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FISCAL DOMINANCE AND EXCHANGE RATE STABILITY IN NIGERIA

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ABSTRACT

Utilizing the Ordinary Least Squares regression technique, the study examined how Nigeria's fiscal dominance and exchange rate stability interacted. It specifically focused on the effects of inflation, government debt, and budget deficits on the exchange rate, using secondary data gathered from the Central Bank of Nigeria's statistical bulletin between 1990 and 2023. The results of the OLS analysis indicated that the exchange rate significantly influences the fiscal dominance components of public debt and deficits. However, the correlations between the two differ: public debt negatively impacts the exchange rate, while fiscal deficits have a positive effect. Additionally, the inflation rate was found to positively affect the exchange rate in a fairly significant manner. The study concluded with compelling evidence that Nigeria's exchange rate stability is greatly influenced by fiscal dominance. Among other recommendations, it is advised that the government work to reduce the level of public debt, as excessive debt may increase the risk of fiscal dominance and adversely affect Nigeria's exchange rate.

Keywords: fiscal dominance, instability, fluctuation, liberalized
JEL: E61, E62, F31, F32, H68

INTRODUCTION

Fiscal dominance is a situation where fiscal policy, which involves government spending and taxation, takes precedence over monetary policy in influencing economic outcomes. When fiscal policy dominates, it often leads to monetary policy being subordinated to fiscal goals, potentially compromising central bank independence and the ability to pursue price stability (Afolabi & Atolagbe, 2018). Over the years, Nigeria has encountered numerous challenges with fiscal dominance, particularly due to its reliance on oil revenues. According to Ifere and Okoi (2018), fluctuations in global oil prices have significantly impacted government revenues, leading to fiscal deficits.

Historically, the Nigerian government has at times resorted to borrowing from the central bank or engaging in deficit financing to meet its expenditure needs, which can fuel inflation and currency depreciation. Fiscal dominance can exert pressure on Nigeria's exchange rate stability when the government borrows from the central bank or engages in deficit financing, raising the money supply and potentially leading to inflation, claim Taofeek and Abiodun (2021). To support the currency, the central bank may then intervene in the foreign exchange market; however, prolonged intervention may deplete foreign reserves and jeopardize the stability of the exchange rate.

Nigeria's public debt structure indicates that the country's debt profile is dominated by external debts up until 2005 and that domestic debt dominates the debt profile since 2006, but there has

been a sustained increase in the amount of external debt since then. Various monetary and fiscal actions aimed at promoting sustainable growth and development have affected the exchange rate. However, achieving exchange rate stability has proven challenging due to the country's dependence on oil and rising debt levels to finance infrastructure. In 2005, the Paris Club forgave Nigeria a staggering US$18 billion in external debt.

This came with a US$30 billion overall reduction in the country's debt stock (Cebi, 2012). The total external debt as of 2018 was valued at ₦7,759.20 billion, which was higher than the N2,695.07 pre-debt forgiveness figure in 2005 (DMO, 2019). This suggests that the nation has once again accrued external debt. Since 2006, the Federal Government of Nigeria's (FGN) bonds and treasury bills have constituted the largest portion of the country's total debt. Although external debt represented the majority of Nigeria's debt profile during this decade, the dynamics of the fiscal profile will continue to affect the monetary authority's goal of exchange rate stability (Akinkumi, 2017).

Following the implementation of the structural adjustment program (SAP), Nigeria's exchange rate movements experienced both periods of overvaluation and undervaluation of the domestic currency. The years from 1986 to 1997 were characterized by overvaluation, which coincided with a liberalized exchange rate arrangement (Nachega, 2005). Prior to this, the economy functioned under a fixed exchange rate regime, typically pegged to the US dollar and the UK pound sterling, or sometimes to a basket of currencies. Three significant episodes of exchange rate overvaluation took place in Nigeria: in July 1986, January 1992, and December 1998. According to Hassan, Abubakar, and Dantama (2017), the exchange rate illustrates the real purchasing power parity condition, indicating that the real prices of goods and services in the home economy are comparable to those of the referenced nations are comparable. These are compelling signs that Nigeria's capacity to withstand external shocks and achieve long-term currency rate stability was substantially reinforced by structural changes aimed at diversifying the economy, fostering non-oil exports, and attracting foreign direct investment (Taofeek & Abiodun, 2021).

