
Fluctuating Exchange Rate and Nigeria's Economic Growth: A Time Series Assessment of Over Three Decades' Experience Using Interest Rate and Inflation Rates as Control Variables

Ejike Sunday Okoroigwe, PhD*

ejikesunday@ibbu.edu.ng

Department of Accounting, Ibrahim Badamasi Babangida University, Lapai, Nigeria

James Obilikwu, PhD

Department of Economics, Ibrahim Badamasi Babangida University, Lapai, Nigeria

Shuaib Ndagi Sayedi, PhD

Department of Business Administration, Ibrahim Badamasi Babangida University, Lapai, Nigeria

Abdullahi Babandako Yusuf, PhD

Department of Business Administration, Ibrahim Badamasi Babangida University, Lapai, Nigeria

doi: <https://doi.org/10.37745/ejaifr.2013/vol11n113458>

Published November 18 2023

Citation: Okoroigwe E.S., Obilikwu J., Sayedi S.N., Yusuf A.B. (2023) Fluctuating Exchange Rate and Nigeria's Economic Growth: A Time Series Assessment of Over Three Decades' Experience Using Interest Rate and Inflation Rates as Control Variables, *European Journal of Accounting, Auditing and Finance Research*, Vol.11, No. 11, pp.34-58

ABSTRACT: *This study examined the empirical investigation of the effect of fluctuating exchange rate on Nigeria's economy from 1986 to 2021. The specific objective is to determine the combined effects of exchange rate, inflation, interest rate on gross domestic product and the individual effect of exchange rate, inflation, interest rate on the gross domestic product. The data were obtained from the Central Bank of Nigeria (CBN) Statistical Bulletin and National Bureau of Statistics. The regression analysis to provide meaning to the research through which the following findings were made; this study depicts on exchange rate, inflation rate, and interest rate contribution to gross domestic product. The consequences of this examination have demonstrated that exchange rate, inflation rate, and interest rate are serious determinants of gross domestic product in the Nigerian Economic Growth. The factors (exchange rate, inflation rate and interest rate) when presented synonymously, have performed well regarding economic growth. The finding suggested that exchange rate, inflation rate and interest rate are determinants of gross domestic product. A practical assessment of these dimensions revealed that exchange rate, inflation rate and interest rate were effectively stabilized and they will achieve a greater significant benefit in terms of gross domestic product. The result shows that, the higher stability of exchange rate, inflation rate and interest rate the higher the possibility of gross domestic product of Nigeria, which will definitely have positive significant impact on economic growth of Nigeria.*

KEY WORDS: fluctuating exchange rate, exchange rate, interest rate, inflation rate, economic growth, Nigeria

INTRODUCTION

Money and foreign markets are vital parts of financial system in promoting financial intermediation and stability. Economic managers and investors depend on the activities of these markets by focusing on behavior of the key elements of the markets: interest rate and exchange rate to make informed macroeconomic and optimum portfolio management decisions. The behavior of the rates can be driven by the forces of demand and supply in the markets. That means, if at any given time, the demand for funds or foreign exchange is higher than the supply, the rates could increase; and reverse is the case when supply is higher.

In Nigeria, exchange rate has changed within the time frame from regulated to deregulated regimes. In 2016, the monetary authority implemented foreign exchange policy that further liberalized the foreign exchange rate market to deepen the market and mitigate market fluctuations. This was achieved by closing the retail window of exchange rate transaction (forex) transaction as well as allowing the authorized dealers in the market to sell foreign currency accruing from inward money remittances to licensed Bureau De Change operators (BDCs). Notwithstanding the immediate relative stability in exchange rate due to the policy, the volatility continued as the BDC exchange rate reached N363.46 per Us Dollar in December 2018 (CBN, 2018). Furthermore, the Central Bank of Nigeria (CBN) adopted contractionary and expansionary policies alongside symmetric and asymmetric corridors to realign interest rates in the money market. Evidently, the CBN reported that money market rates rose generally in 2017, which reflected the non-expansionary policy stance of the Bank; and foreign exchange intervention was one of the factors that contributed to the rise. Such policies intended to moderate exchange rate and interest rate volatility can be undermined by volatility spillover from any of the rates if the nature of the co-movement and spillover are not properly identified. In a bid to stabilize the foreign exchange market and achieve exchange rate convergence at the various segments of the market, the Bank adjusted the official naira interbank rate, by 15.0 per cent from N439.37/US\$ to N444.53/US\$, on November 28, 2022. In addition, adjustments were made in the International Exchange Rate (I&E rate) by 5.0 per cent, from N440/US\$ to N445/US\$; International Money Transfer Services (IMTOs) rate to banks was raised to N441/US\$; banks rate to CBN was raised to N442.35/US\$; CBN to BDCs rate was raised to N445/US\$; and BDCs to end-users was raised to maximum of N447/US\$.

Exchange rate regime and interest rate remain important issues of discourse in the International finance as in developing nations, with more economies embracing trade liberalization as a requisite for economic growth (Obansa et.al 2013). Exchange rate is the price of one country's currency expressed in terms of some other currency. It determines the relative prices of domestic and foreign goods, as well as the strength of an external sector participation in the international trade. The exchange rate of an economy has a crucial role to play as it directly affects all the macroeconomic variables such as: domestic price indicator, profitability of traded goods and services, allocation of resources and investment decisions, which explains why the monetary authorities and private

sectors seek stability in these variables (Udok-udom, 2019). As a matter of fact, exchange rate fluctuations are now the foundation for all economic activities globally, portraying exchange rate management as a major determinant of many countries economic policies (Asher, 2020). Exchange rate is an essential macroeconomic variable for formulating economic policies in general and of economic reform programs in particular in which these policies help accelerate the achievement of set macroeconomic goals. In Nigeria, these objectives include achieving and upholding balance of payment equilibrium, full employment, price stability, growth and development, even distribution of income. Exchange rate being the core of this current study may be described as the price of one currency in terms of another currency as buttressed by (Akpan, 2018), this rate is an exceptional price which governments is interested in.

