ANALYSIS OF EXTERNALDEBT ANDREAL ECONOMIC GROWTH OF DVELOPING ECONOMIES: NIGERIA'S EXPERIENCE

Abstract

Increase in externaldebt burden, along withtheattendant risk, have become a global phenomenon, recently experienced by many developing economies, Nigeria inclusive.In Nigeria,there have been several agitations by the stakeholders/public against the increasing level of her external debt, while theperformance of her real economic growth (RGDP), has remained sluggish and suboptimal.Additionally, globalattemptsby some economic scholars,to validate the relationshipbetween externaldebt andRGDP have alsogenerated mixed results. It is therefore pertinentfor this studyto reexaminethe problem empirically and holistically. The study applied econometric analysis (Co-integration, Unit root test, Error Correction Model (ECM)and Granger causality tests), usingtime series sourced from CBN, spanning from 1980 to 2022. The empirical finding demonstratesthatthe selected explanatory variables - external debt, external debt service charges and foreign exchange rate - are adverselyaffectingNigeria's RGDP. The coefficientofthe ECM term(-0.154347) which measures the speed ofthe adjustment, at which equilibrium is restored to RGDP, is significant and correctly signed (negative).It suggests that the performance of Nigeria's RGDP process, adjusts slowly to the short-run disequilibrium changes in these selected explanatory variables; indicating policy lag effect. The study recommends effective and sustainabledebt management policiesand exchange ratereforms toeffectivelymonitor these variables andalso to ensure that borrowed funds are spent on productive projects.Finally, the policy makers should take into consideration the lag effect and design policies in line with the expected magnitudeof expected changes.

Keywords: External Debt, Real Economic Growth, Unit Root test, Co-integration, Error Correction Model

Introduction

In recent times, escalatingexternal debt challenges have become a global phenomenon within many developing countries (Nigeria inclusive). Thedebt stock accumulation of most developing economieshasreally shown signs of futuredebtunsustainability.This is implicitly believed to be inhibiting their economic growth and developmentAn optimal utilization ofexternal debt enhances economic growth but when it is not properly managed, causes stagnant growth of any economy,(Joshua et al (2022).

Economic growthproxies by Gross Domestic Product (GDP) confers many benefits which include: raising the general standardof living of the populaceas measured by per capita national income; making income distribution easier to achieve. It also enhances thetime frame of accomplishing the basic needs of man to a substantial majority of the populace, while economic stagnation can bring destabilizing consequences on the citizenry. (Lipsey (1982)

External debt, as a percentage of GDP, is the ratio between a country's nominal GDP and the debt that country owesto non-resident creditors.AccordingtoWorld Bank (2023a),the externaldebt of developing economies grew by more than15% in 2022 ending(US$11.4 trillion),compared to its level ( ) in pre-pandemic of 2019 .The ratio of external debt to GDP of developing economies, is even worse when compared with the increase from its lowest level of 23.3% in 2011 to 29.1% in 2018. It was also about three times higher at the beginning of2018 than thecommencement of the global economic crises of 2007/2008.(UNCTAD (2021), In most cases, economies with weak publicsectormanagement, tend to restrict the growth of their economies as corrupt management redirects the external debt from its initial intended purpose to projectsthat wouldbe more conducive for misappropriation of the borrowed fund.(Alaa et al (2021). Accordingto Hassan and Meyer (2021), the difference in growth rates between developed and developing economies is partly due to differences in the management quality of their public sector institutions.

Recently, the increasingnature of Nigeria's external debt, as a developing economy, has generated a lot of agitations among the stakeholders and the public in general while the performance of her real economy hasremained very sluggish and suboptimal.The country's outstanding external debt increased from $3,545 billion in 2006 to $3,654 billion in 2007, and then to $3,720 billion, $3,947 billion, $4.6 billion, $5.67 billion, $6.53 billion and $8.82 billion in 2008, 2009, 2010, 2011, 2012 and 2013 respectively (CBN, 2013; and DMO, 2013).As at 31st December, 2022, Nigeria's total Public debt stock stood at US$103.11 (N44.06 trillion),comprisingher external debt which was US$41.69 billion (N18.70 trillion)and her domestic debt of N27.55 trillion (US$61.41 billion) At the same period, her debt service charges stood at US$0.31 billion (N5.6 trillion),.The share of her external debt to total public debt was 40.44% while domestic debt was recorded at 59.56%, (CBN 2022). As at 2nd Quarter of the year 2023, Nigeria's total external debt increasedto US$43.16 billion(N33.25 trillion) while her total domestic debt stood at N54.13 trillion (US$70.26 billion). (CBN National Bureau of Statistics (NBS) (2023).

Available statistics show that the external debt stock of Nigeria has been on the increase after the debt cancellation in 2005, while her real economic growth continued to dwindle. The growth rate of the real economy has been inconsistent in the post-debt relief as it plunged from 6.5% in 2005 to 6%,in 2006 and then increased to 6.5% in 2007 (CBN, 2008), As at December 2022 , the growth rate of Nigeria's real GDP which was 3.40% in 2021 ending, went down to 3.10% (CBN (2022). Perhaps the situation

could have been worst if there was no cancellation of the Paris Club debt in 2005. All these problems point to signs of future debt unsustainability.

The analysis of Nigeria's huge debt cannot be detached from its decades of maladministration and corruption as the continued recklessness of her political rulers has come to a limelight of the public. (Imimole, et al., 2014). Consequently,for an economy that already had a significant deficit financing budget and improper direction of the external loans to non-productive sector, there is a suspicion that the increasing external debt and the sharp rise in the external debt service charges, would have an adverse cumulative effecton her real GDP, as investors (both foreign and domestic) would also be scared to invest.

In addition,the problem ofunrevealing debt servicing charges and the insatiable quest of Nigeria's political leaders to obtain more loanswhich are not usually utilized for the projects they are tied to, is also believed to have contributed to the sluggish growth ofher real economy. According to Safdari, (2011), the inefficient management of the huge debt has become a big challenge to the country,especially in terms of debt servicing, leaving the economy with little or nothing to perform her constitutional obligations to her citizenry.

Secondly,prior to the $18 billion debt cancellation granted to Nigeria in 2005 by the Paris Club, the country's external debt was close to $40 billion with over $30 billion of the amount being owed to Paris Club alone.Nigeria was to pay a gruesome sum of $4.9 billion every year on debt servicing before the debt cancellation deal, (Aluko&Arowolo, (2010) , (CBN (2010).. Under such indebtedness, there is no way that the exchange rate instability would not have worsened, as well as the growth rate of the economy, since any debt obtained has to be serviced and repaid in that foreign currency in the long run. This is at the expense of the local currency (Onwuka&Igweze, (2014).

