# AN EMPIRICAL ANALYSIS OF CAUSATIVE EFFECT OF LINGERING NAIRA DEVALUATION ON NIGERIAN ECONOMY

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***KEYWORDS***

Naira Depreciation, GDP, Exchange Market, Inflation Rate and Exchange Rate

***ABSTRACT***

*This study focused on the effect of the inflationary trend caused by persistent loss of value of Naira on the Economic growth and foreign exchange market in Nigeria. The study adopted quantitative research design. Data for this study were of secondary sources obtained from the Statistical Bulletin of Central Bank of Nigeria. Data collected were analysed using multiple regression. The result of the study revealed that inflation negatively affects the GDP. The loan cost on the other hand positively affects the GDP. Also, exchange receptiveness negatively affects the GDP. The study affirmed economic literature; highlighted the link between the exchange rate volatility and economic performance in Nigeria considering gross domestic product as an exponent of economic performance, thus the need to quantify the link between gross*

*domestic product and exchange rate volatility emerges. The study suggests further diversification of the economy: an expansion in non-oil exports, adoption of measures to stimulate domestic production of essential household goods, and also encourage export of primary commodities in which the country has comparative advantage. A strong demand management of exchange rates through restrictive monetary and fiscal policies to ensure that growth of aggregate demand is compatible with a low and stable inflation is recommended. The study also recommended an adoption of a realistic exchange rate policy for naira best capable of restricting excessive demand for foreign exchange.*

## INTRODUCTION

The foreign exchange market, often referred to as the forex or currency market, serves as a global decentralized or over-the-counter (OTC) market for the trading of currencies. It acts as a medium of interaction between sellers and buyers of foreign exchange, facilitating the negotiation of mutually acceptable prices for the settlement of international transactions (Adeyemi & Oseni, 2022). Essentially, foreign exchange involves the trading of one currency for another, driven by the exchange of goods and services among countries. The forex market is the largest financial market globally, with trillions of dollars traded daily, making it the most liquid among all financial markets. Unlike centralized markets, there is no central marketplace for currency exchange, and instead, the forex market comprises various participants, including banks, forex dealers, commercial companies, central banks, investment management firms, hedge funds, retail forex dealers, and individual investors.

Nigeria's economic history reflects a trajectory of currency fluctuations, starting with a windfall in the 1970s followed by years of budget deficits. The implementation of the Structural Adjustment Programme (SAP) in 1986, as recommended by the IMF and World Bank, aimed to restore and boost economic growth, with one condition being the devaluation of the Nigerian Naira and its free float in the Foreign Exchange Market (CBN, 2017). Despite various policy interventions to stabilize the Naira, its value has continued to depreciate over the years. For instance, the introduction of the Second-Tier Foreign Exchange Market (SFEM) in 1986 and subsequent

policies led to significant depreciation of the Naira against the US Dollar (Apergis, 2019). The depreciation of the Naira has been correlated with inflation and has adversely affected the domestic prices of goods and services (Wasiu et al, 2020; Adebiyi *et al*, 2007).

The continuous depreciation of the Naira raises concerns about Nigeria's economic prosperity despite its status as the richest country in Africa. The devaluation of the Naira has led to various economic challenges, including political instability, high import costs, unemployment, social vices, and poverty(West, 2012). Volatility in exchange rates distorts market mechanisms and affects merchandise trade and capital flows. Prolonged volatility can fuel speculation and lead to exchange rate bubbles, driven more by psychological pressures than economic fundamentals. This situation calls for a holistic approach to address the challenges posed by constant Naira depreciation and its effects on economic performance (Ndubuaku *et al*, 2019).

The evil enumerated rapid and constant devastating impact on the economy of bad the naira exchange rate requires quick and holistic approach towards ascribing lasting solution. It's on this note that, this study aims to investigate the causative effects of constant Naira depreciation on economic performance in Nigeria. Specifically, the study examined the effects of inflation rate, growth in Nigeria.

## LITERATURE REVIEW

### Conceptual Literature

### The Foreign Exchange Market in Nigeria Since 1986

Foreign exchange management, as described by Eme and Johnson (2015), involves the strategic allocation and distribution of foreign exchange resources to mitigate short-term capital flows' destabilizing effects. This encompasses monitoring and regulating foreign exchange allocation to align with economic priorities and budgets, as insufficient reserves can lead to balance of payments issues (Oleka, 2017). Farazmanda (2016) elucidates that foreign exchange management encompasses trading currencies for goods and services overseas, with international businesses converting profits into domestic currency for domestic spending. The foreign exchange rate policy in Nigeria aims to preserve currency value, maintain external reserves, and achieve internal and external balance for macroeconomic stability. Since the introduction of market-oriented policies

in 1986, Nigeria experienced exchange rate volatility, disrupting economic stability (Obadan, 2006). The spot foreign exchange market facilitates immediate currency exchange, with the spot exchange rate determined by immediate demand and supply (Nwafor, 2018; Okaro, 2017). Howard (2012) and Frenkel (2001) propose interest rate differentials as indicators of foreign exchange market efficiency, while forward and spot exchange rate differences reflect new information arrival.

