borrowing nation's government otherwise the lender will demand loan repayment. In most cases, the policy of lender is not in tandem with the campaign policy of the government but the government has little or no option to comply (Yusuf & Mohd 2021).

Public debt can either be internal and or external debt. External debt is the debt owed to lenders outside the country and internal debt represents the government's obligations to domestic lenders. It is internal when fund is borrowed in Naira and from within the country. Internal debt could be in the form of local loan such as treasury bills, bond, debenture etc. It attracts interest but easy to finance by government since repayment is in local currency and does not suffer exchange rate fluctuation while foreign debt is denominated in foreign currency, attracts interest and equally prone to exchange rate risk. Burden of debt is so severe that the lender dictates the direction of the economy of the borrower. A nation that is indebted acts mainly like a slave to the lending nation or institution. This is the reason why some governments take unpopular decision such as devaluation of currency, subsidy removal e.t.c dictated by the borrower (Olusegun. *et.al*, 2021).

It is very essential to mention that not all borrowings or loans both external and internal are bad. For instance, nation used loan to bridge gap between the timing of expenses and revenue generation. Also, to accelerate the pace of economic development, government can borrow money for infrastructural development that is useful to its citizenry. However, when borrowing becomes reckless and uncontrolled as in the case of Nigeria it becomes hazardous and put such a country in problem and perpetual under development. Loans must not be used to finance recurrent expenditure. (Onuoha & Elegbede, 2018). Prominent among Nigeria's creditors for external debt are: World Bank, International Monetary Fund, Afrexim and African Development Bank and bilateral lenders, including Germany, China, Japan, India and France (Akhanolu, *et. al*, 2018)

Due to high cost of governance coupled with dwindling oil revenue, Nigerian government resulted to borrowing to service recurrent expenditure without cognizance of repayment (Chandana, *et.al.* 2020). Other unforeseen incidence such as Boko Haram, Niger Delta militancy, kidnapping e.t.c that require urgent attention and funding by government has left the country with no option than borrowing irrespective of the terms and conditions associated with the loan. Also, high level of corruption, flamboyant life style of Nigerian politicians, duplication of ministries, mismatch of loans, poor supervision of project e.t.c has plunged the nation into a very deep sea of debt without any tangible infrastructural development to show for it (Saheed *et. al*, 2015). The debt is so huge that Nigeria's debt service-to-revenue stood at 74.3 percent in the first quarter of 2024. Given the foregoing, this study critically examined the effect of public debt on exchange rate in Nigeria

1.1 Statement of the Problem

Increase in Nigeria government expenditure resulting from population explosion and need for infrastructural development without corresponding increase in government revenue has led Nigerian government to turn to borrowing. However, continuous mounting of debt that improvised Nigerians has called for study in this area (Amadi & Amadi, 2020).

Also, despite huge debt contracted by Nigerian government with the aim of infrastructure development yet there is nothing to show for it. No good road network, inadequate educational facilities, erratic electricity supply, inadequate pipe born water e.tc call for study in this direction with the aim of proffering solution to the problem (Olufemi, 2016). In addition, this area of study is so important to citizens of Nigeria and Africa at large therefore it is critical that study should continue to be carried out so as to find a lasting solution to the problem confronting Nigeria with the aim to pay off the debt and return normalcy to exchange rate in the country (Saheed *et.al*, 2015). Results from the above position, the pertinent question then becomes, despite the huge borrowing of the country, why has borrowing not accelerated the improvement in the lives of citizens of the country? Why is Nigeria still having wide infrastructural gap? These and many other questions are what the study set out to answer.

1.2 Research Objective

The main objective of this study is to assess the impact of external debt on the exchange rate in Nigeria. Specific objectives are;
to examine the effect of external debt on exchange rate of Nigeria.
to determine the effect of internal debt on exchange rate of Nigeria.

to evaluate the effect of public debt servicing on exchange rate of Nigeria.
to review the effect of inflation rate on exchange rate of Nigeria.

2.0 LITERATURE REVIEW

2.1Conceptual framework

Exchange rate

The rate at which one currency can be exchanged for another between countries or economic zones is known as an exchange rate. It is crucial for figuring out the dynamics of trade and capital flows since it is used to calculate the relative values of different currencies. The cost of exchanging one country's currency for another in an economic zone is known as the exchange rate. (Chika *et.al*,2023).