Ewa, (2011) agreed that the exchange rate of the naira was relatively stable between 1973 and 1979 during the oil boom era when agricultural products accounted for more than 70% of the nation's gross domestic products (GDP). In 1986 when Federal government adopted Structural Adjustment policy (SAP) the country moved from a peg regime to a flexible exchange rate regime where exchange rate is left completely to be determined by market forces but rather the prevailing system is the managed float whereby monetary authorities intervene periodically in the foreign exchange market in order to attain some strategic objectives (Mordi, 2006). However, after this earlier stability, Nigeria exchange rate policies began to be unstable and have continued to be unstable till date. This inconsistency in policies and lack of continuity in exchange rate policies aggregated unstable nature of the naira rate (Aluko, 2021).

Recently, there is much debate regarding the policies needed to sustain rapid growth and promote productivity in the industrial sector in Nigeria. Questions about external competitiveness, exchange rate fluctuations, and the appropriate exchange rate policy have featured prominently in this debate (Benson, 2018).

Exchange rate fluctuations can have significant effects, for at least two reasons; first, even short-term real exchange rate volatility can impose large welfare costs (Benson, 2019). Especially in a constraint, such volatility reduces the level of international trade, affects investment decision, and hinders growth possibilities. Second, such welfare costs are magnified in case of prolonged and sustained exchange rate fluctuation, which can badly distort resource allocation. It is therefore critical both to understand the main determinants of the real exchange rate and to distinguish between short and long term real exchange rate movements in Nigeria. Macroeconomic policies can then be used to smooth "excessive" short-term changes and to correct any emerging misalignment (Benson, 2020).

Benson and Victor, (2019) and Aliyu, (2020) noted that despite various efforts by the government to maintain a stable exchange rate, the naira has depreciated throughout the 80's to date.

The number of units of a country's currency (the one used at home) relative to the currency of another country is referred to as the exchange rate. It is the suggested range of currency

denominations that can be used to exchange one or more units of one currency for another. Therefore, the ideal way to describe an exchange rate is as the value of one currency in relation to another (Mordi 2021).

According to Ngereboa and Ibe (2022), the exchange rate is the ratio of one unit of one medium of exchange to another unit at a particular moment in time. It determines the overall cost of both domestically produced and imported goods, as well as the level of foreign sector participation in international trade.

According to Hossain (2022), the exchange rate helps tie together the value systems of two very different countries by facilitating international trade, which has a direct impact on the volume of imports and exports as well as a country's balance of payments.

In a view of this background, this research study proposes to examine the impact of exchange rate on economic growth in Nigeria over a period of 36 years (1986 - 2021).

A few emerging nations used strict trade restrictions over the course of the last ten years to protect their indigenous industries. Many financial experts now have linked similar protectionist policies to the recent financial downturn.

Despite the abundance of literature on the topic, theoretical and empirical studies on the impact of exchange rate changes on economic growth in Nigeria have not yet led to a consensus. The two main themes in the literature review point in this direction. The first contends that exchange rate swings are unclear and will cost risk-averse economic agents, who would then react by marginally favoring domestic and foreign commerce. In other words, it might impede the expansion of global trade (Lawal Adedoyin Isola et.al 2016, Ufoeze et.al 2018, and Okuma 2020). According to the second school of thinking, if the economic agents are sufficiently risk-averse, an increase in the exchange rate improves the predicted marginal utility of export revenue, which motivates them to increase exports in order to raise their revenue. As a result, changes in exchange rates may actually cause trade movements (Nordhaus 2020, Bauwens 2021 and Sucarrat 2022).

There has not been much studies in Nigeria, in recent times, investigating causal relationship between exchange rate fluctuations and economic variables (Except for Ajayi 2019, EI-Eyung (2021) and Ufoeze 2021). This calls for further current studies in this area in Nigeria, especially given the present persistent fluctuations in Nigeria exchange rate in recent times and even presently.

Moreso, because there aren't enough trustworthy time series data, there haven't been many attempts in recent times to investigate them. The few studies mentioned above (Ajayi 2019, EI-Eyung (2021) and Ufoeze 2021) used only primary data. But primary data may not sufficiently show the impact of exchange rate fluctuations without looking at the economic statistics and data of Nigeria economy as published by authoritative bodies like the Central Bank of Nigeria, Nigeria Bureau of Statistics, etc.

Therefore, in order to provide solutions to these problems and fill the identified gaps, this study attempts to ascertain the effect of fluctuating exchange rates on Nigeria's economy using secondary data covering 1986-2021.

LITERATURE REVIEW AND THEORETICAL FRAMEWORK

The Concept of Economic Growth

When certain favorable conditions stimulate an economy, as they did during the Industrial Revolution in the United Kingdom, economic growth results. In rich countries, raising income levels are typically referred to as economic growth, while in developing nations; they are referred to as economic development (Jackson, 2019). Although their uses are well known, Peter (2021) expressed nearly the same opinions and claimed that while advanced countries are related to growth with the majority of their resources already known and developed to a significant extent, less developed countries are concerned with the development of untapped resources.

Economic growth is an increase in the capacity of an economy to produce goods and services, compared from one period of time to another. It can be measured in nominal or real terms, the latter of which is adjusted for inflation. Traditionally, aggregate economic growth is measured in terms of gross national product (GNP) or gross domestic product (GDP), although alternative metrics are sometimes used (Ewa 2020).

The quantity of goods and services produced from one year to the next as a percentage change is known as the economic growth rate. It is equivalent to the actual GDP growth rate (Abdullahi 2018)

Changes in Exchange Rate, Interest Rate and Inflation Rate as Proxies for Fluctuations in Exchange Rate

Exchange rate is the price at which a unit of country's currency is exchanged for another country's currency at any point in time. The price at which the Nigerian N1 is exchanged for \$1 is exchange rate. Ibenta (2018) defined exchange rate as the price of the unit of one country's currency quoted in terms of another country's currency, it is the mathematical, qualitative or quantitative expression of one country's currency in terms of another. Uddin, Rahman and Quaosa (2019) sees exchange rate as the domestic price of a unit of foreign currency and exchange rate can be called the conversion factor that determines the rate of change of currencies. For Danladi and Uba (2019), exchange rate is the price of one country's currency in relation to another country, or the required amount of units of a currency that can buy an amount of units of another currency. The management of exchange rate system has been on the ladder of every government today owing to its great influence on the external sector performance. A favorable exchange rate is expected to lower cost of living, especially for developing countries that rely heavily on imports for consumption like Nigeria, for instance.