Given the effects of exchange rate movements on macroeconomic factors, including inflation, imports, the domestic interest rate, and investment, among others, economists remain concerned about these issues. Through expansionary and contractionary fiscal measures, fiscal policy impacts interest rates, prices, and income, which in turn affects the exchange rate (Richard, 2007). With expansionary fiscal policy, consumption increases as disposable income rises alongside a decrease in personal income taxes. In the context of Nigeria, this policy can lead to heightened demand for imported commodities, resulting in stronger demand for foreign currencies, such as dollars and pounds. This increased demand elevates the value of foreign currencies while depreciating the domestic currency. Moreover, increased government spending without a corresponding rise in domestic productive activities can create inflationary pressures. When domestic prices rise, local commodities become more expensive internationally, rendering foreign goods cheaper and more appealing. This heightened demand for foreign goods further depreciates the domestic currency and appreciates the foreign currency.

Moreover, high oil prices can contribute to a stable exchange rate by increasing foreign exchange revenues and bolstering foreign reserves (Sanusi & Akinlo, 2016). On the other hand, a drop in oil prices, as is the case at the moment, may cause the value of the home currency to depreciate. Apart

from the aforementioned, the theoretical correlation between fiscal action and the exchange rate is contingent upon the corresponding shifts in capital account liberalization, sovereign default risk, and the exchange rate system (Oke & Adetan, 2018). Fiscal expansion may momentarily increase the currency's value under conditions of high capital mobility and a flexible exchange rate mechanism. In contrast, with low capital mobility, fiscal expansion can cause exchange rate depreciation due to increased import demand and a current account deficit (Edda, 2005).

There is every reason for the government to appropriately address the foreign exchange rate and provide incentives for steady investment in Nigeria, especially considering the current economic climate marked by a sharp decline in global oil prices and foreign exchange revenues (Ogiogio, 1996). Therefore, the study's findings will provide a fundamental understanding of how fiscal policy impacts the exchange rate, as well as relevant data that could guide future research on the topic. Surprisingly little is known about this area, particularly given the wealth of material currently available on assessing various factors that influence exchange rate stability. This is because stabilizing the economy is the primary goal of fiscal policy. Consequently, it is unnecessary to overstate the economic importance of studying how fiscal dominance affects exchange rate stability.

The study examines the effects of fiscal dominance and exchange rate stability in Nigeria. Among the particular goals are:

1. To ascertain how Nigeria's fiscal imbalance affects the stability of its exchange rate.
2. To investigate how Nigeria's public debt affects the stability of the country's exchange rate.

LITERATURE REVIEW

Theoretical underpinnings

This study considered the following theories to understand the relationship between fiscal dominance and exchange rate stability:

Mundell–Fleming model

The Mundell-Fleming Model, sometimes referred to as the "Impossible Trinity" or the "Trilemma," is a macroeconomic theory developed by Mundell and Fleming in 1963 and 1962. It serves as a static baseline model that addresses the interrelationships among fiscal, monetary, and exchange rate policies in an open economy. By emphasizing the trade-offs involved in managing fiscal dominance and exchange rate stability, this model is relevant to the study of these topics. The IS-LM-BP framework, which assumes that both fiscal and monetary policies interact to achieve an economy's macroeconomic goals, reinforces the theoretical reasoning for the supremacy of fiscal or monetary policy concerning exchange rate stability.

The stochastic versions proposed by Obsfeld (1986) and the dynamic enhancements made by Dornbusch (1976) were expanded iterations of this paradigm. Three equilibria in the capital, money, and goods markets are typically observed in the open-economy model. In its static form, it assumes that the capital market is fully mobile and that the prices of goods remain constant. When there is a fixed exchange rate system and a fiscal policy shock, exports increase while domestic goods become more competitive.

Under a fixed exchange rate regime, Oke and Adetan (2018) contend that monetary policy is

ineffective because domestic credit expansion renders the money supply endogenous, while output and interest rates stay constant. A flexible exchange rate regime, on the other hand, results in monetary supremacy since fiscal policy is no longer a useful stability mechanism. The Dornbusch (1972) model is an overshooting model in which the currency rate's immediate depreciation exceeds its long-term value due to monetary shocks.

Fiscal Theory of Price Level

The theory was developed by Robert Barro and Joseph Redlick in 1995 and posits that the long-run price level is determined by the present discounted value of primary government spending. According to this notion, the central bank is typically tasked with the role of price regulation. Therefore, fiscal dominance can lead to increased government expenditure and a higher price level, potentially undermining exchange rate stability in the long run. Due to Friedman's well-known assertion that inflation is a monetary phenomenon, this role naturally draws from the quantity theory of money (Ayodele & Falokun, 2003). In contrast, the fiscal theory of the price level (FTPL) argues that the price level should vary according to the budgetary plans of the fiscal authorities (Woodford, 1998; Sims, 1994).

Both the weak and strong-form fiscal theories are targets of the FTPL's critique. The weak form of the theory emphasizes the clear connection between monetary and fiscal policy. This version asserts that fiscal budget constraints ultimately shape both fiscal and monetary policy, since money creation, which generates revenue, can be viewed as a source of funding. Whether the central bank or the fiscal authority leads determines the source of pricing influence.