Public Debt

Public debt is the amount of money owed by a government to its creditors, including individuals, corporations, and other governments. Public debt is one way for a government to get extra funds for economic development. Public debt, obligations of governments, particularly those evidenced by securities, to pay certain sums to the holders at some future time. Public debt is distinguished from private debt, which consists of the obligations of individuals, business firms, and nongovernmental organizations.

External debt

External debt is debt that originates with foreign nations or financial institutions. Main reason for public debt is that it is a critical tool for governments to fund their spending, mostly when it is difficult to raise taxes and reduce public expenditure (Abdulmumin, 2022). When domestic resources are insufficient to sustain government's activities, the government is compelled to borrow money from outside sources. When compared to internal debt, external debt may have cheaper interest rates, but because it is always committed in foreign currency, it is subject to swings in exchange rates, which can result in significant burdens if the exchange rate does not favor the borrowing nation (Aderemi *et. al*, 2020).

Internal debt

It means money borrowed by the government from inside the country. In other words, it is a nation's total debt that is owed by the government to domestic lenders. It is sometimes known as domestic debt in public finance terminology. Central bank, Commercial banks and other financial institutions are the primary funding sources for internal loans. Other sources for internal debts can include citizens, the country's banks, financial institutions, business houses, etc. Internal debts are mostly used by the government for the progress of education and health facility within the country. The government borrows money within every available source issuing financial instruments in the form of securities, such as Treasury Bills for short-term borrowing, which typically have maturities between 90 and 364 days, Development Stocks, which typically have maturities between 5 and 25 years, and Bonds with maturities between 10 years and above. (Ashogbon. *et.al*, 2023)

Debt Service

The entire amount of money needed by a nation, business, or individual to settle all debts is referred to as debt service (Alicia, 2024). When a nation borrows fund from another country or internally, it pays back the principal with interest. Repaying loans from both domestic and foreign sources on a regular basis is referred to as debt servicing. (Ibrahim, 2023). The loan's principal and interest are included in installments. However, debt servicing pertains to the monetary resources required within a designated time frame for the repayment of a loan's principal and interest. Nigeria has had slow economic growth and worsening social issues as a result of the burden of debt service. (Ashogbon, *et.al*, 2023)

Inflation

Inflation is the general increase in prices of goods and services over period of time. Inflation is typically a broad measure, such as the overall increase in prices or the increase in the cost of living in a country. It is general and persistent rise in prices of goods and services. The inflation rate for consumer prices in Nigeria moved over the past 63 years between -3.7% and 72.8%. For 2023, an inflation rate of 24.7% was calculated. During the observation period from 1960 to 2023, the average inflation rate was 16.2% per year (Sasu, 2024). According to the monthly release from National Bureau of Statistics (NBS), the inflation rate as at July 2024 was 33.4%. slowing down for the first time in about 2 years from a 28 year high of 34.19% in June 2024 in the midst of subsidy removal and a weak local currency.

2.2. Theoretical Frame Work

2.2.1 The Debt overhang theory

Debt overhang means a debt burden that is so large that an entity cannot take on additional debt to finance future projects. The incident of such debt is so large that all earnings are used to pay off existing debt rather than fund new investment projects, making the potential for default higher. When a nation finds itself in this situation, it improvises the citizen and the nation at large unable to make any progress. This theory has been a subject of interest to developing economies because the relationship between external debt and economic growth is a complex occurrence. It has been argued in the theory that the significant principal variable responsible for slowing down the pace of investment is debt overhang. Meanwhile, the subject matter of debt overhang theory is premised on the fact that if the country's repayment ability is less than debt with some probability in the future, the output of the country will likely lack the capacity to sponsor the expected debt service (Krugman, 1989). In view of the above, local and foreign investors could be discouraged as a result of high tendency of existing foreign creditors to tax some of the returns from investing in the domestic economy.