In essence, the Nigerian foreign exchange market has undergone significant shifts and challenges since the implementation of market-oriented policies in 1986. These changes have influenced the management of foreign exchange resources, impacting economic stability and trade dynamics. Despite efforts to maintain stability and promote economic growth, exchange rate volatility remains a persistent concern, necessitating ongoing monitoring and policy adjustments. As such, understanding the dynamics of the foreign exchange market and its efficiency is crucial for policymakers and market participants alike.

**Determinants of Nigeria's Foreign Exchange Rate Volatility**

The volatility of Nigeria's foreign exchange rate is influenced by various factors, including shifts in international trade patterns, institutional changes, and structural shifts in production (Udo & Udeaja, 2019). Baye (2018) highlights the impact of external shocks, particularly fluctuations in the prices of agricultural commodities and oil, major sources of Nigerian exports and foreign exchange earnings. The country's reliance on oil intensified exchange rate volatility, with significant fluctuations observed, especially between 1978 and 1985 (Baye, 2018). During this period, fiscal deficits and expansionary monetary policies further exacerbated real exchange rate movements (Eme & Johnson, 2018; Baye, 2018). The adoption of the Structural Adjustment Program (SAP) in 1986, with its floating exchange rate policy, intensified nominal exchange rate movements, contributing to increased exchange rate volatility (Baye, 2018). However, between 2000 and 2006, favourable terms of trade, improved fiscal and monetary policies, and a more transparent central bank led to a decline in foreign exchange rate volatility, with the mean annual change in real exchange rate decreasing to 4.5% (Okaro, 2017). As Nigeria continues to navigate these internal and external challenges, understanding and managing foreign exchange rate volatility remain crucial for ensuring macroeconomic stability and sustainable economic growth

**Effect of Exchange Rate Fluctuations on Export**

The impact of exchange rate fluctuations on exports is a complex interplay of various factors and economic theories. While fluctuations in exchange rates can introduce risk and uncertainty into international trade, their effects on export performance vary across different contexts. Research by Nwaifor (2018) suggests that exchange rate depreciation, common in developing nations like Nigeria, can lead to an increase in export conversion prices, potentially benefiting exporters. Similarly, studies conducted by Obadan (2006); Adenekan. (2019) highlight the importance of exchange rate stability for export performance, indicating that instability in exchange rates can negatively affect export earnings and growth, although devaluation may offer advantages to exporters.

Furthermore, empirical evidence from the International Monetary Fund (2016) suggests that exchange rate fluctuations can have macroeconomic implications, including impacts on inflation. On the other hand, some studies, such as those by Adeyemi (2014) and Ajaja (2022), indicate potential positive effects of exchange rate fluctuations on export trade, particularly in the European Union countries, where a weak host country currency may stimulate inward foreign direct investment. This highlights the intricate relationship between exchange rate movements, export dynamics, and broader economic conditions, underscoring the importance of effective exchange rate management policies in fostering sustainable export growth.(Micheal, 2018)

**Causes of Currencies' Fluctuation**

A foreign exchange rate is a price or a numerical expression of value of the currency of one country in terms of that of another country at any given time. Having established the reasons why firms/banks trade in foreign exchange and the motives for the transaction, it is pertinent to review those factors which make currencies fluctuate. Most authorities believes that currencies movement are caused by some or all of the following factors which influence the demand and supply of each currency in the market.

i. Relative price levels and inflation rate
ii. Relative economic growths
iii. Relative interest rates, especially in the freely traded money market like the Euro currency market.
iv. Relative change in the money supply in the currency areas (countries) concerned
v. Investment or portfolio preferences of big international investors like the OPEC countries.
vi. Bandwagon affects (if a currency seems to be on the way up, speculators may exaggerate to trend by buying in the hope of a quick profit)
vii. Intervention by central banks
viii. Interest rate arbitrage.

Any of the above factors can independently or in conjunction with other factors affect the value of a particular currency. It is also important to stress the various causes take different time spans to operate.