Additionally,the Paris Club debt cancellation was immediately observed in the sequential reduction of the exchange rate of Nigeriavis-à-vis the US dollar (N132.1 in 2008).. The exchange rate as at 2022 ending worsened as it depreciated to N448 per US dollar. (CBN (2022). According to Imimole, et al. (2014) and Darma, (2014), as at the ending of 1980, when Nigeria was exporting both oil and non-oil products, the official average exchange rate was N0.530 to US dollar, but CBN, (2023) recorded that as at May, 2023, the data reached an average all time high of N460.702 to US$ which did not encourage the growth of the economy

Furthermore, ideal global Debt to GDP ratio measures the financial leverage of any economy. One of the Euro convergence criteria was that government debt to GDP ratio should be below 60%. If the ratio is higher, it denotes the country's risk of default which can cause a financial panic in the domestic and international market.. Therefore, efficient management of debt should not exceed 60% while the ratio of service charge to revenue should be between 20 to 22.5per cent maximum.(World Bank (2020).Unfortunately, Nigeria's Debt to GDP ratio recorded107.06%,108.46%, 113.9%,136.51%, and 139.65% in 2018, 2019, 2020, 2021, and 2022 respectively

while ratio of debt service to revenue stood at 27.69%, 29.17%, 35%, 83.2% and 96.3% in 2018, 2019, 2020, 2021 and 2022 respectively (CBN (2022) as well as (World Bank (2023) . All these figures have been above the globally accepted figures which were unsatisfactory.

The study has also noted that many economic scholars and practioners are of the view that the relationship between external debt and economic growth in some developing economies,has not been adequately identified.. This has become a subject of controversy among many scholars (Ezeanyeji and Okeke (2016).Some scholars like (Hameed, Ashraf and Chandhary (2008), Kasidi and Said (2013),Finckle and Greiner (2015) as well as Frimpong and Oteng-Abayie (2006),were of the view that external debt can accelerate economic growth This view is in tandem with the neoclassic model of economic growth, which is the Keynesian theory in which capital accumulation is viewed as catalyst to economic growth. .(Amini, Oushehi, Ahranjani and Amini, (2012).

On the other hand , the proponent of negative impact of external debt on economic growth are of the opinion that at a certain level, debt accumulation becomes a burden and will no longer stimulate growth (Elbadawi, Ndungu and Ndulu (1996) , Atique and Malik (2012), Udeh, Ugwu and Onwuka (2016), as well as Adewale Hassan and Danie Meyer (2021). Furthermore, Bouchraraet al.(2020) and Kourtellos et al. (2013) found that public debt leads to a negative growth rate in countries with weak institutional quality of public sector management.From the foregoing, there is clear observation that there are global divergent views on the impact of external debt on economic growth which calls for furtherempirical investigation.

The huge level of external debt and its interest charges have already become a challenge to the economic plannersas the government obligations to the citizenry could not be met. (Alao, 2010), (Ajai and Oke (2012) and Ogunmuyiwa (2011) .

The above background has motivated the quest for this study. Consequently, themain objective of this study is to investigate empirically the relationship between Nigeria's realeconomic growth and her external debt while the specific objectives are to investigate the effect of external debt, eternal debt service charges and foreign exchange rate on Nigeria's RGDP..

To achieve these objectives, the hypotheses below are formulated to aid the analysis:

i. There is no significant long run relationship between the growth of Nigeria's real economy proxies by Real Gross Domestic Product (RGDP) and external debt, debt service charges and foreign exchange rate.
ii. There is no direction of causal relationship between RGDP and external debt, debt service charges and foreign exchange rate.

2. Review of Related Literature

This section reviews the related literature on external debt and economic growth under conceptual, theoretical and empirical studies

2.1. Conceptual Review

2.1.1 External Debt

External debt refers to that portion of a country's debt or loan that is borrowed from foreign lenders, including commercial banks, governments or international financial institutions for the purpose of financing productive activities and developments for the welfare of citizenry.According to Oyejide, Soyedeand Kayode (1985), Public debt is the aggregate of all claims against a government, held by private sectors of the economy or foreigners,whether bearing or not, less any claim held by the government against private sectors or foreigners.Debt could be external or internal. Internal debt refers to debt borrowed within the borders of that economy.

External debt is defined by the World Bank (2004) as debt owed to non-resident, repayable in terms of foreign currency, food or services. These loans, including interests, must usually be repaid in the currency in which the loan was made, since the borrowing country cannot print the foreign lenders currency. (Jhingan (2004). Gross external debt at any given point in time is the outstanding amount of those actual current, and not contingent liabilities that require payments of interest and /or principal by the debtor at some point in future and that are owed to non-residents by residents of an economy.(Samuelson,(1976) as well as(Adeyemi Timothy Ayomitunde,(2020).

According to Arnone,Bandiera and Presbitero (2005), external debt is that portion of a country's debt that is borrowed from foreign lenders, including commercial banks, international financial institution and governments. Some countries demand for external debt when their domestic financial resources are inadequate to finance public goods and services for the growth of the economy and welfare of the citizenry.(Calvo, 1998).

In addition, debt service as a proportion of GDP measures the ability of government to meet external creditor claims on the public sector through export revenues. It is thus an important indicator of debt sustainability. Apersistent deterioration of this ratio signals an inability of the government to generate enough foreign exchange income to meet external creditor obligations on country's external debt, and thus resulting to potential debt distress without multilateral support or effective sovereign debt restructuring (World Bank (2023b).

According to (CBN, 1996), external debt management refers to the establishment of the condition of issue and redemption of foreign loans. It involves the proceeds of administering the external public debt, that is, providing for the payment of interest and arranging the refinancing of maturity bonds/debt. It involves a conscious and carefully planned schedule of the acquisition and retirement of loans contracted either for development purposes or to support the balance of payments. It makes use of estimates of foreign earnings, sources of exchange finance, the project returns from the investment and the repayment schedule. It also includes an assessment of the country's capacity to service existing debts and a judgment on the desirability of contracting loans

An optimal utilization ofexternal debt enhances economic growth but when it is not properly managed, causes stagnant growth of any economy,(Joshua et al (2022). There is therefore need for effective and adequate management of debt.

2.1.2 Economic Growth

Economic growth could be referred to as a sustained and positive change in the level of aggregate goods and services produced by a country over a certain and given period of time. When economic growth is measured over the population of a given country, it can be stated in terms of per capita income, according to the aggregate goods and services produced in a given year which is divided by the population of the country within that given period. It can be stated in nominal or in real terms. Based on this, when the increase in the aggregate level of goods and services is deflated by the rate of inflation, real economic growth is achieved, but when it is measured without deflating, it is referred to as nominal economic growth.(Lipsey 1982) Economic growth is a key policy objective of any government and monetary policy is a major instrument for attainment of such objective. (Samuelson (1976).

Economic growth raises the general standard of living of the population as measured by per capita national income; makes many kinds of income distribution easier to achieve; enhances the time frame of accomplishing the basic necessities of man, like shelter, food, clothing etc, by a substantial majority of the populace. Rapid growth rates are often associated with efficient economic and political systems or even prestige, (Lipsey, (1982). Controversial discourse on economic growth within the context of macro-behaviour of the economy and how the policy goals could be achieved by the available instruments is the current focus of the monetary policy makers and economic planners. (Omotor, 2007).