It is worthy of note that debt servicing involves interest payments and repayments of principal by the indebted country. However, debt overhang has a wide scope to the extent that its effect does not only manifest in investment in physical capital but also any activity that has to do with incurring of costs upfront with a view to increasing output in the future. These activities entail the investment in human capital and in technological advancement which could constitute stronger effects on economic growth over time. The way the indebted country raises the necessary resources required finance external debt service with complement of private and public investment is a function of how a debt overhang discourages private investment. For instance, if a government embarks on a capital levy, this might serve as a discouraging factor to private investment. In a nut shell, debt overhang has been conceptualized as a situation in which the indebted country gets very little benefits from the return on any additional investment due to the obligations of servicing the debt. It is worth of note that the need to service a large amount of external debt could affect performance of economy via some other channels like the crowding out effect as a result of high real interest rate which could worsen the borrowed country and shut-off from foreign credit market. This leads to a decline in investments because of the decrease in available resources for financing investment and macroeconomic conditions.

2.2.2 Ricardo Theory of Public Debt

The core tenet of Ricardo's theory of public debt was the emphasis on the idea that the community was primarily burdened by the wastefulness of public expenditures rather than the financing strategies used to fund them. Regarding the question of how to pay for public spending, he thought that eventually the required money would have to come from the community's liquid resources and that, in terms of economics, it wouldn't really matter if it came from taxes or loans. However, if the funds were raised via the latter, they would be referred to as public debt. One aspect of external debt is debt servicing, which usually needs to be paid for in foreign currency. Whereas, the continued increase or decrease in demand for foreign currency tends to influence the exchange rate.

Ricardo's theory of public loans then was based on an emphasis of the fact that the primary burden to the community was derived from the wasteful nature of public expenditure itself rather than from the methods adopted to finance such expenditure.

2.3 Empirical review

The country's strong reliance on imports, which causes imported inflation, weak exports, government expenditures, and exchange rate regimes, has resulted in a less than ideal exchange rate pattern recently. Various causes, primarily related to economic management such as low trades and high bills, as well as policy difficulties, have been attributed by certain specialists in economic growth to the ongoing changes in the exchange rate. Since government's efficiency in using the funds from external debts is a function of inflation, most studies (Ofurum & Fubara, 2022) on the impact of external debt on the exchange rate in Nigeria have only measured the effects of variables like external debt, cost of debt servicing, and foreign reserve on the exchange rate of Nigeria. Few of the studies in this area are discussed below:

This study examined the effect of Nigeria's external debt and changes in the country's exchange rate between 1981 and 2018. As a result, the Autoregressive Distribution Lag Model was used in the study to accomplish its goal. The following are the findings. In the near term, foreign reserve, debt service payments, and external debt all significantly positively affect Nigeria's exchange rate swings. The study suggests that policymakers should be dissuaded from using budget deficit financing, as doing so puts pressure on the foreign exchange market in the short term and depreciates the Naira. This is because servicing and repayment of such loans, in particular, put pressure on the market. Also, Nigeria should adopt a vigorous export promotion strategy in order to increase the nation's foreign reserve (Aderemi, *et.al*, 2024).

Adewale, *et.al*.(2024) stated that policymakers should always proceed cautiously when interacting with foreign investors in order to prevent the depreciation of the currency rate. Furthermore, implementing a comprehensive plan for macroeconomic stability can promote an environment that is more favourable to foreign investment. Between 1981 and 2021, a thorough analysis of the link between exchange rates and foreign direct investment (FDI) in Nigeria was carried out. Data analysis was done with regression analysis using Ordinary Least Squares. The study's conclusions showed a strong positive relationship between FDI and currency rates. Additionally, trade openness and foreign direct investment are found to have a favourable but statistically insignificant relationship. The interest rate finding (INTR coefficient: -0.104) shows a weakly negative correlation with FDI. Likewise, inflation rates (INFR coefficient: 0.012) show a positive but statistically negligible relationship with foreign direct investment. A noteworthy finding of the study is the statistically significant negative association between FDI and human capital, indicating the significance of human capital development in luring foreign investment. According to the research findings, exchange rates have a significant effect on foreign direct investment (FDI) in Nigeria.