**New Policy Actions in the Foreign Exchange Market**

The Central Bank of Nigeria (CBN) has implemented several policy actions aimed at increasing the availability of foreign exchange (FX) and easing difficulties faced by Nigerians in obtaining funds for FX transactions. These measures include:

1. **Direct additional funding to banks**: The CBN is providing direct additional funding to banks to meet the needs of Nigerians for personal and business travel, medical expenses, and school fees. These transactions are expected to be settled at a rate not exceeding 20 percent above the interbank market rate.
2. **Retail FX transactions**: The CBN will provide foreign exchange to commercial banks to meet the demand for personal and business travel allowances (PTA/BTA) and payments of school and medical fees. Banks will receive allocations based on their demand per week and will sell FX to customers who meet basic documentary requirements.
3. **Forward sales tenor reduction**: The CBN has reduced the tenor of its forward sales from a maximum cycle of 180 days to no more than 60 days from the transaction date, aiming to increase the availability of foreign exchange to end-users.
4. **FX sales at major airports**: Banks are directed to open FX retail outlets at major airports to ease the burden on travelers and ensure transactions are settled at competitive exchange rates.
5. **Efficiency enhancement of FX market**: The CBN will implement measures to clear unfilled orders in the interbank FX market, remove allocation/utilization rules on commercial banks, support the interbank market with adequate liquidity, and promote transparency through FX Order-Book systems and FX Relationship Systems.

Despite these measures, the exchange rate of the naira to the US dollar has risen, leading to a fall in the purchasing power of the naira. This lack of response from the exchange rate may be attributed to various factors, such as:

- **Market sentiment**: Investors may remain cautious due to economic uncertainties or concerns about the effectiveness of the policy measures.
- **External factors**: Global economic conditions, geopolitical tensions, or changes in commodity prices can also influence currency exchange rates.
- **Domestic economic fundamentals**: Persistent structural issues or imbalances in the Nigerian economy may undermine confidence in the currency.

The CBN may need to reassess its policies and consider additional measures to address the challenges facing the FX market and stabilize the exchange rate. This could include measures to address structural issues, enhance market confidence, and ensure effective implementation of FX policies.

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## THEORETICAL REVIEW

### International Fisher Effect (IFE) Theory

The International Fisher Effect (IFE) theory posits a different perspective, emphasizing that interest rate differentials, rather than inflation rate differentials, are the primary drivers of exchange rate changes. According to Fisher, exchange rate fluctuations are directly correlated with the relative disparities in long-term interest rates, as these rates reflect the market's anticipation of inflation. Countries with higher long-term interest rates, indicating higher inflation expectations, typically experience currency depreciation, while those with lower rates see currency appreciation. Thus, the equilibrium level of depreciation or appreciation corresponds to the differential in long-term interest rates (Baye in Fisher, 2018)

### Trade Theory

Standard trade theory establishes a strong connection between the real exchange rate and economic dynamics. According to this theory, with all other variables held constant, fluctuations in the exchange rate can significantly impact a country's imports and exports (Zhang in Micheal, 2018). Essentially, changes in the exchange rate affect both the value and volume of trade. For instance, when the exchange rate fluctuates, a unit of foreign goods may become relatively cheaper for domestic households, prompting them to purchase less foreign goods while foreign households may find domestic goods more attractive, leading to an increase in their purchase. Consequently, a higher real exchange rate tends to result in a surplus in the country's net exports. However, Lerner

expanded upon standard trade theory by incorporating price elasticity of demand for imports and exports as crucial factors in determining the effect of exchange rate changes on the trade balance. Contrary to conventional wisdom, an increase in exports and a reduction in imports due to depreciation in the exchange rate may not necessarily lead to an improvement in the trade balance. Lerner emphasized that the trade balance is not solely concerned with the quantities of physical goods traded but also considers their actual value (Adeyemi & Olawale, 2014).

**Purchasing-Power-Parity (PPP) Theory**

The Purchasing-Power-Parity (PPP) theory, originating from 16th-century scholars at the University of Salamanca in Spain and later formalized by Gustav Cassel in 1921, centers on the principle of the law of one price. This foundational concept posits that, in the absence of transaction costs or trade barriers, the price of a given good should be uniform across different locations. Accordingly, PPP theory predicts that changes in exchange rates will mirror disparities in inflation rates between countries. Specifically, it suggests that a country experiencing higher inflation will witness depreciation of its currency, while a country with lower inflation will see appreciation. In equilibrium, these currency adjustments should align with the inflation differentials. However, critics argue that PPP theory overlooks the influence of international capital movements and faces challenges in selecting an appropriate price index for calculations, thereby limiting its applicability in real-world contexts..

**Flexible-Price Monetary Model (FPMM)**

The study's framework is grounded in the flexible-price monetary model (FPMM), which aims to elucidate how changes in money supply and demand influence exchange rates. Following Rosenberg's approach, the study assumes a two-country global economy, comprising a domestic country (Nigeria) and a foreign country (USA), with money supplies (m) in both nations being exogenously determined by their respective central banks. This framework integrates three prominent theories: the International Fisher Effect (IFE) Theory, trade theory, and the Purchasing-Power-Parity (PPP) Theory. These theories collectively inform the study's exploration of the dynamics of exchange rates, providing theoretical underpinnings and analytical frameworks for understanding the interplay between monetary factors and exchange rate movements.