However, the concept of economic growth has not been quite easy to understand and likewise its measurements in real terms This is because in most literature of economics, some authors have differentiated economic growth from the term “economic development” in different ways. Authors like Todaro (1980) and Baran (1968) argue that the mere increase in the aggregate level of goods and services produced in a country, tells nothing about the quality of life of a citizenry given the threats of global pollution, abysmal lop-sided distribution of aggregate income, environmental degradation, prevalence of chronic and deadly diseases and absence of freedom and justice. These authors believe that attention should be focused not merely on increase in aggregate output and income but also on the total quality and standard of living of the citizenry.

Nevertheless, it is evident that there is yet no satisfactory measure of “quality of life” that can be applied to quantitative measure of aggregate output and income, that would be acceptable to all and sundry that could stand the test of time. The apparent consensus suggests that economic growth refers to an increase in the aggregate level of output within a given time period in a country while economic development is seen as an increase in the aggregate level of output and incomes with due consideration given to the quality of life that hopefully takes into consideration the distribution of income, healthcare, environmental degradation, global pollution, freedom and justice, etc. (Baran (1968).

Generally, economic development is a process by which an economy experiences three main phenomena namely: growth in output, structural changes and institutional

changes. If the three phenomena take place, it will lead to a rise in standard of living of the populace. Hence growth could be enjoyed by many economies but not all experience development. But for growth to be effectively and practically experienced, it should go with development. (Lipsey (1982).

2.1.3 Review of Nigeria's External Debt Stock

The origin of Nigeria's external debt could be traced back to 1958 when the country first contracted the sum of US$28.0 million for railway construction and the accumulation of short-term trade arrears in 1982 and 1983. These instruments were reconciled and accepted as public debt some years later, and contributed substantially to the external debt stock. Since then a number of external debts have been contracted. The Debt Management Office (DMO) was established in 2000 to enhance effective management of debt based on the persistent increase in external debt and yet, economic growth has remained sluggish and suboptimal without showing much progressive effect of the external debt within the economy.(Sanusi (2003)

The Nigeria's external debt are basically from multilateral agencies like Paris Club of Creditors, London Club of Creditors, IMF, African Development bank, World bank, Promissory Note Holders, Bilateral and Private Sector Creditors and other sources (Salawu (2005). According to CBN (1978), following a recession in 1977/78,Nigeria raised the first (US$1b) one billion loan US Dollar known as Jombo loan from International Capital market to finance infrastructural projects.

The country experienced considerable difficulties in meeting its scheduled external debt service obligations during most of the period preceding the Paris Club "Debt Relief Deal" in 2005. Prior to the Paris and the London Club of Creditors' debt exit, external debt stock which stood at US$35.9 billion in 2004 declined to US$3.5 billion in 2006, resulting to debt and the debt servicecharges to GDP ratios of 2.4 per cent and 1.5 per cent, respectively. These ratios declined further to 1.9 per cent and 0.5 per cent, respectively, in 2007. The sharp decline resulted from the significant Paris Club debt cancellation and repayments. Owing to Federal Government draw-down on multilateral loans, Nigeria external debt grew from US$3.9 billion in 2009 to US$4.6 billion and US$5.7 billion in 2010 and 2011, respectively (Mordi et al, 2013),, and then to US$10.72 billion.in 2015. (CBN,(2015) As at December, 31st 2022, Nigeria's external debt stock was US$41.69.billion (N18.70 trillion) andasat 2nd Quarter of the year 2023,it stood at US$43.16 billion (N33.25 trillion).

The share of external debt (in Naira value to total Public debt was 38.05% , while the share of domestic debt (in Naira value) to total Public debt was 61.95% . (CBN National Bureau of Statistics (2023).The adverse cumulative effect as a result of the improper direction of the foreign loans to non-productive sector of the economy,was a sharp rise in the external debt service burden on an economy that already had a significant deficit financing budget. (CBN 2020) as well as Iya and Aminu,(2013).

2.2 Theoretical Review

2.2.1 External Debt

The Keynesian theory of capital accumulation laid emphasis on the increasing capital accumulation through governmentdebt intervention which is said to accelerate growth. By implication, Keynes theory support that external debt which is a source of capital accumulation can act as a catalyst to economic growth by utilizing the external debt to increase economic activities within the economy. (Jhingan (2004).

Ricardo's theory in relation to public debt stresses that in financing government expenditure out of current taxes or future taxes (and current deficits) will have equivalent effects on the overall economy.. Smith and Ricardo oppose public borrowing. In their view, borrowing can be spent irresponsibly because it is an easy income. The requisite funds needed to sustain the economy would ultimately have to be drawn from the liquid resources of the community and that it would not make much difference whether such funds were raised by taxes or by loans. However, where the funds were raised through loans or debt , it would be referred to as public debt which could be external or internal. External debt requires debt interest payment which both the principal amount and interest element are repaid in foreign currency. The continued increase or decrease in demand forforeign currency tends to influence the exchange rate of the borrowing country. Jhingan (2004) .

Furthermore, a theoretical link between debt and economic growth is also rooted in the debt overhang theory of Krugman (1988), which identified investment as primary channel through which the impact of debt on economic growth occurs. The theory stresses that if future debt stock is expected to be larger than a country's repayment ability, then the expected debt service obligations will likely be an increasing function of the country's GDP. The theory implies that large accumulation of debt stock can discourage investment and also reduce growth due to external creditors' imposition of high marginal debt charges ..(Krugman (1988). The theory has been extensively explored by Turan and Yanikkaya (2021) as well as Megersa and Cassimon (2015).

Another old threshold school of thought, led by (Calvo, 1998). stressed on the non-linearity relationship between debt and growth . It links debt and growth to problem of capital flight where at high debt levels, the growth rate would decrease According to the threshold theory, the decrease in growth rate is due to the higher distortionary tax burden on capital required to service the debt. It leads to lower rate of return on capital, lower investment and hence lower growth. The theory maintains that low debt and efficient management of debt leads higher growth rate. Jhingan, (2004).and Calvo, 1998).On the other hand, external debt is also seen as capital inflow with positive effect on domestic savings and investment and ultimately, on growth (Calvo, 1998).

Furthermore, another theoretical ground in external debt and economic growth is the theory of Public Choice. TheAn optimal utilization ofexternal debt enhances economic growth but when it is not properly managed, causes stagnant growth of any economy,(Joshua et al (2022). The theory assumes that every society is characterized by self-interested individuals who seek to maximize their benefits at the expense of the

society. This explains why public officials often inflate their departmental budgets (Ayee (2005), Blum et al (2012). In line with this theory, Megersa and Cassimon (2021) argued that there is high tendency among public servants in developing countries to redirect public funds for private benefits, which can lead to unsustainable debt and suboptimal growth.