The fluctuating exchange rate and massive debt burden of Nigeria necessitates a thorough investigation of trends in her foreign debt levels, its underlying causes, and implications for economic growth. This study, therefore, investigated the impact of rising external debt on the exchange rate in Nigeria with annual data from 1980 to 2021. The motivation for this study was premised on inculcating government spending and inflation rate into the traditional analysis of exchange rate volatility in Nigeria using data sourced from CBN statistical bulletin (2020), DMO (2020), and WDI (2021). The data obtained were analysed using the Augmented

Dickey-Fuller (ADF) unit root test, Autoregressive Distributed Lag (ARDL) technique, and the stability and diagnostic test in the analysis. Based on the outcomes of the preliminary test analysis, the results showed that external debt has a negative but insignificant effect on the exchange rate in Nigeria. Also, external debt has a positive and significant effect on the inflation rate in Nigeria. In light of these findings, the study concluded and recommended that the Nigerian government and/ or Central Bank of Nigeria should ensure that all borrowed funds are effectively channelled into viable projects that will yield returns to service the debts as well as pay up the debt at maturity, which puts pressure on the foreign exchange market in the short term and consequently results in exchange rate fluctuations in terms of the depreciation of the Naira in the country (Chika *et.al*, 2023)

Ashogbon, *et.al,* (2023) examined the relationship between institutional strength and currency rate volatility in Nigeria between 1981 and 2020. The secondary time series data on the domestic and external debt, exchange rate, fiscal balance, institutional quality, and interest rate were compiled annually using the Central Bank of Nigeria statistical bulletin, the Debt Management Office, the Worldwide Development Indicators, and the Worldwide Governance Indicators. In order to look into both long- and short-term correlations, the study used an autoregressive distributed lag model with the exchange rate as the dependent variable and other variables as the explanatory variables. The error correction term, which was negative and statistically significant at one percent, revealed evidence of long-term relationships. Additionally, it is demonstrated that there is a significant positive correlation between institutional quality and exchange rate as well as a long-term, significant negative correlation between external public debt and exchange rate. Institutional quality is found to have a negative and substantial correlation with the exchange rate in the near term, but domestic debt has;8 a positive and significant relationship with the exchange rate. Therefore, the research recommends that the government come up with other financing options for operations in order to minimize reliance on foreign debt in particular and to ensure the entrenchment of strong, virile, and autonomous institutional quality.

A detailed examination of Nigeria's foreign debt trends, underlying reasons, and implications for economic growth is necessary due to the country's volatile currency rate and enormous debt load. Therefore, this analysis used annual data from 1980 to 2021 to examine the effect of growing external debt on Nigeria's exchange rate. The basic idea behind this study was to use data from the CBN statistical bulletin (2020), DMO (2020), and WDI (2021) to incorporate government spending and inflation rate into the conventional analysis of exchange rate volatility in Nigeria. The Autoregressive Distributed Lag (ARDL) technique, the stability and diagnostic tests, and the Augmented Dickey-Fuller (ADF) unit root test were used in the analysis of the given data. Considering the results of the preliminary test analysis, the findings indicate that Nigeria's exchange rate is negatively impacted by external debt, albeit marginally. Additionally, external debt significantly and favourably affects Nigeria's inflation rate. These results led to the study's conclusion and recommendation that the Nigerian government and/or Central Bank of Nigeria make sure that all borrowed funds are efficiently directed into profitable projects that will yield returns to service the debts and pay them off at maturity. This will prevent short-term pressure on the foreign exchange market and the depreciation of the naira in the country, which will also prevent exchange rate fluctuations. (Chika, Uju & Uche, 2023).

The impact of public debt on Nigeria's economic development from 2004 and 2021 was the main topic of this study. The specific goal of the study was to determine the regression analysis of the relationship between public debt and economic growth in Nigeria. Other goals included looking into the effects of external debt, interest rates, and foreign exchange rates on Nigeria's economic growth. Regression analysis was employed by the researcher to examine the time series data produced by secondary data sources, and an ex-post facto study methodology was chosen. The study discovered that while exchange rates have an impact on economic development, public debt has Nigeria's economic growth has a positive correlation with interest rates, but this association is not very strong. The study's conclusion, based on its data, is that public debt is required to boost the economy and make up for internal resource shortages. The study suggests the following in light of its findings: The process of diversifying the economy should be vigorously pursued by the government. This will lead to a thriving and strong economy, which will lower the national debt (Eze, *et. al*, 2023)

Rufai *et. al* (2022) study revealed that a negative relationship between foreign direct investment and exchange rate. The study used the Gregory-Hansen and Bayer-Hanck cointegration techniques to look at the long-term relationship between foreign direct investment inflows and Nigeria's exchange rate from 1980 to 2019. The outcome demonstrated that FDI and the exchange rate in Nigeria have a historical relationship. The effect of FDI on the currency rate was determined using the Dynamic Ordinary Least Square method. The two factors were shown to have a negative relationship. This suggests that the Naira appreciates in response to a rise in FDI and vice versa. According to the report, the Nigerian government had to try to draw in foreign investors for its enterprises, especially those in the oil industry, in order to reduce the amount of Naira that leaves the country. If oil refineries are encouraged from extracting and exporting crude oil, for example, there might be a tremendous infusion of dollars into the economy.