According to the weak form, the apex bank must guarantee solvency by producing the necessary seigniorage (money created revenue) when the fiscal authority leads by operating a primary deficit or surplus (Schabert, 2010). The nation's debt-to-GDP ratio will increase if the fiscal and monetary authorities are unable to provide the necessary seigniorage, leading to a continuous rise in interest rates to make government debt instruments more attractive.

The weak version suggests that the central bank will create the necessary seigniorage. The strong form contends that future price levels are determined by fiscal policy, not by future money stock expansion. In contrast to the weak form, which maintains the traditional monetary hypothesis, the modern version argues that changes in the money supply impact the general price level, even though they are fiscally independent (Cochrane, 2000; Eusepi & Preston, 2011).

Krugman's Model of Exchange Rate Determination

Paul Krugman introduced the model in the early 1990s, highlighting how expectations influence exchange rates. His model builds upon traditional trade theory, incorporating aspects such as imperfect competition and increasing returns to scale. These factors contribute to a more detailed understanding of trade patterns and the influences on exchange rates. In Krugman's framework, exchange rates are shaped by factors like relative productivity levels, economies of scale, and government policies. Variations in these elements can impact the competitiveness of businesses and change trade patterns, which in turn leads to adjustments in exchange rates.

According to Favero and Monacelli (2003), Krugman's model explains that expansionary fiscal policies that boost domestic demand may lead to trade deficits and currency depreciation if they

are not accompanied by corresponding increases in productivity or competitiveness. Thus, fiscal dominance can influence a country's competitiveness by affecting factors such as inflation, interest rates, and government spending. Tanner and Ramos (2002) suggested that countries with lower production costs and higher productivity will likely have more competitive exchange rates. Again, De Resende (2007) opines that Krugman's model underscores the importance of coordinated fiscal and monetary policies in achieving macroeconomic stability and exchange rate equilibrium through coordinated efforts of fiscal authorities to prioritize short-term objectives over long-term stability.

Krugman's emphasis on imperfect competition and strategic behaviour suggests that market expectations and perceptions can play a significant role in exchange rate determination. Fiscal dominance may influence market perceptions regarding a country's economic policies and prospects, impacting exchange rate dynamics (Obaseki, 2001). Fiscal dominance can lead to heightened uncertainty and instability in expectations, which may adversely affect exchange rate stability. The model provides valuable insights into the determinants of exchange rates and the implications of government policies, including fiscal dominance, on exchange rate stability. By considering factors such as economies of scale, imperfect competition, and strategic behaviour, policymakers can better understand the dynamics of exchange rate movements and create effective policy responses to promote macroeconomic stability.

Literature review

For the majority of the years following independence, Nigeria's fiscal strategy has primarily been influenced by the boom-and-bust cycle of oil prices and revenue. Taxes from the commodity boom of the late 1940s and 1950s essentially drove fiscal policy prior to the oil boom of the early 1970s. Consequently, since the 1970s, oil has accounted for more than 70% of the country's income, rendering government fiscal policy patterns susceptible to oil-driven volatility. In this context, revenue and spending tend to rise in tandem with increases in oil prices, dip slightly during years of low oil prices, but soar during periods of high oil prices. According to Baunsgaard (2003), the consequences of such boom-bust fiscal policies include disruptions in the delivery of government services and the spread of oil volatility to the rest of the economy.

Due to positive developments in the global oil market resulting from the Middle East crises in the mid-1970s, government revenue increased from N0.63 billion, or 12.0% of GDP, in 1970 to N10.91 billion, or 26.0% of GDP, in 1979 (IMF, 2022). During this period, the nation's revenue base also significantly shifted from non-oil to oil, with oil's share of total revenue rising from 26.3% in 1970 to 81.1% in 1979, reflecting an average growth rate of 75.4%. Total spending rose from N0.90 billion, or 17.1% of GDP, to N7.41 billion, or 17.6% of GDP, at an annual growth rate of 28.5%, in line with changes in revenue. During this period, recurrent spending accounted for an average of 56.5% of total spending (IMF, 2022). The increases in transfers, which constituted an average of 60.0% of the overall recurrent outlay, were the primary driver of the rise in recurrent expenditure.

Although the oil glut in the global market negatively impacted revenue performance in the 1980s, the effects of lower oil prices on revenue were lessened by the Structural Adjustment Program (SAP) initiatives. In 1980 and 1989, total revenue grew from N15.23 billion to N53.87 billion, or around 39.6% and 72.6% of GDP, respectively. Over time, the oil's percentage of total revenue

averaged 71.3%, or 16.5% of GDP. Following changes, total government spending rose from N14.97 billion, or 30.2% of GDP, in 1980 to N41.03 billion, or 18.9% of GDP, in 1989.