2.2.2 Economic Growth

The framework for understanding growth over the long-term is rooted in two main theories that relates to possible sources of growth. These are the growth theory and the growth accounting. Growth theory is concerned with the theoretical modeling of the interactions among growth of factor supplies, saving and capital formation, while growth accounting addresses the qualification of the contributions of the different determinants of growth.

Three waves of interest have currently emerged in studying growth. The first wave is associated with the work of Sir F. Harrods (1900-1978) and E. Domar (1914-1997) in what was termed the "Harrods – Domar Model". The theory presupposed that growth depended on a country's savings rate, capital/output ratio, and capital depreciation. This theory has been criticized for three reasons. Firstly, it centers on the assumption of erogeneity for all key parameters. Secondly, it ignores technical change, and lastly, it does not allow for diminishing returns when one factor expands relative to another (Essien 2005).

The second began with the neoclassical (Solow) model, which contained the thinking that growth reflected technical progress and key inputs, (labour and capital). It allowed for diminishing returns, perfect competition but not externalities. In the neoclassical growth process, savings were needed to increase capital stock, capital accumulation had limits to ensure diminishing marginal returns, and capital per unit of labour was limited. It postulates that growth also depended on population growth rate and that growth rate amongst countries was supposed to converge to a steady state in the long-run.. Despite the modifications, the basic problems associated with the neoclassical thinking are that it hardly explains the sources of technical change. Romer (1994).

The third is the newer alternative growth theory, which entrances a diverse body of theoretical and empirical work that emerged in the 1980s. This is the endogenous growth model. It distinguished itself from the neoclassical growth model by emphasizing that economic growth was an outcome of an economic system, not the result of forces that impinged from outside. Its central idea was that the proximate causes of economic growth were the effort to economize, the accumulation of knowledge, and the accumulation of capital. According to this theory, anything that enhances economic efficiency is also good for growth. Thus the theoretical framework indigenized technological process through "learning by doing" or "innovation processes". It also introduced human capital, governance and institutions in the overall growth objectives (Romers, 1994 and Essien, 2005).

The model further incorporates the fact that technological advancement comes from what people do and existence of monopoly rents discoveries. The emphasis on knowledge and technology in the Schumpeterian model raises question about the role of government in promoting growth. (Schumpeter emphasized the importance of temporary monopoly power as a motivating force in the innovative process). Government should be seen as a critical agent that provides key intermediate inputs establishes rules, and reduces uncertainly, by creating the right macroeconomic environment for growth. (Contessi, 2009).

The newer growth theory (endogenous theory) fits the real world perfectly well and has important policy implications. This is because it traces growth of output per capita to two main sources: savings, capital and efficiency. In other words, it is not only factor accumulation that drives growth but also efforts to utilize themefficiently. An important economic policy implication of this thinking is that of achieving sustainableeconomic growth and stability with efficient management of debt (capital). Patillo et al (2004), (Momodu (2012). Consequently, anything that increases efficiency, capital and savings is good for growth.

2.3 Empirical Review.

External debt whether in developed or developing economies, primarily aims at providing additional funding to meet up deficit budget for infrastructural development and general growth of the economy concerned. However, there are some divergent findingsfrom empirical studies reviewed as shown below, but the findings depend on the economic structures of the economies studied by researchers in addition to methods of analysis applied.

Patillo, Helen and Luca (2004) investigated the channels through whichexternal debt can affect economic growth (total factor accumulation or factor productivity growth); and also tested the non-linearity relationship with different sources of growth for developing economies. The study established that external debt had significant and negative impact on physical capital formation of the economies studied which ultimately affects growth.

Kasidi and Said (2013) in their study on the impact of external debt on economic growth in Tanzania covering a period 1990 to 2010 , applying OLS . They established that external debt had a significant positive effect on Tanzania's economic growth while debt servicing charges had a significant negative effect.

Atique and Malik (2012) in their study on effect of public debt on economic growth of Pakistan, using OLS covering a period 1980 to 2010, confirmed that both external and domestic debt affected growth adversely.

Adewale Hassan and Danie Meyer (2021) in their study investigated the channels through which external debt transmit its impact on growth in 30 sub-Saharan African countries using generalized method of moments technique, applying panel data. The debt service charges, fixed capital formation and external debt were identified to have negative relationship with GDP of the countries involved.

Adeyemi Timothy Ayomitunde (2020) in his study titled: External Debt and Economic growth in Ngeria: An Implication for Debt Overhang Theory; established that external debt, exchange rate and debt interest charges contributed significantly to the suboptimal and sluggish growth of the economy.

Ogege and Ekpudu (2010),tested the relationship between debt burden and the growth of the Nigerian economyusing OLS method of regression. The result revealed asignificantnegative relationship between debt stock and Gross Domestic Products., while exchange rate with significant positive relationship, indicated high depreciation of the domestic currency.

Ijeoma (2013), investigated the impact of external debt stock, external debt service charges and exchange rate o) in Nigeria, using OLS method..The result showed that exchange rate external debt shock, external debt service charges adversely affected and the nation's economic growth.

Sulaiman and Azeez (2012) in their study on the effect of external debt on the economic growth of Nigeria, covering period from 1970-2010, applying (OLS), Augmented Dickey-Fuller unit root test, Johansen Co-integration test and error correction method, established that long-run relationship existed among the variables. The result confirmed that external debt has contributed positively to the growth of the Nigerian economy while exchange rate, with significant positive relationship , implied high level of depreciation of Naira.

Udeh, Ugwu and Onwuka (2016) in their study titled external Debt and Economic Growth: The Nigerian Experience, investigated the effect of external debt on Nigeria's economic growth, between 1980 to 2013, applying, unit root test, co-integration, and error correction model. The study established that in the short-run, external debt has positive relation andwith GDP while in the long run , external debt interest charges and exchange rate have adverse effect on GDP.
Senadza et al. (2017) investigated the effect of external debt on economic growth on 39 Sub Sahara African countries from 1990 to 2013 using Generalized Method of Moments (GMM) technique. The findings revealed adverse effect of external debt on economic growth of the SSA countries and there was linear relationship between the two variables..

Amooteng and Amaoko (1996) in their study examined the relationship between external debt and economic growth in 35 African countries, using Granger causality analysis. The result showed that unidirectional causal relationship existed between growth and external debt

Ajayi and Oke (2012) investigated the effect of external debt burden on the economic growth and development of Nigeria, using the regression analysis OLS . They found that external debt burden had an adverse effect on the growth of the economy.

Frimpong and Oteng-Abayie (2006) investigated the impact of external debt to economic growth in Ghana between 1970 – 1999, using Johansen-Juseius multivariate co-integration and error correction model. They found that GDP is positively related to external debt.

Finckle and Greiner (2015) investigated the relationship between pubic debt and economic growth for eight emerging market economies (Brazil, India, Indonesia, Malaysia, Mexico, South Arica, Turkey and Thailand) between 1980 to 2011. They employed fixed effect and random effect estimators and found that external debt has positive effect on growth.
Joshua et al (2022) in their study on the effect of external debt on Economic growth of 31 selected Sub-Saharan countries, taking into account whether heterogeneity makes a difference in public sector management, applied System Generalized Method of Moment spanning 2005 to 2017. The study revealed that external debt, without difference in heterogeneity has a significant negative effect on growth. They also found that external debt significantly complements public sector management to boost growth for economies with strong quality public sector management.