The argument over how domestic debt and exchange rate are related has persisted over time without interruption. Proponents of debt desirability contend that public debt solely improves welfare, while detractors contend that public debt actually worsens welfare outcomes. Concerns about Nigeria's attractiveness have grown in response to the country's growing public debt in recent years. While a number of researches have been conducted in this area, very few look at domestic debt-living standards by capturing the standard of living using both per capita income (PCI) and environmentally adjusted per capita income (EAPCI). Thus, the study's goal was to find out how Nigeria's public debt affected the country's standard of living from 1981 to 2020.The canonical co-integrating regression (CCR) is used to draw the following conclusions: External debt has a substantial positive impact on both PCI and EAPCI in Nigeria, whereas debt servicing has a big negative impact on both PCI and EAPCI. In Nigeria, domestic debt has a significant negative impact on PCI, while external debt has a significant positive influence on both. The report suggests, among other things, that the government should redirect its borrowing toward external sources in light of the detrimental impact of domestic debt on PCI and EAPCI in Nigeria. Nigeria's economy lacks capital, so it would be very costly for the country's economy to discourage investment or force high interest rates through domestic borrowing (Onyenwife, *et.al*, 2022).

Over a 30-year period between 1990 and 2019, this study examined the relationship between Nigeria's exchange rate and foreign trade. The CBN statistical bulletin 2020 version served as a secondary source of data for the study. Exchange rates were considered as a dependent variable, and foreign debt was strictly represented by multilateral debt, bilateral debt, Paris Club debt, and London Club debt. The analysis, which considered stepwise regression, showed that bilateral debt had a negative association with exchange rate fluctuation, whereas multilateral debt, Paris club debt, and London club debt were the main debts favourably impacting it. Furthermore, compared to Paris club debt, which has a negligible effect on exchange rates, multilateral debt, bilateral debt, and London club debt all significantly affect exchange rates. The analysis concluded that there is a strong correlation between foreign debt and currency rates. Consequently, the study suggests that in order to lower Nigeria's exchange rate, the government should continue to maintain a favourable and managed public external debt (Osifalujo *et.al* 2022).

In order to examine the relationship between inflation and the exchange rate in Nigeria, this study uses the ARDL technique and Granger causality on annual data from 1980 to 2021. The study's conclusions demonstrated a co-integration link between GDP, imports, exchange rates, and inflation because the F-bounds statistic is higher than the upper bound at the 5% level. Additionally, was discovered that there is a quicker rate of adjustment from the short-term to long-term equilibrium horizon, with an annual correction rate of 79.02% of error. While there is a long-term, statistically significant negative association between inflation and exchange rate, the short-term relationship between the two is determined to be positive. Furthermore, the Granger;8 causality test shows that there is no correlation between exchange rate and inflation, and vice versa. Consequently, the study suggests that in order to accomplish the macroeconomic goal of price stability in the economy, the government should implement rigorous monetary policy that will limit the needless usage of foreign currency. (Jabiru, Ibrahim. & Sanusi, 2022).

Additionally, a different assessment on Nigeria's exposure to foreign debt and exchange rate risk in Nigeria. All of the variables' data from 1981 to 2019 came from World Bank Development data. The study made use of the OLS estimation approach. The study's conclusions showed that trade openness, the entire amount owed on external debt, and the payment of external debt service are important. Nonetheless The exchange rate is being severely impacted by trade openness and the servicing of external debt. The real interest rate, the GDP growth rate, and the stock of external debt are the other explanatory factors that are all positive and negligible. Based on the aforementioned research, it is advised that the government pursue long-term, low-interest concessional loans (Afamefuna *et .al* 2021)