During the 1980–1989 decade, the total government balance resulted in an average fiscal deficit of N6.14 billion, or 7.1% of GDP. The CBN, which accounted for an average of 152.8 percent of the overall banking system funding during that period, was primarily responsible for supporting these deficits, which had negative macroeconomic consequences.

Due to favourable developments in the international oil market, primarily the Gulf War of 1991, the partial removal of petroleum product subsidies in the domestic market, and the introduction of a dual exchange rate system in the foreign exchange market, total revenue continued its upward trend in the 1990s, leading to significant fiscal surpluses in 1995. The introduction of the Value Added Tax (VAT) in 1994 resulted in a slight increase in non-oil revenue, and other measures aimed at achieving effective and efficient tax administration also contributed to the notable fiscal surplus. While total revenue as a percentage of GDP decreased slightly from 36.0 to 29.7 percent between 1990 and 1999, it increased nominally from N98.10 billion, or 36.0 percent of GDP, to N949.19 billion.

Oil revenue remained the primary source of income for the country, despite the government's efforts to diversify, accounting for an average of 77.1% of total revenue during the review period, which equals 20.7% of GDP. Similarly, overall government spending continued to increase, rising from N60.27 billion, or 22.5% of GDP, to N947.69 billion, or 29.7% of GDP, over the same timeframe. The effects of currency depreciation, high inflation rates, and escalating public debt servicing obligations during the review period resulted in an average growth rate of 41.2 percent.

The Federal Government's overall fiscal balance during the decade exhibited an average deficit of N68.74 billion, or 6.0% of GDP, primarily funded by the banking sector, particularly the CBN. According to Calvo, Izquierdo, and Talvi (2002), the government's initiatives to attain macroeconomic stability and foster sustainable economic growth and development led to a reduction in the CBN's share of total funding from 101.1 percentage points in the 1980s to 51.7% in the 1990s, even though it continued to control the majority of government financing instruments.

Up until the global financial crisis of 2008, which negatively impacted world oil prices, total government revenue continued to grow. Although overall revenue increased from N1,906.16 billion, or 41.6% of GDP, in 2000 to N7,303.67 billion, or 25.4% of GDP, in 2010, the 2008 oil price crash resulted in a 19.0% decrease in the average growth rate during that period. However, the share of oil revenue in total government revenue rose to an average of 78.9 percent, or 24.9 percent of GDP, despite a decline in the average growth rate of oil revenue.

The need to enhance sustainable economic growth and development by reorganizing the domestic economy into a market-oriented, technology-driven, and private sector-led framework is why total government spending increased during this decade. This follows the requirement to boost fiscal incentives after the global financial crisis. As a result, overall spending rose from N701.69 billion, or 15.3% of GDP, in 2000 to N4,194.22 billion in 2010, with recurring expenses making up an average of 67.8% of total spending. Similarly, 40.8 per cent of the average total recurrent spending was accounted for by transfers, while administration accounted for 34.9 per cent of the total. The

government's entire budgetary situation during the period was N324.06 billion in deficit, largely funded by the banking sector, especially the DMBs. Furthermore, as its average proportion of funding requirements rose from 36.2 percentage points in the 1990s to 49.0 percent in the 2000s, there was a structural change towards a more active non-bank public holding of government financing debt instruments.

Empirical review

While some research focused on the relationship between the exchange rate and other macroeconomic factors, others explored the connection between fiscal policy variables and other macroeconomic variables. Few have investigated the link between exchange rate stability and fiscal supremacy.

For example, Taofeek and Abiodun (2021) employed the Structural Vector Autoregression (SVAR) technique to test the fiscal dominance hypothesis and further investigate the shock transmission effects of fiscal deficit components, such as the budget deficit and public debt, on exchange rate movements in Nigeria. The Autoregressive Distributed Lag (ARDL) technique was utilized as a robustness measure to analyze the shock transmission effects of these components on the movement of the Nigerian exchange rate, and the Granger causality test was conducted to determine the direction of causality between the fiscal deficit components and the exchange rates. The study covered the years 1981–2018. The results revealed that the budget deficit and changes in currency rates in Nigeria have a bi-causal relationship, although public debt could not Granger-influence exchange rate movements in the country. The ARDL results indicate that both public debt and the budget deficit have destabilizing effects on Nigerian exchange rates, while the SVAR estimates show that exchange rate movements in Nigeria only responded to the shock effects of financial openness.