In Nigeria the Central Bank of Nigeria (CBN) has significant influence on interest rates and setting up of monetary policies. Rogoffs and Reinharti (2019) asserted that monetary and fiscal policies play a major direct and indirect role in governmental efforts designed to expand economic activity in times of unemployment and surplus capacity and to contract that activity in times of excess demand and inflation. The level of interest rates and the aggregate supply of money in circulation are the two basic instruments of monetary policies which can either be achieved by controlling the growth of the money supply as argued by monetarist theorist or expanding the supply of money in circulation which in turn leads to excess demand thereby causing the interest rates to decline as argued by the Keynesian economists. These are easily achieved in developed countries where there is highly organized, economically interdependent and efficiently functioning money and credit market.

Inflation is one of the most frequently used terms in economic discussions, yet the concept is variously misconstrued. There are various schools of thought on inflation, but there is a consensus among economists that inflation is a continuous rise in the prices. Inflation is the persistent increase in the general price level within the economy which affects the value of the domestic currency (Fatukasi, 2019). It is not once and for all upward price movement but has to be sustained over time and affect all goods and services within the economy. Inflation is frequently described as a state where "too much money is chasing too few goods". When there is inflation, the currency losses purchasing power. The purchasing power of a given amount of naira will be smaller over time when there is inflation in the economy. For instance, assuming that N10.00 can purchase 10 shirts in the current period, if the price of shirts double in the next period, the same N10.00 can afford 5 shirts only, in the definition of inflation, two things must be borne in mind. First, is aggregate, which implies that the rise that constitutes inflation must cover the entire basket of goods in the economy as distinct from an isolated rise in the prices of a single commodity or group of commodities?

The implication here is that changes in the individual prices or any combination of prices cannot be considered as the occurrence of inflation. However, a situation may arise such that a change in an individual price could cause the other prices to rise. An example is petroleum product prices in Nigeria. This again does not signal inflation unless the price adjustment in the basket is such that the aggregate price level is induced to rise. Second, the rise in the aggregate level of prices must be continuous for inflation to be said to have occurred. The aggregate price level must show a tendency of a sustained and continuous rise over different time periods.

Impact of Fluctuating Exchange Rates on Nigeria's Economy

The influence of exchange rate on the economy became a major source of discourse in 1970s. This was due to mainly to the shift by many developing nations from a fixed conversion scale framework to a gliding conversion scale framework. Instability of swapping scale actuates

eccentrics and danger in speculation choices with subverting impact on the macroeconomic exhibition (Mahmood and Ali 2011). The Nigerian economy has been bedeviled by the challenge of instability in its foreign exchange rate market due to a high level of volatility (Kelikume and Nwani, 2019; Osabuohien et al., 2018). Exchange rate fluctuation is the continuous gyration in the foreign exchange market of nations which has emerged as the dominant subject of discussion in recent international finance literature owing to its fatal consequences on the economies of developing nations like Nigeria (Alagidede and Ibrahim, 2017; Barguellig et al., 2018; Senadza and Diaba, 2017).

In Nigeria, the formulation and implementation of the infamous Structural Adjustment Programme (SAP), a component of the Economic Recovery Program (ERP) in 1986, introduced financial sector reforms. Part of the reforms includes the jettisoning of the fixed exchange rates in favor of the free-floating regime in the late 1980s. This transition was conducted based on the assumption that flexible exchange rates would curb the boom-and-bust syndrome and turn the country towards a growth trajectory. The growth-enhancing impact emerging from the exchange rate channels are expected in the area of consumer price stability, volumes, investments and terms of trade. In Nigeria up to the time of the structural adjusted programmed (SAP), it appeared that Nigerian's exchange rate policy deliberately encourages overvaluation of the Naira because, in 1981, it was ₦1 to 0.90 cents.

This, invariably, encouraged imports and discourages non-oil export and over-dependence of the Nigerian economy on imported input over exported output. An economy with its import exceeds export will experience an unfavorable balance of payment, and such economy's currency will be devalued against other country currencies involved in trades. The exchange rate of that country to other currencies will be low in terms of value; for example, the Nigerian Naira to dollars is \$1 to ₦197.00, pounds-sterling's £1 to ₦281.29 etc. (Omoriegbe, 2020). The adverse impact of the global economic and financial crisis on the Nigerian exchange rate was a phenomenon as the Naira exchange rate to the dollar rose dramatically from about ₦120/\$ to more than ₦180/\$ between 2008 and 2009. This is linked to the sharp drop in foreign earnings and national revenue of Nigeria due to the continuous fall of crude oil price in the world market. The renewed emphasis on the production of alternatives to fossil-fuel energy, such as wind, bio-energy and solar, in the advanced economies has made the demand for crude oil decline and consequently led to a sharp drop in the prices from \$110 per barrel to below \$50 per barrel between mid-2018 and early 2019 and currently at \$38.77 per barrel in the last quarter of 2020.

This further weakened Nigeria's foreign earnings and revenues to finance priority sectors that will create jobs, boost economic activities, increase per capita income, and improve living standards. The results show that a comprehensive program of exchange rate reform is required to support the current exchange rate regime. The Ordinary Least Square method was used by Adeniran et al. (2021) to analyze the effect of exchange rate on economic growth in Nigeria utilizing data time-series from 1986 to 2020. The relationship between the exchange rate and

economic growth is positive but negligible. The exchange rate in Nigeria is crucial and promotes growth, the study claims, given the inverse relationship between the exchange rate and economic growth. Similar conclusions were reached by Obansa et al. (2020), Aslam (2021), and Adeniran et al. (2021). It follows that a properly managed exchange rate can increase Nigeria's capacity for economic growth.