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 obtaine;d 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 debt servicing on its international reserves is investigated in this study. The study's theoretical foundations were the self-insurance theory of external reserves and dual gap theory. The components of the investigation were examined retrospectively using the aftereffect research design. Collated from the World Development Indicators, historical data from 1981 to 2018 was examined using the error correction mechanism as the unit of analysis and approximated using the least squares method. According to the empirical results, Nigeria's foreign exchange reserve portfolios are negatively and statistically significantly impacted by the stock of external debt. Additionally, it was discovered that payments for external debt servicing have a favorable but statistically negligible effect on foreign reserves. The study concludes that Nigeria's international reserve portfolios are not significantly impacted by the amount of external debt outstanding or by payments for that debt. The research advises Nigeria's fiscal planners to use caution while taking on new debt so as to prevent the nation's foreign reserves from being exhausted by concurrent debt service payments. (Ayunku, & Markjackson, 2020)

Exchange rates serve as a means of connecting local and foreign pricing for products and services. It is important markers of a currency's external worth (Dabwor et al., 2019). Nigeria's need for goods from other nations is the reason behind its desire for foreign currencies, including the US dollar, pounds, and so on. Exchange rates, which indicate the relative worth of one currency to another, have a significant influence on both domestic pricing and global competitiveness (Sokang, 2018). The direct technique is used in Nigeria, where appreciation happens when the value of naira falls in relation to a foreign currency. Changes in exchange rates, whether they result in appreciation or depreciation, have a big impact on the Nigerian economy and the naira. While depreciation can improve international trade situations, lower the cost of domestic commodities, and encourage FDI, appreciation may lead to increased production costs, unstable FDI, and trade deficits (Okonkwo, 2019).

This study looks at the relationship between Nigeria's exchange rate, governmental debt, and inflation between 1980 and 2016. The work empirically investigates the relationships in the short and long run using Granger-Causality technique, vector error correction model, non-parametric approach, and exploratory data analysis. The empirical distribution analysis reveals a slight positive correlation between the CPI rate of inflation and external debt with kernel fit, and a high positive link with domestic debt and exchange rate. The short-term findings indicate;8 that while foreign debt and exchange rates are favourable but will become less significant in the near future, the historical values of inflation and domestic debt have a considerable impact on the current value of inflation. The outcome further demonstrates that the explanatory variables have a long-term detrimental impact on inflation. We can rule out the theory that inflation in Nigeria has no bearing on the country's exchange rate, external debt, or national debt. For the exchange rate, external debt, and domestic debt, a one-way link is discovered. The report advises decision-makers to develop sensible policies aimed at lowering the exchange rate and national debt at the same time in the near future (Odior & Arinze, 2017)

Fatai, Koku, and Caushi (2016) use panel data methods of analysis, including the 'Hausman-Taylor instrumental variables IV' model and the Fixed and Random Effects Model, to empirically investigate the relationships between exchange rates and inflation in Western Balkan countries for the years 1996: Q1 to 2014: Q4. The outcome shows that, while all other factors remain unchanged, a rise in the exchange rate will positively impact the level of prices. Moreover, the Western Balkan countries' inflation may have its roots in the flexible exchange rate.

It is widely held that developing nations are constrained by insufficient funds to build basic infrastructure that would set the pace for capital formation and sustainable growth. Faced with shortfalls in revenue and the need to increase investment in public works, developing countries engage in deficit spending to bridge the gap in funding public expenditure. One source of deficit spending is external debts. This study investigates the effect of external debt on external reserves in Nigeria from the first quarter of 2009 to the fourth quarter of 2022. An ex post facto research design was adopted for the study. Quarterly time series data for external reserves, multilateral debt, and bilateral debt were collected from the Central Bank of Nigeria statistical bulletin an(d Debt Management Office reports. Philip Perron test was used to test the stationarity of the data and the Johansen cointegration test was utilized to determine the presence of a long-run relationship. Dynamic Ordinary Least Squares technique was used to test the effect of external debt on external reserves in Nigeria. The findings showed that multilateral debt has a significant effect on external reserves in Nigeria. However, bilateral debt has an insignificant effect on external reserves in Nigeria. The study recommends that the Nigerian government should strengthen its capacity in debt negotiation and contracting. This involves conducting comprehensive assessments of loan terms, interest rates, grace periods, and repayment schedules before accepting multilateral debt. Furthermore, the Ministry of Finance through the Debt Management Office should continue to improve its debt monitoring and evaluation mechanisms for bilateral loans. This involves establishing transparent processes to track the utilization and impact of borrowed funds (Ogbonma, *et. al*, 2023)

3.0 METHODOLOGY

3.1 Research design

This study work used an *ex post facto* research design to collect a significant amount of time series data.