Ezeh and Obi (2016) examined the relationship between Nigeria's fiscal adjustment and currency devaluation from 1981 to 2014. The study specifically focused on the impact of currency devaluation on Nigerian government spending and revenue. Co-integration, Granger Causality, Ordinary Least Squares, and Vector Error Correction methods were employed in the analysis. The findings of the study revealed a positive and causal link between certain selected fiscal variables and currency devaluation. Consequently, to significantly reduce budget deficits, the report recommended that the Nigerian government rationalize and realign its spending towards productive economic activities.

Alagidede and Ibrahim (2016) examined the factors contributing to exchange rate volatility and the impact of excessive exchange rate fluctuations on Ghana's economic growth. The study's findings revealed that while exchange rate shocks tend to be mean-reverting, misalignments generally correct at a slow pace, leading to costly short-term repercussions as economic agents adjust their investment and consumption choices. Approximately three-quarters of real exchange rate shocks are self-driven, with the remaining quarter attributable to factors such as output shocks, terms of trade, government spending, and expansion of the money supply. In particular, the results indicated that while government spending, money supply expansion, and terms of trade shocks significantly influence exchange rate volatility in the long term, output remains the primary driver of exchange rate fluctuations in the short term. Furthermore, it was shown that excessive volatility impedes economic growth, but only to a certain extent, as innovation and more effective resource

allocation can also have a growth-enhancing effect.

Kuncoro (2015) examined how Indonesia's currency rate stabilization from 2001 to 2013 was influenced by the credibility of fiscal policy. According to the study, which utilized quarterly data analysis, the impact of credible fiscal policy generally depends on the characteristics of commitment to fiscal rules. On one hand, the credible debt rule policy reduces exchange rate volatility; however, the deficit rule policy astonishingly has no effect on the exchange rate and does not contribute to its stabilization. The study found that credibility is crucial for stabilizing the foreign exchange market and suggested that programs focused on stabilizing exchange rates should include efforts to enhance fiscal policy's credibility.

Shuaib, Ekeria, Augustine, and Ogedengbe (2015) used time series data from 1960 to 2012 to investigate how fiscal policy affected Nigeria's growth. The findings of the study demonstrated a direct correlation between growth and fiscal policy. The study suggested that to achieve economic growth, the government should ensure the efficacy of fiscal policy.

Muse (2015) investigated how deregulation affected the connection between Nigeria's fiscal conduct and foreign aid. The Chow test was employed in the study to assess whether the link between foreign aid and fiscal behaviour has been significantly impacted by any structural changes that have occurred since deregulation was implemented. According to the study's findings, deregulation has had a positive and notable impact on Nigeria's fiscal conduct and the availability of foreign aid. While government revenue and spending have been steadily increasing, this effect has recently been short-lived due to a sharp decline in foreign aid accessible to Nigeria. To determine why deregulation is unable to sustain the positive correlation between Nigeria's fiscal conduct and foreign aid, the study suggested evaluating additional shocks that may influence the country's fiscal behaviour.

The co-integration test confirmed the existence of a long-term relationship between trade balances and the variables of interest. The regression estimate indicated that the exchange rate had a significant negative influence on Nigeria's trade balance during the period. Eke, Eke, and Obafemi (2015) used annual data to examine the effect of the exchange rate on the trade balance in Nigeria for the period 1970-2012. The study suggested that measures to stabilize the exchange rate and curb its continuous free fall should be carefully considered as a policy option.

Zakaree, Sani, and Idakwoju (2015) investigated how Nigeria's public external debt affected the country's exchange rate. All of the dependent variables—external debt, debt service payments, and foreign reserves—had a significant impact on Nigeria's exchange rate fluctuations, according to the analysis that used the Ordinary Least Squares technique. The report indicated that the government should ensure all public borrowings, when needed, are allocated to profitable ventures that will yield returns on investment and enable the debt to be repaid upon maturity.

Odili (2015) examined the significant influence of macroeconomic factors on Nigeria's exchange rate behaviour from 1980 to 2014. The study investigated the impacts of Nigeria's gross domestic product, balance of payments, inflation rate, current account balance, and total imports and exports on the country's currency rate. The study's findings indicated that while imports, exports, and gross domestic product had a significant positive correlation with changes in the exchange rate, its

inflation rates, current account balance, and balance of payments had a modest positive correlation. The report suggested that Nigeria's foreign exchange markets be properly regulated and monitored.

Ogunsakin (2013) investigated the causes of currency rate behaviour and how it affected Nigeria's economic expansion. Cointegration and error-correction methods were employed in the study. The findings demonstrated that each variable considered—exchange rate, inflation rate, foreign reserves, interest rate, money supply, balance of payments, and willingness to import—plays a crucial role in determining Nigeria's economic growth. The study suggested that the government should maintain a more depreciated actual exchange rate, save more money than it invests, and spend less than it earns.