Yolcu Karadam (2018) conducted a cross-country study to examine the non-linear relationship between external debt and economic growth unbalanced panel of 24 developed and 111 developing countries, using Panel Smooth Transition Regression (PSTR) technique. The findings established that the effect of extenal debt on economic growth changes from positive to negative as the debt stock increases.
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2.4. Gap in Reviewed Literature

Regrettably, some past analysis of developments in external debt and economic growth of some developing economies (Nigeria inclusive) had been largely devoid of in-depth empirical analysis. (Akinlo and Yinusa, 2007).Reliable qualitative information and appropriate policy would address constraints facing the external debt but well-articulated econometric analysis of the nature of this study, would provide a stronger basis for future projections on the problem.
For instance, most of the previous studies reviewed, have some methodological and conceptual problems that undermine their accuracy and thus their efficacy for effective policy purposes. Virtually, no serious attempts were made to apply unit root test in most of the studies reviewed,in order to reduce misleading results. For aexample, Ijeoma (2013), Ogege and Ekpudu (2010) and Ajayi and Oke (2012,did not apply unit root test. Estimation of non-stationary time series on another, which are subject to accidental or induced auto-serial correlation, can give rise to spurious regression. The objective of unit root

test is to establish whether the time series used for the study have a stationary trend or not and this is in line with recent development in time series modeling. The test could form a strategy of reducing (if not eliminating) the risk of spurious regression. (Gujarati and Porter (2009), (Engel and Granger, (1987)

Likewise, Yolcu Karadam (2018), Senadza et al. (2017), Amooteng and Amaoko (1996) applied cross country analysis. The use of cross-country analysis precludes country specifics. There are at least two important caveats that might affect such results. The first is that such cross-country analysis is plagued by multiplicity of issues of parameter heterogeneity, omitted variables, model uncertainty and measurement error. (Rodvik, (1999). Inference based on such results, leads to potential biases. Blonigen and Wang (2005) also argue that pooling rich and poor countries together without distinguishing between their level of development leads to incorrect inferences.

Recognizing the above gaps and challenges, there is need to reexamine these problems holistically by updating the number of observations of the study to 2022, using Nigerian time series and applying realistic econometric techniques (unit root test, co-integration, error correction model, and Granger Causality test), to see if a more authentic result could be achieved for effective policy planning and implementations.

3. Research Methodology

3.1 Estimation Technique and Procedure:

The study applied econometric analytical techniques based on co-integration, unit root test, Error correction mechanism (ECM) and Granger causality test for the data analysis while secondary data time series used is obtained from CBN Statistical Bulletin, Debt Management Office, and CBN Annual Reports andStatement of Accounts various issues, spanning from 1981 to 2022 for the purpose of arriving at a dependable and unbiased analysis. The research design is ex-post facto research design.

Prior to testing for long-run relationship using co-integration test, the level series OLS regression was applied at first stage to test for long run relationship between real Gross Domestic Product (dependent variable) and external debt, external debt interest charges and foreign exchange rate (explanatory variables). However, being conscious of the characteristics of the time series used, careful note was taken on the properties of the stochastic error terms that might have entered the model which could give rise to spurious regression. Consequently, a further rigorous investigation was carried out using Augmented Dickey Fuller (ADF) (1981) unit root test to check the stationary property of the variables (if any) in the model

Unt Root Test.

The purpose of Unit root test is to establish if the time series have a stationary trend, and, if non-stationary, to show the order of integration through ‘differencing’. A time series is stationary if its means, variance and auto-variance are not time- dependent. (Gujarati and Porters (2009). The assumption is that the time series used for this research have unit root stochastic process The process could be represented as follows:

m

$\Delta Yt = \beta o + \beta 1t + \lambda Yt\text{-}1 + \Sigma \acute{a}i \Delta Yt\text{-}i + \xi t \ldots$ (3.1)
i=1

where Y is the single time series for (External debt, external debt interest charge and nominal foreign exchange rate) under investigation and β the parameter coefficient, ξt is a pure white noise error term, άi and ƛ are coefficients of the lag terms and m is the length of the lag terms which is automatically selected using Akaike information criteria. If 'ƛ' is 0, then there is unit root, but if it is less than zero (negative), the null hypothesis is rejected and the alternative that the series is stationary is accepted.

Co-integration Test

Capitalizing on the likelihood of the co-movement in their behavior which implies that there is possibility that they trend together towards stable long run equilibrium, Johansen (1991) co-integration test was applied. The objective of this test is to determine if there is existence of long-run equilibrium relationships among variables used in this research. As pointed out by Engle and Granger (1987) , the concept of co-integration creates a link between integrated process and the concept of steady state of equilibrium.Co-integration occurs when two or more time series variables which themselves may be non-stationary drift together at roughly the same time. This implies that a linear combination of the variables is stationary. The null hypothesis is that the variables are not co-'integrated. Based on this, we specify the full information maximum likelihood based on the vector autoregressive equation (VAR) Johansen (1991) as mathematically stated below:

$y_t = a_1 y_{t-1} + \ldots + a_k y_{t-k} + \acute{o} x_t + \mu_t \ldots\ldots$ (3.2)

where: yt is a k-vector of 'differenced' stationary time series, 'k' being the lag length for the first order differenced variables, /(1), 'xt' is a vector of deterministic variables, 'a' is a constant, ǿ are the coefficient of the deterministic variables and μ_t is a vector of innovations or error term and it is known as the adjustment parameters in the vector error correction model, while "t" indicates time dependent.

Using this method, the equation was estimated in an unrestricted form and then tested whether the restriction implied by the residual rank of the co-integration, could be rejected.

Applying the maximal non-zero eigen-values and the trace test of the maximum likelihood ratio, with reference to the level of significance, the number of Co-integration relations could be determined which indicate the existence of long run relationship (Johansen (1991).

Error Correction Mechanism

However, Co-integration process ignores the short run dynamics that might cause a relation not to hold in the short run and this formed the basis for application of Error Correction Mechanism (ECM). ECM is an extension of the partial adjustment model in co-integration technique which is the traditional approach to modeling of short run dynamics with long run equilibrium. It thus preserves the long run relationship while specifying the system in a short run dynamic way. Granger and Newbold (1974) , and

Engel and Granger (1987) are among the studies that have proved that a co-integration is a sufficient condition to run an ECM process.

A vector error correction model is a restricted VAR (Vector auto- regression) that has co-integration restriction built into the specification so that it is designed for use with non-stationary error correction term, since the deviation from the long equilibrium is corrected gradually through series of partial short-adjustment, Gujarati and Porters (2009) .