## EMPIRICAL STUDIES

Ajaja's (2022) investigation delved into the intricate dynamics surrounding the persistent depreciation of the Nigerian naira currency and its repercussions on entrepreneurship growth within the nation. The study meticulously analyzed data spanning from 1986 to 2019, meticulously sourced from the Central Bank of Nigeria's (CBN) Statistical Bulletin. Despite a comprehensive understanding that all independent variables collectively accounted for a significant portion, approximately 98%, of the variations observed in GDP, a nuanced exploration revealed intriguing insights. Notably, while money supply demonstrated a discernible positive impact on economic growth, the effects of naira depreciation, exchange rate fluctuations, and lending rate alterations, although present, were deemed statistically insignificant. Such findings not only underscore the complexity of Nigeria's economic landscape but also accentuate the crucial need for strategic interventions to mitigate the adverse effects of currency depreciation on the nation's economic prosperity. Thus, the study concluded with a compelling call to action, advocating for proactive measures such as currency revaluation or strategic import bans to invigorate domestic economic activities, alongside stringent inflation control initiatives to foster an environment conducive to sustained investment growth.

Adeyemi, Oseni, and Tella's (2020) research endeavors ventured into the intricate nexus between currency depreciation and money demand within the Nigerian economic context. Their scholarly pursuit, spanning from 1986 to 2017 and grounded in meticulous data gleaned from the CBN Statistical Bulletin, unveiled a nuanced pattern of interactions. While uncovering a cyclical movement between currency depreciation and money demand over the studied period, their analysis notably illuminated the limited impact of currency depreciation on altering money demand dynamics. This intriguing revelation not only underscores the multifaceted nature of economic phenomena but also underscores the need for deeper exploration and nuanced policy interventions to effectively navigate the complex interplay between currency dynamics and money demand within Nigeria's economic ecosystem.

Adenekan, Sanni, and Itodo's (2019) investigative foray sought to disentangle the intricate ramifications of naira-to-dollar exchange rate volatility on naira exchange rate returns within Nigeria's economic landscape. Armed with granular daily percentage exchange rate return data, their scholarly inquiry unearthed compelling insights. Notably, their findings illuminated a notable

correlation between exchange rate volatility and increased exchange rate returns, underscoring the pivotal role of exchange rate stability in fostering a conducive economic environment for sustained growth and stability. Furthermore, their study's recommendations for heightened vigilance and strategic interventions by monetary authorities underscore the imperative of proactive policy measures to effectively manage market dynamics and foster a resilient economic framework.

Udoh and Udeaja's (2019) comprehensive exploration delved into the intricate relationship between financial dollarization and nominal exchange rate volatility within Nigeria's economic landscape. Embarking on an empirical journey spanning from December 2009 to September 2018 and meticulously leveraging monthly data, their research unraveled profound insights into the dynamics of exchange rate volatility. Notably, their findings shed light on the significant impact of financial dollarization on exacerbating exchange rate volatility, underscoring the nuanced interplay between financial market dynamics and exchange rate stability. Furthermore, their study's revelation of persistent volatility trends underscores the imperative of informed policy interventions aimed at mitigating adverse market dynamics and fostering a resilient economic environment conducive to sustainable growth and stability.

Nwafor's (2018) meticulous examination delved into the intricate interplay between Nigeria's currency rate and its economic growth dynamics. Spanning the period from 2006 to 2016, the study embarked on a rigorous empirical inquiry employing Ordinary Least Squares (OLS) technique to construct a robust regression model. Notably, while the study revealed a lack of significant impact of the Naira rate on economic growth, it underscored the pronounced influence of the Naira rate on inflation dynamics within the Nigerian economic landscape. Such nuanced insights shed light on the multifaceted nature of currency dynamics and their varying effects on distinct economic indicators, thereby necessitating tailored policy interventions to effectively navigate the intricacies of Nigeria's economic landscape.

Okaro's (2017) scholarly ventured into the dynamics surrounding currency devaluation and its implications for Nigeria's economic growth trajectory. Armed with a comprehensive dataset spanning 16 years from 2000 to 2015, the study meticulously employed Ordinary Least Squares (OLS) regression methodology to unravel the intricate relationships at play. Notably, the study's findings illuminated significant relationships between currency devaluation and real GDP, as well as external debt dynamics within Nigeria's economic landscape. However, the study's revelation

of a lack of significant relationship between currency devaluation and private domestic investment underscores the complex interplay between currency dynamics and investment dynamics, necessitating nuanced policy interventions to foster a conducive investment climate while ensuring macroeconomic stability.