Luca (2012) evaluated the impact of government spending on the real exchange rate and the trade balance in the US using a new VAR identification approach based on revisions to expenditure projections. Although the impacts were not statistically significant, the study found that following a government spending shock, the real exchange rate increases and the trade balance deteriorates.

The factors influencing Nigeria's real exchange rate between 1970 and 2006 are examined by Udoye (2009). According to the study's findings, the two main factors affecting Nigeria's real exchange rate are the value of trade openness and the exchange rate from one year prior. The outcome also indicated a long-term correlation among trade openness, the real exchange rate, and the growth rate of gross domestic product.

Mohsin and Lizondo (2008) investigated the connection between the real exchange rate, budget deficits, and devaluation. The study examined how fiscal measures can be employed to sustain the real exchange rate's effects following a nominal devaluation. The study's findings indicated that the magnitude of the devaluation and the degree of fiscal adjustment are not the sole factors influencing the movement of the real exchange rate; the techniques used to reduce the fiscal deficit also play a significant role.

Pelin (2007) examined the effects of monetary and fiscal policies on real exchange rates in Turkey from 1990 to 2003. The study's results showed that monetary shocks have a statistically insignificant impact on real exchange rates, whereas expansionary fiscal policy has a more substantial effect. Variance decomposition demonstrated that the influences of fiscal policy on real exchange rates are more pronounced than those of monetary policy.

METHODOLOGY

The ex-post facto research design was employed in the study to collect the necessary data. The Central Bank of Nigeria (CBN) and the National Bureau of Statistics (NBS) are the primary data sources in this model's estimation. Additional sources include the Ministry of Finance, the Debt Management Office (DMO), the Organization of Petroleum Exporting Countries (OPEC), and International Financial Statistics (IFS). The estimated and simulated data span the years 1986 to 2022. The Mundell–Fleming model, developed by Mundell (1963) and Fleming (1962), illustrates the impact of fiscal dominance on exchange rate stability in Nigeria within the theoretical framework of this study. Therefore, the study's model will be based on the work of Taofeek and Abiodun (2021), which is provided by:

$$EXr = f(FD, PD) \quad 1$$

Where Exr is the exchange rate, a function of FD, fiscal deficits, and PD, public debts, thus, taking into cognizance the potential impact of inflation (INF) as a control variable, we re-specify equation (ii) to include:

$$EX = f(FD, PD, IF) \quad 2$$

The econometric equation for model (ii) can be written as:

$$EX = \delta_0 + \delta_1 FD + \delta_2 PD + \delta_3 INF + \mu \quad 3$$

Where: Ex = exchange rate stability; FD = fiscal deficits; PD = public debt; INF inflation rate; δ_0 - δ_3 are parameters to be estimated; δ_0 = intercept, and μ is the error term.

DATA ANALYSIS, RESULTS AND DISCUSSIONS

Descriptive statistics

According to the statistical behaviour of the variables in the descriptive statistics presented in Table 1, the average value of the exchange rate (EX) from 1990 to 2023 is 157.78. This positive EX score indicates that Nigeria's exchange rate was increasing at an accelerated pace. At 605.34, the currency rate achieved its highest value, while it reached its lowest at 7.39 naira. The exchange rate exhibits a wide deviation from the mean, as shown by the difference between the maximum and minimum values. Fiscal deficits (FD) have a mean of 12.9172 and a standard deviation of 4.3879, with a minimum value of 5.6466 and a maximum value of 24.2416.

Further analysis of the descriptive statistics revealed that the average public debt (PD) during the study period was 13900, with a range of 75.4011 to 56556. Additionally, the inflation rate (IF) exhibited a mean of 18.5991, a standard deviation of 16.1541, a minimum of 3.6100, and a maximum of 76.7600. The mean value (13.3095) and standard deviation (5.2717) of the variable over the period differ significantly.

Table 1: Result of descriptive statistics

	EX	FD	PD	IF
Mean	175.7821	12.91720	13900.05	18.59912
Median	132.4850	12.34400	6885.415	12.92500
Maximum	605.3400	24.24167	56556.89	76.76000
Minimum	7.390000	5.646627	75.40118	3.610000
Std. Dev.	146.5534	4.387906	16025.44	16.15415
Skewness	1.134080	0.853976	1.005926	2.375655
Kurtosis	3.627033	3.499433	2.910920	7.748939
Jarque-Bera	7.845098	4.485919	5.745263	63.93045
Probability	0.019791	0.106144	0.056550	0.000000
Sum	5976.590	439.1849	472601.5	632.3700
Sum Sq. Dev.	708770.7	635.3727	8.47E+09	8611.566
Observations	34	34	34	34

Source: E-views 12.0 statistical software

Important details regarding the symmetry of the probability distribution of time series and the thickness of the tails of these distributions are found in the statistics of skewness and kurtosis, respectively. All variables exhibited positive skewness to the right, with mean values exceeding the median, according to the skewness analysis. Kurtosis also indicated that the variances of the variables were small, except for public debts, which was recorded at below 3.00 (Platykurtic) and close to the normal distribution. The normalcy qualities of the data are assessed through the Jarque-Bera statistics. Except for fiscal deficits, all variables' Jarque-Bera statistics support the null hypothesis of normalcy at the one percent significance level. The proximity of the mean and median values of each of the two series further substantiates this. The likelihood of such a series being regularly distributed increases with the closeness of the means and medians of the two variables.