Relationship between Interest Rate and Nigeria's Economy

The impact of interest rate in the economy cannot be overemphasized. The interest rate is an instrument for financial intermediary in the economy. It influences economics' savings and investment decisions. It also guides the flow of funds among investors and borrowers. These funds are channeled through financial intermediaries like Money Deposit Banks, money and financial markets, insurance companies, mutual funds, government securities, etc. The crucial role of the interest rate in the economy could be highlighted in the consumption and saving behavior of consumers and companies (Acha & Acha 2019). Changes in interest rates would influence consumer spending and the level of household savings, as well as business production and investment decisions. This behavior is best captured by the balance and imbalance positions of the goods and the money market sectors.

The goods sector presents the income and interest rate combinations at equilibrium, while the currency sector shows the relationship between the quantity of money requested and the quantity provided which describes the credit market representing the demand and supply of credit. The level of balance of production the economy is consistent with the balance of the goods and credit market; therefore, any deviation from the point of balance in any market will result in an adjustment of an interest rate (Eregha, 2020).

The study of the nexus between inflation and economic growth remain perennial and has given rise to different schools of thought. One of the prominent supporters of the positive relationship between inflation and economic growth is the structuralize view. This school of thought advocates that a moderate degree of inflation is reasonable for efficient economic mobilization. This is based on the assumption that an increase in prices as a result of inflation reduces the real wages and tends to increase the profits when wages lag behind. With this situation, income is transferred from economic units that have a lower propensity to save to those units with high propensity. The government thus can raise resources for development because people are forced to save (Doguwa, 2018; Enejoh & Tsauni, 2019; Mankiw, 2021). The positive contributions of inflation to economic growth are also propelled when there is an increase in the price, which stimulates workers to structurally change from the traditional subsistence sector to a more expanding industrialized sector, thus giving room for more optimal and full utilization of economic resources (Dewett & Navalur, 2021).

Despite this assertion that certain degrees of inflation foster the economic growth, most findings still reveal that inflation is detrimental to economic activities (Kasidi & Mwanemela, 2019;

Manoel, 2020; Mkhatshwa, Tijani, & Masuku, 2020). They posit that inflation needs to be reduced and kept to the barest and should not rise above a single digit. This is the view of the Monetarists and the Keynesians who assert that inflation has serious contagious effects as it discourages domestic production and creates a favorable atmosphere for foreign goods to compete with the domestic market, encourages deficit balance in the international payment transaction, uncertainty in the profitability of future investment projects, redistributes income in a haphazard way, reduction in purchasing power of money, which results in frequent agitations by a trade union to increase workers' salaries, interacts with the tax system to distort the decision between lenders and borrowers and above all places a huge toll on individuals with fixed income or fixed interest rate on assets (Al-Taeshi, 2019; Chude & Chude, 2020; Eggoh & Muhammad, 2020; Olu & Idih, 2022).

In addition to the main variable of interest (inflation rate), interest rate was added. This is because high interest rate reduces the volume of output of the real sector of the economy and hinders the borrowing capacity of the investors. With an increase in interest rate, the purchasing power of liquid cash declines and investors are scared away from making investment decisions. Also, the exchange rate was included because it is directly affected by the prevailing inflation rate in the country. For instance, depreciation or devaluation can encourage domestic production and boost private sector investment, which in turn can encourage export, thus improving the balance of payment of the country (Idris & Suleiman, 2021). Money supply was also added; this is premised on the understanding that inflation is caused as a result of monetary expansion, information regarding the current movements in the money supply is important in conditioning expectations (Rousseau & Wachtel, 2021; Shuaib, Augustine, & Frank, 2022). Other added variables are trade openness and government consumption expenditures.

Theoretical Framework

The theory of purchasing power parity (PPP) underpins the findings of this current research. The theory illustrates the relation between prices and exchange rate. Even though the origins of the PPP concept is traceable to the Salamanca School back in the 16th-century Spain, its modern use as a theory of exchange rate determination began with the work of Gustav Cassel (2018), who recommended PPP as a means of amending pre-World War I exchange rates parities for countries resolved to return to the gold standard system after the conflicts ended. Some modification was necessary because countries that left the gold standard in 1914 witnessed extensively different rates of inflation during and after the war. As a principle of exchange rate determination, the easiest and powerful form of PPP (i.e. absolute PPP) is based on an international multi-good edition of the law of one price. Absolute PPP envisage that the exchange rate should adjust to equate the prices of national baskets of goods and services between two countries because of market forces driven by arbitrage.

METHODOLOGY

The study adopted quantitative research design in analyzing the data because the figure on the GDP, exchange rate, interest rate and inflation rate are already contained in the Central Bank of Nigeria bulletin and Nigeria economic indicator.

The scope of this study comprises of the gross domestic product (GDP) of the country as a whole, it also includes exchange rate, interest rate and inflation rate. In the light of this, it is restricted to data from Central Bank of Nigeria bulletin and Nigeria economic indicator for the study. The study are restricted to economic growth (GDP), exchange rate, interest rate and inflation rate from 1986 - 2021 in Nigeria for the period of thirty five years. Data were collected from Central Bank of Nigerian Statistical Bulletin and National Bureau of Statistics.

Sources and Methods of Data Collection

For the purpose of this study, data were collected from secondary source that is, data from Central Bank of Nigerian Statistical Bulletin and National Bureau of Statistics. The statistics were used to obtain data on economic growth (GDP), exchange rate, interest rate and inflation rate from 1986 - 2021 period of study.

Definition and Measurement of Variables

The variables of this study comprises of two sets: (1) the dependent and (2) independent variables.

The Dependent Variable:

The dependent variable used in the current study is one and measured as follows: **Economic Growth (GDP)**

Economists use many different methods to measure how fast the economy is growing. The most common way to measure the economy is real gross domestic product, or real GDP. GDP is the total value of everything (goods) and services (produced) in our economy, the word "real" means that the total has been adjusted to remove the effects of inflation (Benson and Victor, 2020).