Victoria (2019) scholarly inquiry embarked on a comprehensive examination of exchange rate volatility modeling vis-a-vis the Naira's exchange rate against major currencies. Utilizing sophisticated econometric techniques, their research unearthed profound insights into the intricate dynamics of exchange rate volatility within Nigeria's economic context. Notably, their findings underscored the significant impact of exogenous variables on exchange rate volatility, alongside the persistence and ratchet effect observed in volatility trends. Such nuanced insights underscore the imperative of informed policy interventions aimed at mitigating adverse market dynamics and fostering a conducive economic environment conducive to sustained growth and stability.

Adeyemi et al (2014) scholarly endeavor ventured into the realm of assessing the efficiency of Nigeria's foreign exchange market and its implications for various sectors of the economy. Spanning from 1985 to 2016, their empirical inquiry employed advanced econometric techniques to unravel the intricate relationships at play. Notably, their findings illuminated the multifaceted relationships between oil prices, GDP dynamics, inflation rates, interest rates, and exchange rate dynamics within Nigeria's economic landscape. Such nuanced insights underscore the imperative of informed policy interventions aimed at fostering a resilient economic framework conducive to sustained growth and stability.

Michael’s (2018) meticulous examination delved into the intricate causative factors driving exchange rate behavior and its implications for Nigeria's economic growth trajectory. Leveraging sophisticated econometric techniques, the study unraveled profound insights into the complex dynamics at play. Notably, the study's findings underscored the significant determinants of Nigeria's economic growth dynamics, shedding light on the multifaceted interplay between various economic variables. Such nuanced insights underscore the imperative of tailored policy interventions aimed at fostering a conducive economic environment conducive to sustainable growth and stability.

While the existing empirical studies on Nigeria's economy provide valuable insights into phenomena like currency depreciation, exchange rate volatility, and their impacts on economic

indicators such as GDP and inflation, there are notable gaps that warrant further exploration. These studies predominantly focus on specific economic variables and historical data, using econometric techniques for analysis. However, there's a need for more comprehensive research that considers broader economic factors, incorporates predictive modelling techniques for future trends, and explores practical policy implications in greater depth. Additionally, delving into regional and sectorial dimensions of the economy would offer a more nuanced understanding and facilitate targeted interventions to address specific challenges and leverage growth opportunities.

## RESEARCH AND METHODS

The study adopts a quantitative research design to establish cause-and-effect relationships among variables of study, recognizing the fact that the researcher lacks control over the variables of naira depreciation and cannot manipulate them. Secondary data sourced from the statistical bulletin of the Central Bank of Nigeria (CBN) were utilized, and multiple regressions were employed to analyze the behavior of explanatory variables. The population under investigation is focused on the Nigerian economy from 1995 to 2022. This timeframe is considered appropriate as it encompasses periods of monetary adjustments that liberalized naira depreciation in Nigeria, along with various policies aimed at stabilizing the naira rate, despite the fact that some of policies failed to yield desirable outcomes

### Model Specification

The study aims to assess the impact of persistent depreciation of the naira currency on the growth of the Nigerian economy between 1995 and 2022, utilizing the ordinary least squares (OLS) method of multiple regression. The model employed a single equation, with the following variables:

$Y- f (DN, ER, INT, M_2)$

Rewriting the model in a linear form and incorporating the stochastic variable, the equations become: $GDP = \beta o + \beta 1DN + \beta_2 EXR + \beta_3 LR + \beta_4 M_2 + \mu$.

Where;

Y = Gross Domestic Product (GDP)

DN = Depreciation of Naira (Inflation)

EXR = Exchange rate
LR = Lending rate MS = Money Supply $\beta_0$ = Constant Term $\beta 1$, $\beta 4$ = Coefficient of Independent Variables X1, X4 =Independent or Explanatory Variable $\mu$ = error Term (Stochastic Variable)

In the equation, the parameters po-4 represent the estimated effects of the independent variables on the dependent variable, denoted as u. The error term, u, captures the unexplained variability in the dependent variable not accounted for by the independent variables. A priori expectation is determined by economic theory and pertains to the anticipated signs and magnitudes of the parameters in the economic relationship. It reflects the expected direction and size of the impact that each independent variable will have on the dependent variable based on theoretical considerations.