Correlation analysis

Significant correlations or inter-associations between the independent components can be used to infer the presence of multicollinearity. As a result, it constitutes a type of data disturbance, and any statistical inferences made about the data—if any—may not be accurate. Evaluating the effects of independent variables on dependent factors is quite challenging due to the fundamental issue of multicollinearity, which leads to unstable parameter estimations. Consequently, assessing how independent factors affect dependent factors is a very difficult undertaking. The study conducted an analysis of multicollinearity, summarized in Table 3 below, to address issues brought on by multicollinearity in the model's data.

Table 2: Correlation results

	EX	FD	PD	IF
EX	1.0000			
FD	-0.2772	1.0000		
PD	0.5640	-0.2786	1.0000	
IF	-0.3181	0.4106	-0.2553	1.0000

Source: E-views 12.0 statistical software

Fiscal deficits (FD) had a correlation value of -0.2772, indicating a negative relationship between exchange rate stability and fiscal deficits. Consequently, the exchange rate decreases when the budget deficit is increased to fund public projects. Furthermore, based on the correlation coefficients, there is a clear inverse association between exchange rate stability and public debt (PD). This suggests that there is a 0.56% increase in the exchange rate for every unit increase in the government's public debt. Additionally, evidence shows that an increase in the inflation rate (IF) causes the currency rate stability to decline by a proportionate amount.

Analysis and discussion of regression results

The regressed findings of Nigeria's exchange rate stability and fiscal supremacy are presented in the OLS multiple regression analysis shown in Table 3. When all other factors (fiscal deficits, public debt, and inflation rate) are held constant, the exchange rate in Nigeria is predicted to rise by 60%, based on the coefficient of the constant term (60.0929) from the results displayed in Table 4.4. Further examination of the data revealed that the estimated coefficient for fiscal deficits indicates that a unit increase in government fiscal deficits results in a 0.7329 percentage change in exchange rate stability. However, this finding was determined to be statistically insignificant, suggesting that fiscal deficits have little to no impact on exchange rate stability in Nigeria.

Additionally, public debt had an estimated coefficient of 0.0008 and a significant probability value of 0.0000. This indicates that Nigeria's exchange rate stability will increase by 0.0008 for every unit increase in national debt. According to the statistical significance, government debt has a tendency to affect the stability of the Nigerian naira compared to other currencies. Lastly, the inflation rate coefficient was minimal and negative. This suggests that a 0.7712 percent decline in the Nigerian currency rate will result from a percentage change in the inflation rate.

Table 3: OLS results
Dependent Variable: EX
Method: Least Squares
Sample: 1990 2023
Included observations: 34

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	60.09293	24.31440	2.471495	0.0194
FD	0.732938	1.734370	0.422596	0.6756
PD	0.008674	0.000448	19.36764	0.0000
IF	-0.771275	0.467955	-1.648182	0.1098

R-squared	0.935357	Mean dependent var	175.7821
Adjusted R-squared	0.928893	S.D. dependent var	146.5534
S.E. of regression	39.07986	Akaike info criterion	10.27922
Sum squared resid	45817.06	Schwarz criterion	10.45879
Log likelihood	-170.7568	Hannan-Quinn criterion.	10.34046
F-statistic	144.6958	Durbin-Watson stat	0.417245
Prob(F-statistic)	0.000000		

Source: E-views 12 statistical software

The three independent variables account for nearly 93% of the exchange rate's volatility, as indicated by the R-squared value of 0.93. The model is well-fitted and provides a solid explanation of the data, according to the adjusted R-squared value of 0.92. At least one of the independent factors significantly impacts the dependent variable (exchange rate), as shown by the remarkably high F-statistic value of 144.69. The statistical significance of all three independent variables is validated by the p-value of 0.0000. The residuals may exhibit some autocorrelation, based on the DW statistic value of 0.4172, which could undermine the model's accuracy. However, since the DW value is close to zero, this issue may not be substantial. The Akaike information criterion (AIC) of 5.8922 is the lowest among the independent variables used, indicating that it is the best model to adopt in this situation.

Test of hypotheses
The following decision rule is provided in order to test the hypotheses.