There are at least three different ways to measure growth of real GDP. It is important to know which is being used, and to understand the differences among them. The three most common ways to measure real GDP are:

- Quarterly growth at an annual rate
- The four-quarter or "year-over-year" growth rate
- The annual average growth rate

According to James Chen (2021) "quarterly growth at an annual rate is an increase in the real GDP in one quarter compared to GDP of a different quarter. The current quarter's GDP figure can be

compared on a year-over-year basis or sequentially (This process is often called annualizing). This gives analysts, investors, and additional stakeholders ideas of how much an economy GDP are increasing over time."

A year-over-year calculation compares a statistic for one period to the same period the previous year. The period is for a month or quarter basis. The year-over-year growth rate calculates the percentage change during the past twelve months (Kimberly Amadeo 2022). That is because the effect of any special factors does not get compounded. But it is also less timely, since it looks at what happened to the economy over the entire previous year, not just the past three months.

Average annual growth rate (AAGR) is also called simple growth rate or annual growth rate. Average annual growth rate is a measure of the increase in the value of an investment or revenue stream in a given year. Annual growth rate is represented in a formula that divides yearly growth at the beginning of a year by the total value of that growth at the end of the year. Annual growth rate is usually calculated as a percentage to help investors visualize the growth amount (Indeed Editorial Team 2021).

This study adopted the annual average growth rate use in taking the natural log of changing in per cent by the previous researchers.

Independent variable

The independent variable used in the current study is one and measures as follows:

Exchange Rate

Exchange rate, is the rate at which a currency purchases another (Jhingan, 2016), it is a reflection of the strength of a currency when measured against another country's currency. According to Oloyede (2015), it is the price of one currency in terms of another, which is an important decision making variable in every nation, thus making it a crucial issue for any country desirous of economic growth as pointed out by Ahmed and Zarma (2018). It was measure by taking the natural log of the real exchange rate.

ENRT = log of real exchange rate

Control variables

The control variables used in the current study comprise of two measures:

Interest Rate

The level of interest rates and the aggregate supply of money in circulation are the two basic instruments of monetary policies which can either be achieved by controlling the growth of the money supply as argued by monetarist theorist or expanding the supply of money in circulation

which in turn leads to excess demand thereby causing the interest rates to decline as argued by the Keynesian economists. Todaro and Smith (2015) asserted that monetary and fiscal policies play a major direct and indirect role in governmental efforts designed to expand economic activity in times of unemployment and surplus capacity and to contract that activity in times of excess demand and inflation and it was measured by taking the natural log of annual interest rate. $INRT = \log$ of annual interest rate

Inflation Rate

According to Jhingan (2016) refers to inflation as a persistent and appreciable rise in the general level of prices and it was measured by taking the natural log of annual inflation rate.

$INFRT = \log$ of annual inflation rate.

Research Model

The study used descriptive statistics, correlation, and regression techniques in analyzing the data for the study, using SPSS (Statistical Package for the Social Science). The study specifies a model which attempts to determine the relationship between X and Y. The dependent variable is economic growth (GDP) while the independent variables are exchange rate, interest rate and inflation rate.

The Ordinary Least Square Regression analysis shall form the main procedure to be followed in testing our hypotheses in this work. $GDP = \beta_0 + \beta_1 (ENRT) + \beta_2 (INRT) + \beta_3 (INFRT) + \epsilon$
Where:

β_0 = Constant's coefficient

$\beta_1 - \beta_3$ = regression coefficients for independent variables

GDP = Economic Growth (Gross Domestic Product)

ENRT = Exchange Rate

INRT = Interest Rate

INFRT = Inflation Rate

ϵ = Error

Instrument Validity and Reliability

To ensure validity of the research instrument the researcher submitted the World Bank CBN Bulletin to the project supervisor for verification and approval before declaring valid and also to ensure that the study does not deviate from the scope.

The researcher ensured that the instrument was evaluated to ensure their relevance to the study. Justification for establishing the validity of the instruments ascertained whether the instruments provided for the responses the researcher. To ensure the reliability of the instruments, the researcher pre tested the Central Bank of Nigeria (CBN) Bulletin before using it. The pretest assisted the researcher to clarify the contents by modifying them and removing all the ambiguities. Data collection tools pilot tested in order to ascertain their ability to solicit the relevant responses to support the study. The justification for establishing the reliability of the instruments determined the consistency, relevancy and clarity of the Central Bank of Nigeria (CBN) Bulletin 2021.

DATA PRESENTATION, ANALYSIS AND INTERPRETATION

Table 4.2: Regression

This section presents the regression result of changes in exchange rate, interest rate and inflation, as proxies for fluctuations in exchange rate, on Gross Domestic Product of Nigeria as proxy for economic growth for the period 1986-2021.

Table 4.1: Descriptive Statistics: Combined Effect of the independent variables on dependant variable.

	Mean	Std. Deviation	N
Gross domestic product.	2.03	1.141	35
Exchange rate	2.08	.677	35
Inflation rate.	2.56	1.131	35
Interest rate.	2.90	.948	35

Source: Author’s computation (2023)

The above table 4.1 indicates that the key values was perfectly filled and there was no missing value during the process of data collection on the effect of fluctuation on Nigeria economy such as exchange rate, inflation rate and interest rate.

Table 4.2: Variables Entered/Removed^a : Combined Effect of the independent variables on dependant variable.

Model	Variables Entered	Variables Removed	Method
1	Inflation rate Exchange rate Interest rate ^b	.	Enter

A. Dependent Variable: Gross Domestic Product

b. All requested variables entered.

Source: Author’s computation (2023)

Table 4.2 above shows the total number of independent variables entered and removed when analyzing data on SPSS. The effect of fluctuation on Nigeria economy such as exchange rate,

inflation rate and interest rate, were converted to present an independent variable ^(b) in other to compare the relationship of the dependent variable and independent variables.

Table 4.3: Model Summary: Combined Effect of the independent variables on dependant variable.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. Change
1	.492 ^a	.242	.171	2.741	.186	7.295	3	96	.000

a. Predictors: (Constant), exchange rate, inflation rate and interest rate

source: **Author’s computation (2023)**

From table 4.3 above, the coefficient of correlation value (R) is given as 0.492. This figure elaborates that there is a positive relationship up to 400% between the dependent variable (gross domestic product) and the independent variables (exchange rate, inflation rate and interest rate). In a nutshell, it shows that if there is less fluctuation in exchange rate there will be high economic growth. The adjusted R-square for the number of independent variables and the number of cases was done through SPSS which is 0.171. The R square is given as 0.242, as shown in the table above.