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$$\frac{\partial GDP}{\partial DN} > 0 \quad \frac{\partial GDP}{\partial EX} > 0 \quad \frac{\partial GDP}{\partial LR} < 0, \quad \frac{\partial GDP}{\partial M2} > 0.$$

Dependent Variable: GDP

Method: Least Squares

Sample: 1995 – 2022

Included observations: 28

## RESULTS AND DISCUSSION

To explore the causal relationship between inflation rate and economic growth in Nigeria's foreign exchange market, data spanning 28 years (1995-2022) were analysed. Real Gross Domestic Product (RGDP) was chosen as the dependent variable, while the effects of independent variables including Inflation Rate (IFR), Lending Rate (LR), Exchange Rate (ER), and Money Supply (MS) were investigated. A linear regression model was employed for simplicity in examining the impact of these variables on economic growth.

The multiplicative model specified for this study is given as;

$$\text{RGDP}_t = \text{f}(IFR_t, LR_t, ER_t, MS_t) + \mu \qquad 1$$

Where:

$RGDP_t$ = Real Gross Domestic Product at year t

$IFR_t$ = Inflation Rate at year t

$LR_t$ = Lending Rate at year t

$ER_t$ = Exchange Rate at year t

$MS_t$ = Money Supply at year t

$\mu$ = error term

The logarithm transformation of the model can be explicitly written as;

$$RGDP_t = \beta_0 + \beta_1 lnIFR_t + \beta_2 lnLR_t + \beta_3 lnER_t + \beta_4 lnMS_t + \mu \quad 2$$

## Results:

## Data Presentation

**Augmented Dickey-Fuller Unit Root Test**

| Variable | Order of Stationarity | ADF Calculated | ADF Critical Value | Order of Integration | Decision |
|---|---|---|---|---|---|
| lnRGDP | At level | 2.857 | -1.950 | 1(0) | Stationary |
| | 1st difference | -1.112 | -1.950 | 1(1) | Not Stationary |
| lnIFR | At level | -1.012 | -1.950 | 1(0) | Not stationary |
| | 1st difference | -5.699 | -1.950 | 1(1) | Stationary |
| lnLR | At level | 3.271 | -1.950 | 1(0) | Stationary |
| | 1st difference | -1.317 | -1.950 | 1(1) | Not Stationary |
| lnER | At level | 1.551 | -1.950 | 1(0) | Stationary |
| | 1st difference | -0.484 | -1.950 | 1(1) | Not Stationary |
| lnMS | At level | 2.290 | -1.950 | 1(0) | Stationary |
| | 1st difference | -1.171 | -1.950 | 1(1) | Not Stationary |

Table 1 displays the results of the Augmented Dickey-Fuller (ADF) unit root test conducted to ascertain the stationarity of the variables in the regression analysis. The test assesses whether variables have a unit root, indicating non-stationarity. The findings reveal that lnIFR is integrated of order 1, suggesting stationarity after first differencing, while lnRGDP, lnLR, lnER, and lnMS are integrated of order zero (I(0)), indicating stationarity at level without differencing. These results confirm the suitability of using Ordinary Least Squares (OLS) regression without encountering issues of spurious regression, as non-stationary variables are not regressed against each other using OLS. Therefore, OLS is deemed appropriate for this dataset.

**Table 2: Model-Regression Results**

| Source | SS | df | MS | Number of obs | = | 28 |
|---|---|---|---|---|---|---|
| | | | | F(4, 23) | = | 37.85 |
| Model | 5.68541126 | 4 | 1.42135282 | Prob > F | = | 0.0000 |
| Residual | .863704858 | 23 | .037552385 | R-squared | = | 0.8681 |
| | | | | Adj R-squared | = | 0.8452 |
| Total | 6.54911612 | 27 | .242559856 | Root MSE | = | .19378 |

| lnRGDP | Coef. | Std. Err. | t | P>\|t\| | [95% Conf. | Interval] |
|---|---|---|---|---|---|---|
| lnER | .0362178 | .0223578 | 1.62 | 0.119 | -.010033 | .0824685 |
| lnIFR | -.0284973 | .0582443 | -0.49 | 0.629 | -.1489848 | .0919901 |
| lnMS | .2490797 | .1509801 | 1.65 | 0.113 | -.0632465 | .5614059 |
| lnLR | -.0544407 | .1523775 | -0.36 | 0.724 | -.3696576 | .2607763 |
| _cons | 10.09008 | .4366795 | 23.11 | 0.000 | 9.186739 | 10.99342 |

Durbin-Watson d-statistic( 5, 28) = .3955907

Substituting the coefficients to the OLS model of the functional relationship as given in eq (2);

$$RGDP_t = 10.09 - 0.03lnIFR_t - 0.05lnLR_t + 0.04lnER_t + 0.25lnMS_t + \mu \qquad 3$$

Table 2 demonstrates that the model provided by equation (2) offers a reasonable projection of decisions, with statistically significant results indicated by the computed F statistics value of 37.85 (P-value = 0.000, less than 5% level of significance), affirming the overall goodness of fit of the model. However, it was observed that lnER and lnMS had positive impacts on RGDP, yet their contributions were found to be statistically insignificant (probability values of 0.119 and 0.113, respectively, greater than 0.05 level of significance). The model's coefficient of determination (R2 = 0.87) suggests that 87% of the variation in RGDP is explained by the independent variables (Inflation Rate, Lending Rate, Exchange Rate, and Money Supply). Additionally, the Durbin-Watson value of 0.3955907 falls within the acceptable range of -2 and 2, indicating that the model is correctly specified.