A search for parsimony in this dynamic model typically follows the general–to-specific modeling (using various information criteria (Akaike, Schwarz, log likelihood, etc) which minimizes the possibility of estimating relationship while retaining long-run information, if the variables do not have the same order of integration, (Engel and Granger (1987). The functional form of the model, which initially is presented in a general form, incorporating many lag terms, is therefore later reduced to a specific or parsimonious structure by empirical testing and elimination and this gives the final and more precise result of the estimation.

Based on this, the specification is re-parameterized in a dynamic process and OLS regression applied with the equation as shown below:

$RGDP_t = a_0 + \sum i\text{-}=1 a_i RGDPt\text{-}1 + \sum_{i=0} a_i Z\ t\text{-}1 + ai\ ecmt\text{-}1 + \mu$ ....(3.3)

Where a_0 is a constant, RGDPt is a vector of endogenous variable and dependent variable, Zt-1 is lag term of a vector of explanatory variables as already explained and a_i is the parameter coefficients, RGDPt-1 is the lag term of the dependent variable, the ecmt-1 or error correction term is the residuals from the long-run co-integration process and its coefficient measures the speed of the adjustment of the disequilibrium while μ_l is the white noise.

As long as the co-integrating vector (ECM) ecm_{t-1} is stationary and well defined, (negative), the ECM estimation will then confirm the earlier proposition that the variables are co-integrated. Equations 3.3, constitutes the maintained hypotheses for the ECM specification search. The insignificant or redundant variables are usually omitted at the parsimonious stage. Finally, diagnostic tests are performed on the results with a view to validating the models.

Granger Causality Test

The Granger causality test is important in determining if it is RGDP or external debt management variables are significant in either enhancing or deteriorating the rate of each other in Nigeria. Although correlation analysis deals with dependence of one variable on the other, it does not imply causation in the real sense. (Zellner, 1979). A statistical relationship in itself cannot logically imply causation.(Kendal and Stuat, 1961). Consequently, the Granger Causality test (Granger (1969) which measures both causation and direction was performed on the variables. The test enables determination of whether lagged information on RGDP (dependent variable) as well as that of the selected external sector indicators, have any statistical significant role in explaining the effect of external debt management variables on Nigeria's real Gross Domestic Product. The test was run with an optimal lag of two.

According to Granger, (1969), variable X Granger causes variable Y if the past values of X can be used to predict Y more accurately than simply using the past values of Y. The test involves estimating the pair of regression as expressed below using external debt (independent variable) and Real Gross Domestic Product (dependent variable) as example:

$$RGDPt = ao + \Sigma_{i=1}^{n} \acute{a}iEXDt\text{-}i + \Sigma_{j=1}^{n} \beta jlnRGDPt\text{–}j + \mu t_1 \; .. \; 3.4$$

$$FXR_t = bo + \Sigma_{i=1}^{nn} \phi iRGDP.t - i + \Sigma_{j=1}^{nn} \varphi jEXDt\text{–}j + \mu t_2 \ldots \; (3.5)$$

Equation 3.4 postulates that current RGDP is related to a number of external debt lags (EXDt–i) or past values of EXD as well as its own past values (RGDPt–j) where ά and β are their coefficients, i and j indicate length of time lags while μt1 is the error term and n is the number of lag terms included. RGDPt is the current value of real GDP. It is assumed that the error terms μt1 and μt2 are uncorrelated. The F-statistic test is used for the joint test of hypothesis.

In like manner, equation (3.5) postulates that current foreign exchange rate (EXDt) is related to a number of RGDP lags ((RGDPt–i) or past values of RGDP as well as its own past values EXDt–j, where n is the number of lag terms. This process applies to each parameter used in the study. Bilateral, unilateral and dependent relationship can be established.

Bilateral causal relation exists when both null hypotheses are rejected indicating that both coefficients are statistically and significantly different from zero in both regression. This implies a feed-back. Unilateral causal relation exists when one of the null hypotheses is accepted and the other rejected.. Lastly, independent causal relation exist when we both null hypotheses are accepted. (Gujarati, and Porters (2009)

3.2 Model Specification

In specifying the relationship between external debt and Nigeria's real economy (RGDP), theoretically, it is assumed that increase in the availability of financial resources (debt capital) will lead to higher level of investment and ultimately real economic growth.

The specification is based on the Keynesian theory that external debt serves as a catalyst to growth (Jhingan (2004 and also on endogenous growth theory (Romers (1994). Invariably, factors that constrain inflowof resources like exchange rate and excessive interest rate on debt service, are also takeninto account. In relation to Nigerian experience,the real effects of a policy-induced increasein the short-term interest rate come about when the domestic nominal interest raterises above its foreign counterparts. Equilibrium in the foreign exchange market requiresthat the domestic currency gradually depreciates at a rate that, again, serves to equate the risk-adjusted

returns on various debts instruments, in this case, making cost of capital (debt charges) higher, Maurice, (2005). Therefore, debt service charge and foreign exchange rate are included as control variable since both the capital and interest charges are paid back in hard currency.

External debt variable, except exchange rate and external debt interest charges, is reduced to logarithm form to make calculation less tedious.

Based on the above theories,the functional and linear mathematical relationships are specified as stated below:

lnRGDP = f(EXD, EDIC, NFXR).

lnRGDPt= βo+ lnβ1EXD_t - $\beta_2 EDIC_t$+ $\beta_3 NFXR_t$ + ut

Where:

lnRGDPt = Real Economic Growth

lnEXDt = External Debt

EDICt = External Debt Interest Charges

NFXRt = Nominal Foreign Exchange Rate

ut =Error term or white noise.

Theoretical priori expectation: β1> 0; β2 <0, and β3 > 0 or <0.

Hence the above estimable long-run linear equation posits that RGDP in Nigeria which is the dependent variable is a function of the above selected explanatory variables – EXD, EDICand NFXR, 't' indicates time-dependent and μt is an unobservable component that is assumed "white noise".

4. Data Presentation and Analysis Analysis

This section presents the data, the empirical results and discussions on the relevant findings from the model specifications testedin this study. Table 1 below shows the summary of empirical result when OLS multiple regression is run at the level series.

Table 1 Long-run OLS Regression (Variables measured at Level)

Data Presentation

lnRGDP = f(lnEXD, EDIC, NFXR ,μt)

Dependent Variable: lnRGDP

Method: Least Squares

Date: 10/10/2023 Time: 10:03

Sample(adjusted): 1981- 2022

Included observations: 42 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
lNFXR	0.150797	0.080432	1.874832	0.0642
lnEXD .	-0.332548	0.080039	-4.154837	0.0001*
EDIC	0.051444	0.052462	0.980587	0.3294

R-squared	0.841234	Mean dependent var	12.8144
Adj.R^2	0.7341		
S.E. of regression	0.215812	Akaike info criterion	0.00156
Sum squared resid	0.878366	Schwarz criterion	0.37633
Log likelihood	8.882122	F-statistic	**101. 0764**
Durbin-Watson stat	1.065123	Prob(F-statistic)	**0.000000**

Source: E-View Econometric Computer Software Application, Version 6

Analysis OLS Level Series Result

The Ordinary Least Square (OLS) level series result as presented on table 2 above, shows that the coefficient of determination (R-square) is 'a good fit' indicating that 84 per cent of the variations in real economic growth are determined by the combined effect of changes in the explanatory variables – external debt, external debt interest charges and nominal foreign exchange rate. The F-statistics (101.07) confirms further that these explanatory variables are jointly and statistically important in explaining the variations in the growth process. The selected explanatory variables are rightly signed in accordance with the priori expectations except external debt interest charges which has a positive but non-significant relationship with RGDP.