Table 4.4: ANOVA^a: Combined Effect of the independent variables on dependant variable.

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	76.824	3	25.608	3.407	.029 ^b
	Residual	240.497	32	7.516		
	Total	317.320	35			

a. Dependent Variable: gross domestic product

b. Predictors: (Constant), Combined effect of exchange rate, inflation rate and interest rate on Gross Domestic Product

Source: Author’s computation (2023)

The above table 4.4 shows the mean square of regression score as 25.608 and the residual value as 7.516. It also depicts the significant level of the three independent variables i.e (exchange rate, inflation rate and interest rate when combined). The significance value is 0.029 which is greater than 0.00. This means that the stated variables have combined positive significant effects on gross domestic product. Also, since F statistics is 3.407 ANOVA table is significant.

Table 4.5: Coefficientsa: Combined Effect of the independent variables on dependant variable.

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
	B	Std. Error				Lower Bound	Upper Bound	Zero-order	Partial	Partial	Tolerance	VIF
(Constant)	6.450	2.427		2.658	.012	2.073	4.439					
1 Exchange rate	-.010	.004	-.457	-2.460	.020	-.214	.422	.128	.066	.060	.873	1.065
Inflation rate	.036	.122	.058	.292	.772	-.183	.193	-.013	.005	.005	.898	1.038
Interest rate	-.057	.032	-.316	-1.823	.078	-.725	-.279	-.427	-.415	-.411	.923	1.027

a. Dependent Variable: Gross domestic product

Source: Author’s computation (2023)

The table 4.5 above also shows the significant level of independent variables which are highly significant when they all are presented and correlated to affect Gross Domestic Product. The significant value of exchange rate is 0.020; inflation rate has 0.772, and interest rate has 0.078. The above table shows the coefficient level of the independent variables. The tolerance levels of the three independent variables are 0.873, 0.898, and 0.923, since the values are not very low near zero (0.000), then this indicates that the variables are quite respectable. Also, the collinearity statistical test is perfect because the values of Variance Inflation Factor (VIF) are not more than 10. From the table above, the multiple regressions is obtained as follows:

$$Y = -0.010 + 0.036 + (-.057)$$

Table 4.6
Descriptive Statistics: Effect of exchange rate alone on the Gross Domestic Product.

	Mean	Std. Deviation	N
Gross domestic product.	2.03	1.141	35
Exchange rate	2.08	.677	35

Source: Author’s computation (2023)

The above table 4.6 indicates that the key values was perfectly filled and there was no missing value during the process of data collection on the effect of fluctuation on Nigeria economy such as exchange rate.

Table 4.7: Variables Entered/Removed^a: Effect of exchange rate alone on the Gross Domestic Product.

Model	Variables Entered	Variables Removed	Method
1	Exchange rate	.	Enter

A. Dependent Variable: Gross Domestic Product

b. All requested variables entered.

Source: Author's computation (2023)

The table 4.7 above shows the total number of independent variables entered and removed when analyzing data on SPSS. The effect of Exchange rate on Nigeria economy was imported as the independent variable (^b) in other to compare the relationship of the dependent variable and independent variable.

Table 4.8: Model Summary: Effect of exchange rate alone on the Gross Domestic Product.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.399 ^a	.159	.134	2.802	.065	6.508	1	96	.000

a. Predictors: (Constant), exchange rate.

Source: Author's computation(2023)

From the above table 4.8, the coefficient of correlation value (R) is given as 0.399. This figure elaborate that there is positive relationship up to 300% between the dependent variable (gross domestic product) and the independent variable (exchange rate,). In a nutshell, it shows that if there is less fluctuation in exchange rate there will be high economic growth. The adjusted R-square for the number of independent variables and the number of cases was done through SPSS which is 0.134. The R square is given as 0.159, as shown in the above table.

Table 4.9: ANOVA^a: Effect of exchange rate alone on the Gross Domestic Product.

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	50.464	1	50.464	6.430	.016 ^b
	Residual	266.856	34	7.849		
	Total	317.320	35			

a. Dependent Variable: gross domestic product

b. Predictors: (Constant), exchange rate.

Source: Author’s computation(2023)

The above table shows the mean square of regression score as 50.464 and the residual value as 7.849. It also depicts the significant level of the one independent variable i.e (exchange rate). On the table which is greater than 0.00 which means that the stated independent variable (exchange rate) has positive significant effect on gross domestic product. Also, since F statistics is 6.430 ANOVA table is significant.

Table 4.10: Coefficients^a: Effect of exchange rate alone on the Gross Domestic Product.

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95.0% Confidence Interval for B		Correlations			Collinearity Statistics		
	B	Std. Error				Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF	
1	(Constant)	5.791	.698		8.295	.000	2.073	4.439					
	Exchange rate	-.009	.004	-.399	-2.536	.016	-.214	.422	.128	.066	.060	.873	1.065

a. Dependent Variable: Gross domestic product

Source: Author’s computation (2023)

The table 4.10 above also shows the significant level of independent variable (exchange rate) which is highly significant. The significant value of exchange rate is 0.016. The above table shows the coefficient level of the independent variable. The tolerance levels of the one independent variable is 0.873 since the value is not very low near zero (0.000), then this indicates that the

variable is quite respectable. Also, the collinearity statistical test is perfect because the value of Variance Inflation Factor (VIF) is not more than 10. From the table above, the multiple regressions is obtained as follows: $Y = -0.009(5.791)$

Table 4.11
Descriptive Statistics: Effect of interest rate alone on the Gross Domestic Product.

	Mean	Std. Deviation	N
Gross domestic product.	2.03	1.141	35
Interest rate.	2.90	.948	35

Source: Author's computation (2023)

The above table 4.11 indicates that the key value was perfectly filled and there was no missing value during the process of data collection on the effect of fluctuation on Nigeria economy such as interest rate.