Test of hypothesis one
The null and alternative versions of this hypothesis are rehashed as follows in order to test it:
H0: Nigerian exchange rate stability is not substantially impacted by fiscal deficits.
H1: Nigeria's currency rate stability is greatly impacted by fiscal deficits.

The coefficient of FD was 0.7329, with an insignificant probability value of 0.6756, according to the results in Table 4.4. This indicated that budget deficits have a favourable yet negligible effect on Nigeria's exchange rate. As a result, we concurred with the null hypothesis, which asserts that Nigeria's exchange rate stability is not substantially affected by budget deficits.

Test of hypothesis two
The null and alternative versions of this hypothesis are rehashed as follows in order to test it:
H0: Public debt does not significantly impact Nigeria's exchange rate stability.
H1: Nigeria's exchange rate stability is significantly impacted by public debt.

Table 3's findings indicate that the PD coefficient was 0.7329 and the significant probability value was 0.0000. This demonstrated that Nigeria's public debt had a favourable and noteworthy effect on the country's exchange rate. Thus, we concurred with the alternative theory that Nigeria's public debt significantly affects the stability of the country's exchange rate.

Discussion of findings
The study examined the effects and connections between Nigeria's exchange rate stability and fiscal supremacy. The overall findings from the descriptive analysis indicated that the exchange rate has not been stable and that there has been significant volatility in the value of the Nigerian Naira over the period. The multicollinearity test results revealed that public debt had a negative association with the exchange rate, whereas fiscal deficits and inflation had a substantial positive relationship.

The model is statistically significant, according to the F-test value from the OLS result, indicating that the explanatory indicators can collectively influence Nigeria's exchange rate stability. Additionally, the estimated coefficient suggests that a 1% increase in fiscal deficits results in a 0.73% increase in the exchange rate, ceteris paribus; however, this effect is statistically insignificant, indicating that there is not enough evidence to support the idea that fiscal deficits significantly impact Nigeria's exchange rate stability. This finding aligns with Svensson (1997), who provided evidence that an expansionary fiscal policy can cause the currency to appreciate, so a high coefficient implies that fiscal deficits significantly impact the country's exchange rate stability.

At the 0.05 significance level, the predicted coefficient for public debt is also statistically significant, though it is quite small. This indicates that exchange rate stability will increase by 0.008% for every unit increase in government debt. Additionally, it suggests that in this study, the exchange rate is positively and significantly affected by state debt. This outcome may be due to the fact that public debt is often used as a shock-absorbing measure rather than being directly correlated with fluctuations in exchange rates. This finding is consistent with the expectations of the study.

Lastly, the predicted coefficient for the inflation rate implies that a 0.77 percentage point shift in the inflation rate will lead to a similar percentage loss in exchange rate stability. Specifically, an increase in the inflation rate will decrease the exchange rate, while a decrease in the inflation rate will increase it. This inverse relationship between the inflation rate and the exchange rate suggests that an increase in the inflation rate leads to currency depreciation. Moreover, this effect is

statistically significant at the 0.05 level, demonstrating that fluctuations in the inflation rate indeed have a considerable impact on exchange rate stability in Nigeria. This finding is consistent with Frenkel (2016), where high inflation expectations decrease the currency's value.

CONCLUSION AND RECOMMENDATIONS

The Ordinary Least Squares regression technique was employed in the study to analyse the relationship between Nigeria's fiscal supremacy and exchange rate stability. This analysis clarifies that Nigeria's exchange rate significantly impacts the components of fiscal dominance, such as national debt and budget/fiscal deficits. However, these factors exert different effects on the exchange rate, with public debt being negatively correlated with the budget deficit.

Additionally, the inflation rate in the economy indicates a relatively significant positive sign with alternating effects on exchange rate movements. In reality, the study showed that excessive public spending is a major driver of currency rate instability in Nigeria, while a minor fiscal deficit explains the structural behaviour of the exchange rate in the country. In summary, this analysis provides compelling evidence of the connection between the inflation rate, public debt, fiscal deficits, and exchange rates. According to the results, governmental debt has no discernible effect on the exchange rate, but fiscal deficits do. With an R-squared value of 0.93 and statistically significant coefficients for each independent variable, the model provides a satisfactory explanation of the data.

The following suggestions were offered in light of the study's findings:

1. The first policy recommendation is for monetary authorities to regulate the indirect relationship that fiscal policy may have with the exchange rate. To prevent excessive borrowing and subsequent currency appreciation, fiscal policy should also be implemented with discipline.
2. Since high debt levels might increase the risk of fiscal domination and negatively impact the exchange rate, efforts should be made to reduce public debt levels. To follow international best practices and ensure its sustainability, the budgetary process should also be thoroughly examined.

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