However, despite these results, a critical look at the diagnostics tests suggests possible spurious regression (low Durbin Watson (DW-) statistics ratio (1.06) and very high R-squared (0.84) which implies time-dependency of these variables at this level. This therefore calls for more rigorous tests of looking atthe inherent properties of these time series by testing for stationarity or otherwise. The variables were therefore subjected to Augmented Dickey Fuller (ADF) (1981) unit root test.

TABLE 2
Summary of Unit Root Test Result Data Presentation

VARIABLES	AT LEVEL		FIRST ORDER DIFFERENCE		Remarks
	ADF Test Stat	Order of Integration	ADF Test Stat	Order of Integration	
lnRGDP	-2.187932	-	-3.226143	/ (1)	**
LnEXD	-1.860776	-	-3.999801	/ (1)	***
NFXR	-2.451143	-	-3.378241	/ (1)	**
EDIC)	-2.254723	-	-4.170876	/ (1)	***
Note:	Critical Value: 1% = -3.6852 5% = -2.9705 10% = -2.6242		Critical Value: 1% = -3.6959 5% = -2.9750 10% = -2.6265		

* = 10% level of Significance ** = 5 % level of significance *** = 1 % level of significance .
Source: E-VIEW Econometric Computer Software application, Version 6

Analysis of Unit Root Test

Considering the suspected time-dependent feature of the data used in the OLS level series ofthis research, the ADF unit root test was applied separately on all the variables, at ordinary and first order levels of differencing. Th purpose is basically to confirm whether the time series have a stationary trend, and if non-stationary, the number of times the variables have to be differenced to get to a stationary trend.. The summary of the unit root test results as presented on Table 2 shows that the null hypothesis of non-stationarity is accepted, which implies that the variables are not stationary at level and could only be rejected after the first order differencing / (1) for all the variables at one and 5 per cent levels of significance. This is evidenced by ADF test result at the ordinary level, which shows that the computed negative ADF test statistics for each variable is less than the Mackinnon critical values. (Mackinnon, (1991), Based on this outcome , Johansen co-integration was applied to test the long run relationships of the variablesusd for the research.

Table 3

Summary of Johansen Co-integration Test Results Data Presentation

Sample: 1981-2022
Included observations: 42
Test Assumption: linear deterministic Trend in the data
Series: lnRGDP, lnEXD, EDIC, NFXR,
Lags interval: 1 to 1

Eigen- Value	Likelihood Ratio	5% Critical value	1% Critical value	Hypothesized No of CE (s)
0.937151	301.6113	118.22	123.48	None**
0.906043	202.2121	93.05	102.16	At most 1**
0.8744345	188.6456	66.42	74.57	At most 2**
0.278112	11.06121	14.21	19.16	At most 3

*(**) denotes rejection of the hypothesis at 5%(1%) significance level
L.R. test indicates 3 co-integrating equation(s) at 5% significance level

Source: E-View Econometric Computer Software application, (Version 6)

Analysis of Co-integration Tests Results

The co-integration technique makes it possible to test the existence of long-run equilibrium relationships among non-stationary economic variables used in this research. Engle and Granger (1987) has shown that even if individual variables are non-stationary, there can be linear combinations among them so that they can form a new series, which in the course of time will converge to equilibrium; that is, they will co-

integrate. Applying the two maximal likelihood ratio tests (the maximal Eigen-value and the trace statistics), the number of co-integrating vectors were determined.

The summary of the results as presented on tables 3 below indicates that there are three (3) co-integration relations at 5 per cent level of significance, with their values, greater than the critical values at 5 per cent significance. This leads to the confirmation that the test statistics rejected the null hypothesis which states that the variables are not co-integrated but accepted the alternative, implying that there is long-run relationship among the selected variables. Johansen test is preferred to Engle-Granger co-integration test in that it permits more than one integrating relationship so that it is more generally applicable than that of Engle-Granger test which is based on augmented or Dickey-Fuller test for unit roots in the residuals from single (estimated) co-integrating relationship.

Table 4 Parsimonious Error Correction Model Data Presentation

Series: lnRGDP = f(lnEXD, ,EDIC, NFXR,)
Dependent Variable: DLn (RGDP)
Method: Least Squares
Date: 10/10/2023 Time: 12:56
Sample (adjusted): 1981 2022
Included observation: 42 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-2.010042	0.299051	-6.721402	0.0001
Dln(RGDP(-1))	0.404245	0.261621	1.545155	0.1352
DlnRGDP(-2))	-0.060011	0.014447	-4.153872	0.0004*
Dln(EXD(-1))	-0.0848690.024577	-3.45318.	0.0012*	
Dln(EDIC(-2))	-0.246828	0.091030	-2.711508	0.0080*
D(NFXR(-1))	-0.2203781	0. 328661	-0.620036	0.5471
DlNFXR(-2))	0.034430	0.0131232.623637	0.0078*	
ECM02(-1)	-0.154347	0.055848	-2.569044	0.0082*

R-squared	0.822312	mean dependent var	0.04321
Adjusted R-squared	0.765462	S.D dependent var	0.201003
S.E of regression	0.200243	Akaike info criterion	-2.20222
Sum squared resid	0.702366	Schwarz criterion	0.11231
Log likelihood	-14.43524	F-Statistics	13.514032
Durbin-Watson stat	2.41233	Prob(F-statistic	0.00015

Source: E-VIEW Econometric Computer Software application, Version 6

Analysis of the Parsimonious Error Correction Model Result.

Table 4 above, presents the parsimonious Error Correction Model (ECM) result which gives the final and more precise estimation result when compared with the OLS level series model. All the variables are rightly signed as predicted. The coefficient of

determination ((R^2)(0.82) which measures the overall goodness of fit is still significantly high. This implies that 82 per cent of variation in RGDP is determined, in aggregate, by the variations in the external debt, external debt interest charges, and nominal foreign exchange rate in the long run. The F- statistics ratio of 13.5 is significant, indicating that the explanatory variables are collectively important in explaining the variations in RGDP in Nigeria. The Durbin-Watson statistics test ratio of 2.4122 also strongly suggests absence of auto- correlation, implying that the unit root test has been effective in screening the variables to become stationary. The variables are correctly signed in accordance with the priori expectation.