Table 4.12: Variables Entered/Removed^a: Effect of interest rate alone on the Gross Domestic Product.

Model	Variables Entered	Variables Removed	Method
1	Interest rate	.	Enter

A. Dependent Variable: Gross Domestic Product

b. All requested variables entered.

Source: Author's computation (2023)

The table above shows the total number of independent variables entered and removed when analyzing data on SPSS. The effect of exchange rate fluctuation on Nigeria economy using interest rate as independent variable was regressed in other to compare the relationship of the dependent variable and independent variable.

Table 4.13: Model Summary: Effect of interest rate alone on the Gross Domestic Product.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.168 ^a	.028	-0.000	3.012	.046	4.70	1	96	.000

a. Predictors: (Constant)Interest rate

Source: Author’s computation(2023)

From the above table 4.13, the coefficient of correlation value (R) is given as 0.168. This figure elaborates that there is a positive relationship up to 100% between the dependent variable (gross domestic product) and the independent variable (interest rate). In a nutshell, it shows that if there is less fluctuation in inflation rate, there will be high economic growth. The adjusted R-square for the number of independent variables and the number of cases was done through SPSS, which is -0.000. The R square is given as 0.028, as shown in the table above.

Table 4.14: ANOVA^a: Effect of interest rate alone on the Gross Domestic Product.

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	8.944	1	8.944	0.986	.328 ^b
	Residual	308.376	34	9.070		
	Total	317.320	35			

a. Dependent Variable: gross domestic product

b. Predictors: (Constant), Interest rate.

Source: Author’s computation(2023)

The above table 4.14 shows the mean square of regression score as 8.944 and the residual value as 9.070. It also depicts the significant level of the one independent variable, i.e. (interest rate). On the table, it is greater than 0.00, which means that the stated variable has positive significant effects on gross domestic product. Also, since F statistics is 0.986, the ANOVA table is significant.

Table 4.15: Coefficients^a: Effect of interest rate alone on the Gross Domestic Product.

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
	B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
(Constant)	2.684	1.872		1.434	-1.120	2.073	4.439					
Interest rate	.102	.103	.168	.993	-.107	-.725	-.279	-.427	-.415	-.411	.923	1.027

a. Dependent Variable: Gross domestic product

Source: *Author's computation (2023)*

The table 4.15 above also shows the significant level of independent variable which is highly significant. The significant value of interest rate is -0.107. The above table shows the coefficient level of the independent variable. The tolerance levels of the one independent variable is 0.923. Since the value is not very low near zero (0.000), then it shows that the variables are quite respectable. Also, the co linearity statistical test is perfect because the value of Variance Inflation Factor (VIF) is not more than 10. From the table above, the multiple regressions is obtained as follows: $Y = 0.102(2.684)$

Table 4.16

Descriptive Statistics: Effect of inflation rate alone on the Gross Domestic Product.

	Mean	Std. Deviation	N
Gross domestic product.	2.03	1.141	35
Inflation rate.	2.56	1.131	35

Source: *Author's computation (2023)*

The above table 4.16 indicates that the key values were perfectly filled and there was no missing value during the process of data collection on the effect of fluctuation on Nigeria economy such as inflation rate.

Table 4.17: Variables Entered/Removed^a: Effect of inflation rate alone on the Gross Domestic Product.

Model	Variables Entered	Variables Removed	Method
1	Inflation rate		Enter

A. Dependent Variable: Gross Domestic Product

b. All requested variables entered.

Source: *Author's computation (2023)*

The table above shows the total number of independent variable entered and removed when analyzing data on SPSS. The effect of fluctuation on Nigeria economy such as inflation rate, were converted to present an independent variable ^(b) in other to compare the relationship of the dependent variable and independent variable.

Table 4.18: Model Summary: Effect of inflation rate alone on the Gross Domestic Product.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.158 ^a	.025	-0.004	3.016	.065	6.508	1	96	.000

a. Predictors: (Constant), exchange rate, inflation rate and interest rate

Source: Author’s computation(2023)

From the above table 4.18, the coefficient of correlation value (R) is given as 0.158. This figure elaborates that there is a positive relationship up to 100% between the dependent variable (gross domestic product) and the independent variable (inflation rate). In a nutshell, it shows that if there is less fluctuation in inflation rate, there will be high economic growth. The adjusted R-square for the number of independent variables and the number of cases was done through SPSS, which is -0.004. The R square is given as 0.025, as shown in the table above.

Table 4.19: ANOVA^a: Effect of inflation rate alone on the Gross Domestic Product.

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	7.968	1	7.968	0.876	.356 ^b
	Residual	309.353	34	9.099		
	Total	317.320	35			

a. Dependent Variable: gross domestic product

b. Predictors: (Constant), exchange rate.

Source: Author’s computation(2023)

The above table 4.19 shows the mean square of regression score as 7.968 and the residual value as 9.099. It also depicts the significant level of the one independent variable, i.e. (inflation rate). On the table, which is greater than 0.00, which means that the stated variable has positive significant effects on gross domestic product. Also, since F statistics is 0.876, the ANOVA table is significant.

Table 4.20: Coefficients^a: Effect of inflation rate alone on the Gross Domestic Product.