**Table 3: Granger Causality Tests**

| Equation | Excluded | chi2 | df | Prob > chi2 |
|---|---|---|---|---|
| lnRGDP | lnER | 3.2295 | 2 | 0.199 |
| lnRGDP | lnIFR | 5.669 | 2 | 0.059 |
| lnRGDP | lnMS | 1.3367 | 2 | 0.513 |
| lnRGDP | lnLR | 2.1784 | 2 | 0.336 |
| lnRGDP | ALL | 16.083 | 8 | 0.041 |
| lnER | lnRGDP | 4.0752 | 2 | 0.130 |
| lnER | lnIFR | .28689 | 2 | 0.866 |
| lnER | lnMS | 3.4032 | 2 | 0.182 |
| lnER | lnLR | 4.0248 | 2 | 0.134 |
| lnER | ALL | 11.509 | 8 | 0.174 |
| lnIFR | lnRGDP | 7.3499 | 2 | 0.025 |
| lnIFR | lnER | 11.523 | 2 | 0.003 |
| lnIFR | lnMS | 4.9302 | 2 | 0.085 |
| lnIFR | lnLR | .99985 | 2 | 0.607 |
| lnIFR | ALL | 20.129 | 8 | 0.010 |
| lnMS | lnRGDP | 6.8805 | 2 | 0.032 |
| lnMS | lnER | 6.0091 | 2 | 0.050 |
| lnMS | lnIFR | 1.9089 | 2 | 0.385 |
| lnMS | lnLR | 7.3803 | 2 | 0.025 |
| lnMS | ALL | 21.208 | 8 | 0.007 |
| lnLR | lnRGDP | 5.8792 | 2 | 0.053 |
| lnLR | lnER | 11.661 | 2 | 0.003 |
| lnLR | lnIFR | 7.5082 | 2 | 0.023 |
| lnLR | lnMS | 2.5327 | 2 | 0.282 |
| lnLR | ALL | 20.74 | 8 | 0.008 |

The results of the pairwise Granger Causality test indicate a one-way causal relationship between Real Gross Domestic Product (RGDP) and both the Inflation Rate (IFR) and Money Supply (MS). Specifically, with probability values of 0.025, which are less than the critical value of 0.05, RGDP is found to cause changes in IFR and MS, indicating its significant influence on these variables. However, further analysis through cointegration testing is required to ascertain the existence of a long-term relationship between RGDP and the independent variables (Inflation Rate, Lending Rate, Exchange Rate, and Money Supply). Understanding these causal relationships is crucial for policymakers, as it highlights the importance of managing inflation, money supply, and promoting economic growth to ensure stability and stimulate economic development. Policymakers should prioritize measures aimed at stabilizing RGDP and implementing policies to foster economic growth and stability. Additionally, conducting further analysis, such as cointegration testing, can provide deeper insights into the long-term dynamics between RGDP and independent variables, informing the formulation of effective monetary and fiscal policies for sustained economic growth.

## CONCLUSION AND RECOMMENDATIONS

The relationship between observed economic variables and Nigeria's GDP is crucial for understanding the economic performance. Inflation rates have a negative impact on GDP, while

loan costs positively affect it. Exchange rate volatility, on the other hand, negatively influences GDP. The theoretical and empirical models developed in this study focus on real GDP (RGDP) as a proxy for economic growth. Econometric testing, employing the simple Ordinary Least Squares (OLS) method, reveals a negative correlation between exchange rate volatility and economic growth. Introducing additional macroeconomic variables such as inflation, exports, and imports confirms this negative relationship. The empirical findings bear significant implications for policy makers, suggesting that adopting a flexible exchange rate system does not necessarily lead to short-term growth in real GDP. Instead, greater exchange rate risk stimulates exports and imports while hindering overall economic growth.

Based on the study's results, the following recommendations emerged. Firstly, diversifying the economy by expanding non-oil exports and stimulating domestic production is essential and suggested. Secondly, strong demand management of exchange rates through restrictive monetary and fiscal policies is recommended to ensure aggregate demand growth aligns with low and stable inflation rates. Thirdly, authorities should adopt a realistic exchange rate for the Naira to curb excessive foreign exchange demand. Additionally, intensifying export promotion policies to diversify into non-oil sectors and implementing import substitution strategies can encourage rapid industrialization and reduce dependence on the international economy, addressing balance of payments issues.