The positive and significant relationship of exchange rate with RGDP indicates high and persistent rate of depreciation. It is an important factor in investment decision as volatility in exchange rate does not encourage long term projects decision.Exchange rate depreciation will increase the cost of interest charges on external debt to Nigerian economy since the currency is denominated in foreign currency of the creditor. Theoretically, an exchange rate overvaluation could hinder the pace of economic growth while an undervaluation is expected to provide an enabling environment for growth under a regime of low inflation and stable economy. But in the real sense, for a developing economy like Nigeria, with high inflationary tendency, both over valuation and undervaluation are inimical to growth. (Maku, ((2006)

Furthermore, external debt and its interest charges have negative and significant relationship with RGDP and therefore, they are not contributing to the growth of RGDP. This could be attributed to the improper administration of borrowed funds to nonproductive sector of the economy and high payment of interest charges on debt.

Furthermore, keeping other variables constant, one percent increase in nominal FXR induce 3.5% reduction on RGDP on annualized basis whileone percent increase in external debt and its interest charges induce 8% and 24% reduction in RGDPrespectively. This indicates that interest charges overhang has more devastating impact on the real economy.

The lag of the dependent variable (RGDPt-2) was equally significant in explaining the effect of the explanatory variables on RGDP. The impact reflected inter-temporal dependence of RGDP, with the level of RGDP1-t at any one period, determining the level in another.

The coefficient of the ECM term (--0.154347) which measures the speed of the adjustment at which equilibrium is restored, is significant and rightly signed (negative) at 5 percent level, andtherefore confirms the earlier proposition that the variables are cointegrated. (Gujarati and Porters(2009).

The ECM coefficient also gives the proportion of the short run disequilibrium in the explanatory variables accumulated in the previous period that is corrected in the current period. The speed implies that in the long run, 15 per cent of the short run disequilibrium of RGDP in Nigeria is corrected within a lag during the period under review. (One lag is one year in this study), which suggests that in the long-run, RGDP in Nigeria, adjusts slowly to short run disequilibrium changes in the selected explanatory variables since

only 15 per cent of the accumulated disequilibrium in RGDPt is corrected within a lag. It implies lag effect. (Gujarati and Porters (2009). These findings are in tandem with (Adeyemi (2020), (Ezeanyeji and Okeke (2016), (Udeh, Ugwu and Onwuka (2016), .

Table 5. Summary of Data Presentation on Pairwise Granger Causality Test
Sample: 1982 – 2022
Date: 10 /10/2023 Time: 1.55
Lags = 2
Observation = 40 (After Adjusting Endpoints)

NULL HYPOTHESIS	F-STATISTICS	PROBABILITY
Ln(RGDP) doesn't Granger cause ln(EXD)	0.41861	0.68288
Ln(EXD) doesn'tnot Granger cause ln(RGDP)	0.34915	0.70896
Ln(RGDP))does not Granger cause ln(EIDIC Ln(EXDINT) does not Granger cause ln(RGDP)	3.84841 2.28160	0.68288 0.12476
Ln(RGDP) does not Granger cause ln(NFXR) Ln(NFXR) does not Granger cause ln(RGDP)	8.05879 2.14023	0.00223* 0.14134

At 5 per cent significant level
Source: E-View econometric computer software application version 6.

Summary of PairwiseGranger Causality Test Analysis

The essence of this test is to establish the direction of causal relationship between real economic growth in Nigeria and selected explanatory variables and it was run on the model with optimal lag of 2. The test is preferred to traditional correlationmethod whichmeasures only relationship without direction. Establishing which variable causes or promotes the other, will enhance effective economic planning especially in determining the relative weights to be assigned to these macroeconomic variables when planning in order to achieve sustainable economic growth.

As presented in table 5 and capitalizing on the F-statistics ratios and the p-values, there exists unilateral causal relationships between (RGDP) and NFXR, with reference to its F-statistics and probability ratio at 5 percent level of significance without a feedback. Independent causality runs between the external debt and external debt interest charges and RGDP implying none of the variables determined each other.

The general results imply that causal relationships between RGDP and the selected explanatory variables aremixed. However, it agrees with the findings of Kara and Pentecost (2000) and Konya (2004)which show that causality tests are mixed and inconclusive depending on the variables used**.**

Summary, Conclusion and Recommendations

This study examined the relationship between external debt and the real economic growth of Nigeria, spanning from the 1981 to 2022, using external debt, external debt interest charges and nominal foreign exchange rate as explanatory variables and RGDP as thedependent variable. The overall import of the findings and analysis imply that the selected explanatory variables have adverse effect on RGDP as indicated by significant inverse relationship of external debt and external debt interest chargeswith RGDP and significant positive relationship of nominal FXR with RGDP which implies high rate of depreciation. This suggest that they are not contributing to the growth of the real economy

Ased on the aove findings, the study therefore recommends as follows:

i. That government should strive to achieve: sustainable price stability through effective management of exchange rate in order to minimize depreciation of Naira. Exchange rate depreciation will increase the cost of interest charges on external debt to Nigerian economy since the currency is denominated in foreign currency of the creditor, Depreciation of Naira would have encouraged exportation but Nigerian government has neglected the non-oil real sector and concentrates more on crude oil exportation.

ii. Managerial debt efficiency that would channel external borrowedfunds to their tied specific productive projects, (in addition to adequate monitoring), should be highly emphasized to minimize external debt interest charges payment overhang.There would be enough returns to meet up with service charges.If borrowed funds are efficiently utilized on productive projects,it will enhance economic growth,as employment will improve and the welfare of the citizenry will be enhanced.

iii. In most developing countries (Nigeria inclusive), fiscal policy focuses excessively on short-term goals but not guided by clear middle-term/long-term goals strategy. This lack of anchoring has resulted in frequent breaches of fiscal rules and ever-increasing external debt levels. A more strategic approach to fiscal policy should be properly implemented by clear middle-term/long term goals to circumvent increasing external debt and its interest charges burden.

iv. Reliable debt data are also a prerequisite for effective debt management which enhances economic growth.Nigerian government lacks the appropriate human and technical capacity to handle public resources and labilities effectively, as well as to prepare risk analysis and debt strategy. Weak capacity for debt data recording and reporting is a significant challenge for managing debtinNigeria.These problems should be effectively addressed by the Debt Management Office (DMO)in order to maintain effective debt management by analyzing risk, recording and reporting reliable debt statistics for policy making and implementation. The DMO can make use of Debt Management and Financial Analysis System (DMFAS) .

v. According to Debt Management Office recent report titled “Market Access Country-Debt Sustainability Anaylsis” for 2022, Nigeria’s debt service-to-revenue ratio in 2023 stands at 73.5%, describing the figure as unsustainable and threat. If external debt is properly handled and channeled to appropriate productive projects, there would be no cause for rescheduling of debt which increases debt service charge. Diversification to non-oil sector will increase export revenue to enable the government meet up with the creditor’s obligation within the stipulated maturity period.

vi. The policy makers should take cognizance of the lag effect and design policies in line with the expected magnitude of the expected changes

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