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
	B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
(Constant)	5.022	.771		6.514	.000	2.073	4.439					
1 Inflation rate	-.029	.031	-.158	-.936	.356	-.183	.193	-.013	.005	.005	.898	1.038

a. Dependent Variable: Gross domestic product

Source: *Author's computation (2023)*

The table 4.20 above also shows the significant level of independent variables which is highly significant. The significant value of inflation rate is 0.356. The above table shows the coefficient level of the independent variables. The tolerance level of the one independent variable is 0.893. Since the value is very low near zero (0.000), then this indicates that the variable is quite respectable. Also, the collinearity statistical test is perfect because the value of Variance Inflation Factor (VIF) is not more than 10. From the table above, the multiple regressions is obtained as follows: $Y = -0.029(5.022)$

DISCUSSION OF FINDINGS

Data gathered from the Central Bank of Nigeria Bulletin and Bureau Statistics (on exchange rate, inflation rate and interest rate) for thirty-five years 1986-2021 were compiled, processed, presented, analyzed and interpreted using multiple regressions analysis to provide meaning to the research through which the following findings were made; this study depicts on exchange rate, inflation rate, and interest rate contribution to gross domestic product. The consequences of this examination have demonstrated that exchange rate, inflation rate, and interest rate are serious determinants of gross domestic product in the Nigerian Economic Growth. The factors (exchange rate, inflation rate and interest rate) when presented synonymously, have performed well regarding economic growth. The finding suggested that exchange rate, inflation rate and interest rate are determinants of gross domestic product. A practical assessment of these dimensions revealed that exchange rate, inflation rate and interest rate were effectively stabilized and they will achieve a greater significant benefit in terms of gross domestic product. The result shows that, the higher stability of exchange rate, inflation rate and interest rate the higher the possibility of gross domestic product of Nigeria, which will definitely have positive significant impact on economic growth of Nigeria.

In further discussion of findings, evidence have also shown that the independent variables (exchange rate, interest rate, inflation rate respectively) have individual positive and significant impact on Nigeria economy (GDP) even in the absence of the other independent variables. The analytical results of previous studies such as the stability test result also indicate that the coefficients are stable over the study period. Thus, the entire model can be relied upon for policy formulation and forecast.

SUMMARY, CONCLUSION AND RECOMMENDATIONS

The study focuses on an empirical investigation of effect of fluctuating exchange rate on Nigeria's economy and it is made up of five chapter. It begins with introduction which comprises of Background of the study, statement of the problems, research question, and objective of study etc .The next chapter shows the literature review which includes issues like, conceptual framework, empirical framework and theoretical framework.

This is followed by the Research methodology which includes the source and method of data collection used in the research. In this project secondary source of data from CBN Statistical Bulletin and data from National Bureau of Statistics were used. The population and sampling technical were also presented.

Data presentation and analysis were done using table, descriptive statistics, correlation, and regression techniques. The result discovered that exchange rate, interest rate and inflation rate has no significant impact on Nigeria's economy.

The study centered on the empirical investigation of the relationship between the exchange rates, inflation rates and interest rates (measured by annual GDP growth) in Nigeria. In addition to exchange rates, effect of inflation rates and interest rates on GDP growth was equally investigated. The findings are summarized as follows;

Firstly, exchange rate has a significant negative relationship with GDP growth in the short run , which implies that increase in exchange rate is detrimental to the growth of the Nigerian economy. The implication of exchange rate on macroeconomic performance has remained a source of concern to policymakers and researchers following the growing integration of the domestic economy to the rest of the world. Similarly, inflation rate has a significant negatively effect on GDP in both long and short run. There is evidence of a significant effect of interest on GDP in the long run.

Consequently, this study examined the combination of the three independent variables on the dependant variable i.e exchange rate, inflation rate and interest rate on the GDP in Nigeria. The findings showed that exchange rate, interest rate and inflation rates negatively impacted on

Nigeria's economic growth. This finding indicates that simultaneous increase in exchange rates, interest rates and price level is detrimental to growth of the Nigerian economy.

Based on findings, this study concludes that simultaneous increase in exchange rate, interest rate and inflation rate undermine the growth of Nigerian economy.

From the findings and conclusions, the study recommends the following;

Firstly, The Federal government through the CBN should ensure that exchange rate policy should be consistent to provide opportunity for a realistic and stable exchange rate capable of driving economic growth in Nigeria. Secondly, Policymakers should promote price stability by mitigating inflationary pressures through inflation targeting which has the potential to stimulate the growth of the Nigerian economy. Thirdly, The monetary policy committee (MPC) should ensure that interest rate remain at a level capable of promoting investments to enhance economics growth in Nigeria.

REFERENCES

- Aghin et al (2017). Exchange rate volatility and productivity growth: The role of financial development. *Journal of Monetary Economics* 4:494-513[Google Scholar][CrossRef][Green Version]
- Akpan, P.L (2018). Foreign exchange market and economic growth in an emerging petroleum Based Economy: Evidence from Nigeria (1990-2019). *African Economic and Business Review*.
- Aliyu, S. R. U. (2020). Impact of oil price shock and exchange rate volatility on economic growth in Nigeria: An empirical investigation. MPRA Paper 16319, University Library of Munich, Germany, rev. 10 Jun 2020
- Aluko, A. O. & Otonaniyohuwo, F. O (2021). "Impact of exchange rate on balance of payment in Nigeria," *An International Multidisciplinary Journal*, 5 (4), (2021): 73–88.
- Benson, U. O. and Victor, E. O. (2019). Real exchange rate and macroeconomic performance: Testing for the balassa-samuelsom hypothesis in Nigeria. *International Journal of Economics and Finance*, 4(2): 127-34.
- Jhingan, M .L.(2015). *Macroeconomic Theory*, Vrinda publications Ltd, Delhi, pg. 697
- Jhingan M. L.(2018). *International Economics*, 5th Edition, Vrinda publications (P) Limited Delhi.
- Lawal A., et.ai (2016). "Synchronized business cycles in East Asia and fluctuations in the Yen/Dollar exchange rate," *The world economy*, 26(8), (2016): 1067–108
- Mordi, M.C. (2021). Challenges of Exchange Rate Volatility in Economic Management of Nigeria, in the Dynamics of Exchange Rate in Nigeria
- Obansa, S. A., Okoroafor, O. K., Aluko, O. O., &Eze, M. (2013). Perceived relationship between exchange rate, interest rate and economic growth in Nigeria (1970-2013). *American Journal of Humanities and Social Sciences*. 1 (3), 116-124.

European Journal of Accounting, Auditing and Finance Research

Vol.11, No. 11, pp.34-58, 2023

Print ISSN: 2053-4086(Print),

Online ISSN: 2053-4094(Online)

Website: <https://www.eajournals.org/>

Publication of the European Centre for Research Training and Development-UK

Todaro, M.P. & Smith, S. C. (2015). Economic Development (8th Ed.). Delhi: Pearson Educational (Singapore) PTE Ltd.