3.2 Population

The population of the study runs from 1960 to date. This shows that all the variables had data drawn from 1960 to date.

3.3 Sample and sampling technique

The sample size is a subset of the total population since it is a fairly accurate representation of the population. But given that the study's primary focus is on Nigeria's public debt, currency rates are also relevant. From 1999 until 2023 (a twenty-five -year span), data were extracted(Adekeye & Apeh, 2019)).

3.4 Method of Data Collection

The data for the study were extracted from National Central Bank of Nigeria and Nigeria Debt management office websites from 1999 to 2023.

3.5 Method of Data Analysis

Main econometric instrument employed was Ordinary Least Squares approach. Independent variables are internal debt, external debt, and debt servicing while the exchange rate was chosen as the dependent variable. An additional moderating variable was the inflation rate. The World Bank data bank and Central Bank bulletin, which provided data over a twenty five-year period, were the primary sources of the material.

Numerical data were drawn on Nigeria external debt, internal debt, debt servicing inflation rate, foreign exchange rate and analysed using the simple regression method. F-statistic was used to assess the individual effect of the explanatory variables on the criterion variables at 5% level of significance while the P-value was used to test the overall goodness-of-fit and acceptability of the model from a statistical perspective, also at 5% level of significant. The data were analysed using Stata 13.

3.6. Model specification

Prior to estimation of the model, standard econometric tests, that is, stationarity tests were conducted to test for its stochastic properties through unit root tests in order to avoid estimating spurious regression results, while co-integration test was used to analyse the relationship between public debt and exchange rate. In order to investigate the effect of public debt on exchange rate in Nigeria, the model for the study was specified thus:

EXCH R = f (EXTD, INTD, INFR, EXDS) ………………………………………………(1)

Where:

EXCHR =Exchange Rate
EXTD =External Debt
INTD = Internal Debt
INFR = Inflation Rate
EXDS = External Debt Servicing

The model in its econometric linear form can be written as:

EXCHR = $\beta o + \beta_1$EXTD+ β_2INTD$_+$ β_3FDIN + β_4EXDS+ Ɛ ……………………………(2)

Ɛ = random error term
βo = constant intercept
$\beta_1 - \beta_4$ = coefficients of associated variables

4.0 RESULT AND DISCUSSION

Descriptive Statistics

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

Table 1: Descriptive Statistics

Variables	Observation	Mean	Standard Deviation	Minimum	Maximum
Log External Debt	25	6.4535	0.5359	5.6423	7.5823
Log Internal Debt	25	6.5875	0.6196	5.7933	7.7717
Log Exchange Rate	25	2.2741	0.2332	1.9670	2.7956
Log Inflation Rate	25	1.0774	0.1532	0.7314	1.2758
Log Debt Servicing	25	10.712	0.9484	9.1500	12.3402

Source: Authors' Computation (2024)

The above table displayed the descriptive statistical behaviour of all the parameters that were subjected to estimation in this study.

Estimation and Data Analysis

Table 2: Regression Analysis

Table 2: Table showing the log- regression of EXTD, INTD, INFL, and DTSE

Dependent Variable: LOG (EXCH RATE)
Method: Least Squares
Date: 08/07/2024

Variable	Coefficient	Std. error	t-statistic	Prob.
C	-0.73601	0.11745	-6.27	0.000
LOG(EXTD)	0.14432	0.23489	6.14	0.000
LOG(INTD)	0.16086	0.32164	5.00	0.000
LOG(INFL)	0.10588	0.06558	1.61	0.122

LOG(DTSE)	0.08445	0.01835	4.60	0.000
R-squared	0.9770		F-statistics	212.10
Adjusted R^2	0.9724		Prob(F-statistics)	0.0000