Furthermore, Nigeria should focus on increasing its economic diversification base by encouraging the exportation of primary commodities and discouraging the importation of goods that can be produced locally. Finally, demands driven by foreign exchange should be streamlined, with efforts directed towards localizing products such as petroleum, educational services, household goods and automobiles to reduce importation dependency. These would help to stabilize the value of the Naira and further foster economic growth.

## REFERENCES

Adebiyi, M.A, Dauda, R.O.S, (2007). Trade Liberalization Policy and Industrial Growth performance in Nigeria: An Error Correction Mechanism Technique, *being a paper presented at the 45th Annual Conference of the Nigerian Economic Society,* 24th to 26th August

Adeniran J.O, Yusuf S.A, Adeyemi O.A, (2014). The Impact of Exchange Rate Fluctuation on the Nigerian Economic Growth: An Empirical Investigation. *International Journal of Academic Research in Business and Social Sciences,* 4(8), 34-43

Adenekan, A,T, Sanni, G.T & Itodo, A.I(2019). CBN Economic and Financial Review, 57/3, September 2019

Adeyemi, G, Olawale, A, (2014). The Impact of Exchange Rate on Economic Growth in Nigeria (1980-2012). *Australian Journal of Business and Management Research,* 9 – 18.

Adeyemi, O.J, Oseni, I.O & Tella, S.A(2020). Currency depreciation and money demand in Nigeria, *KIU Journal of Social Sciences*, 6(2), 7-16

Ajaja, O.B(2022). The impact of persistent depreciation of the naira on the economic growth, *European Journal of Business and Management*,14(10), 66-73.

Anagun, A.M(2023). Naira devaluation: Its effects and possible solution, *Journal of Management*, 4(2), 34-47

Apergis, N. (2019). Long-run estimates of money demand: new evidence from East Asian countries and the presence of structural breaks. *Applied Economics, 47*(31), 3276- 3291.

Baye, F. M. (2018). The role of bilateral real exchange rates in demand for real money balances in Cameroon. *Modern Economy, 2*(03), 287.

Central Bank of Nigeria (2017). *Statistical Bulletin (Volume 28),* Central Bank of Nigeria. Garki, Abuja. Accessed online at the CBN Statistics Database on http://statistics.cbn.gov.ng/cbnonlinestats/DataBrowser.aspx

Eme O. A, Johnson A. A, (2018). Effects of Exchange Rate Movements on Economic Growth in Nigeria. *CBN Journal of Applied Statistics.* (2)2, 66-76

Farazmand, H., Ansari, M. S. & Moradi, M. (2016). What determines money demand: Evidence from MENA, *Economic Review,* 45(2), 151-169.

Howard, M. (2012). Exchange rate devaluation and the demand for real money balances in Jamaica. *Savings and Development, 26*(1), 33-48.

Micheal C. N, (2018). Effect of Naira Rate on Economic Growth in Nigeria. HARD International *Journal of Banking and Finance Research, 4*(1), 58 – 66.

Ndubuaku, V.C, Onwuika, K., Onyedika, C. Chimezie, I. C, (2019). Impact of Exchange Rate Fluctuation on Selected Economic Sectors of the Nigerian Economy. *International Journal of Sustainable Development & World Policy, 8(* 1), 21-36

Nwafor,M.C(2018). Effects of naira rate on economic growth in Nigeria, *International Journal of Banking and Finance*, 4(1), 58-66

Obandan, M.I (2006). *Overview of Nigeria's Exchange rate Policy and Management.* Lagos: C.B.N Publications.

Okaro, C.S.O(2017) Currency devaluation and Nigerian Economic growth(2000-2015), *Nigeria Journal of Social Development*, 6(1), 25-37

Oleka, P. (2014). *Macro Economics Theory and Practice*. Lagos: C.B.N Publication.

Udo, E, Udeaja, E.A(2019). Asymmetric effect of financial dollarization on nominal exchange rate volatility in Nigeria, The Journal of Economics Asymmetric, Elsevier, 19(6), 33-44

Victoria K.S, (2019). Exchange Rate Management and Economic Growth: An FMOLS Approach. *Munich Personal RePEc Archive (MPRA) Paper No. 93125*. April 2019.

Wasiu A. F, Abdulrahman I. N & Ibrahim S; (2019). Relative Effects of Exchange Rate and Interest Rate on Nigeria's Economic Growth. *Journal of Applied Economics and Business, 7*(2) ,28 – 37

West, K. (2012). *Monetary Policy and the Volatility of the Real Exchange Rate.* New Zealand: McGraw Hill companies.