Source: Stata software (11) output 2024

4.1 Discussion

As detailed in table 2, exchange rate has positive and statistically significant relationship with public debt (F-statistics = 212.10, p-value = 0.0000). Log of external debt was found to be significantly and positively related with Log of exchange rate (F-statistics = 0.14432, p-value = 0.0000). Log of internal debt has positive significant relationship with exchange rate (F-statistics = 0.16086, p-value = 0.0000). Conversely, Log of Inflation rate was found to be insignificantly related to exchange rate (F-statistics = 0.10588, p-value = 0.122). Finally, Log of debt servicing was found to be significant and positively related with Log of exchange rate (F-statistics = 0.08445, p-value = 0.0000). In addition, table 2 showed that when all other variables are kept constant except Log of External Debt (LEXD), a unit change in LEXD will result to 0.144 increase in Exchange Rate. Equally, Log of Internal Debt (LINTD), a unit change in INTD will result to 0.161 increase in Exchange Rate. In addition, for Log of Inflation rate (LINFL), a unit change in INFL will result to 0.106 increase in Exchange Rate. Bearing all other variables constant except Log of Debt Servicing (LDTSE), a unit change in LDTSER will result to a 0.084 increase in Exchange Rate.

The results in table 2 above showed a robust Adjusted R-square of 0.9724, indicating that about 97.24 percent change in dependent variable (Exchange Rate) is jointly explained by the explanatory variables (LEXD, LINTD, LDTSE, and LINFL), while, only 2.76 percent change in the dependent variable, that is, exchange rate movement, can be said to be explained by factors outside the model. The F-stat of 212.10 and p-value of 0.000 indicates that the entire model is positive and significant hence the null hypothesis was rejected while alternate hypothesis was accepted which stated that public debt has a significant effect on exchange rate of Nigeria.

In addition, result is in consonant with the study conducted by Osifalujo *et.al* (2022) and Saheed *et.al* (2015) on external debt and exchange rate in Nigeria. Findings reveals that all the dependent variables, that is, external debt, debt service payment and foreign reserve proved to be statistically significant in explaining exchange rate fluctuation in Nigeria. It is also in tandem with the work of Odion and Arinze (2017) on The Dynamics of Inflation, Public Debt and Exchange Rate in Nigeria. It was found that the short run results showed that the external debt and exchange rate were positive but less significant in the near future.

Also, result of this research is in line with the one conducted by Ashogbon, *et.al* (2023) on public debt, institutional quality and exchange rate volatility: Evidence from Nigeria revealed that domestic debt has a positive and significant relationship with the exchange rate.

However, the study conducted by Ashoghon, *et. al* (2023) on public debt, institutional quality and exchange rate volatility revealed a large negative association between external public debt and exchange rate which is contrary to the results of this study.

Implication of the study

This study demonstrated how the movement in exchange rate has impacted the economy negatively. Value of Naira in relation to other nations, currencies were so low that it commands less commodity. In the same vein, government paid more money in exchange for high valued currency. Therefore, Nigeria will require more Naira to service its outstanding debt. Public debt paid at the rate of N465/$ as at May 2023 is now being paid at N1,562/$ for the same Dollar value therefore, cripple the economy and reduce money for infrastructural development for the country.Also, it affected the citizenry, most especially pensioners, salary earners, other fixed income earners as well as industries whose price determination is inelastic. Inflation tends to erode the margin once there is a negative swing in the exchange rate and cost of living is high.

5. CONCLUSION AND RECOMMENDATION

Conclusion

Based on the analysis carried out on the secondary data sourced from the Central Bank of Nigeria and Nigeria Debt management office, the effect of public debt on exchange rate in Nigeria was analyzed. All the explanatory variables examined except inflation rate, proved to be positive and statistically significant on exchange rate within the period of observation. Inflation rate is statistically insignificant but positive.

Recommendation

Based on the objectives of the study and the findings, the following are recommended:

1- Policymakers in Nigeria are advised to minimize, if not completely eliminate, the use of external debt to finance budget deficits/ infrastructure development as it impacts the economy negatively and put the nation in perpetual slavery. Since external debt has a significant relationship with exchange rate, government should maintain a favourable and controlled public external debt in order to reduce the exchange rate of Nigeria.

2- Also, the study recommends that the Nigerian government should minimise its increasing expenditures by eliminating corruption, boost domestic revenue generation, and avoid any form of loan as a means of financing budget deficit since servicing debt mounts pressure on the foreign exchange market.

3- In addition, this study suggests that in order to regulate price level fluctuations and other macroeconomic variables that directly impact the exchange rate, the monetary authority should implement an inflation targeting policy and other macroeconomic measures that will lessen the unfavorable effect of exchange rate volatility.
4- Lastly, Nigerian should patronize locally made product to reduce pressure on external reserve and improve level of profitability of local companies.

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