EFFECTS OF FOREX TRADING ON ECONOMIC GROWTH OF NIGERIA

Chidi-Okeke Chioma Nnenna [1], Chukwu Kenechukwu Origin [2] , Jisike Okonkwo [3]
Department of Banking and Finance, Nnamdi Azikiwe University, Awka, Nigeria

Abstract: *This study investigated the effect of Forex Trading on Economic Growth of Nigeria (1995-2021) using secondary data from Statistical bulletin of Central Bank of Nigeria. The research work used vector autoregressive (VAR) techniques to test the effect between the independent variables (CBN's Supply of Forex, Exchange Rate, and Foreign Exchange Reserve) on the dependent variable (gross domestic product). The study found that forex trading has insignificant effect on Nigeria economic growth within the period of the study. As a result, the study recommends that the government encourage export-oriented industries, diversify the economy, and invest in infrastructure. Additionally, there is a need to improve forex market liquidity and strengthen forex reserve management. Similarly, there is a need to encourage remittances from abroad while also ensuring collaboration among the government, central bank, and other relevant stakeholders in developing and implementing coordinated policies that support forex trading and economic growth.*
Keywords: *Forex Trading and RGDP*

Introduction

Trading of forex is seen as a lucrative activity for all sorts of traders and investors. Such activities can help traders improve their financial position and generate more income. By trading foreign currencies, economic agents are also able to acquire foreign currency denominations for international trading activities that improve economic growth. However, there are certain conditions under which forex trading will be beneficial to investors and the economy at large. Such conditions include; availability of adequate foreign reserves, unified trading system, advantageous international policies, strong currency value and high demand for the country's exports among other things. Unfortunately, the situation in Nigeria leaves a lot to be desired; dwindling foreign reserves implies that foreign currencies are scarce and are therefore expensive; the naira keeps depreciating in value; Nigeria is highly import-dependent and most of her exports revenue are oil-related leaving the country exposed to the pressures of volatile global oil prices; and to crown it all, there is a vast gap between the parallel market exchange rate and the black market exchange rate (Musa, 2020). Under these conditions, the naira has continued to depreciate making imports very expensive and leading to inflationary pressures and economic hardship in Nigeria. Substantially, the depreciation of exchange rate has also undermined international competitiveness of non-oil exports through trade openness which is inimical to the growth of the economy (Musa, 2020).

Foreign exchange trading in Nigeria has a rich history that spans several decades. The country's foreign exchange market has evolved over time, playing a significant role in its economic development. Akpan and Atan (2012) observed that foreign exchange market in pre-1970s was initially under strict control by the government. The Central Bank of Nigeria (CBN) held a monopoly on foreign exchange transactions, limiting

market participants and regulating the exchange rate. He also observed that between the period 1970s and 1980s Nigeria experienced significant oil price fluctuations and foreign exchange shortages. Consequently, various measures were implemented, such as multiple exchange rate systems and import license requirements, to manage the country's limited foreign exchange reserves. In 1990s structural adjustment programs (SAPs) was introduced to address economic challenges. As part of these reforms, the foreign exchange market was liberalized to encourage private participation and reduce the role of the CBN, the official fixed exchange rate was replaced by a managed floating exchange rate system. Individuals, banks, and other financial institutions in Nigeria increased their participation in the foreign exchange market by 2000, according to Nwafor (2018). The Interbank Foreign Exchange Market (IFEM) was created, allowing banks to directly trade foreign currencies. Furthermore, the CBN implemented the Wholesale Dutch Auction System (WDAS) to improve transparency and price discovery. He also stated that the Nigerian foreign exchange market continued to evolve after the year 2000, with the CBN implementing various policies to stabilize the exchange rate, combat inflation, and manage capital flows. To attract investment and boost foreign currency inflows, a window for Investors & Exporters (I&E) foreign exchange trading was established. It is important to note that Nigeria has faced challenges related to foreign exchange, including multiple exchange rates, capital flight, currency devaluation, and forex reserve fluctuations. The CBN has implemented several measures to address these issues, while the government has pursued diversification of the economy to reduce dependence on oil exports.

These issues have distorted the theoretical benefits of forex trading on the Nigerian economy. Empirical studies have also yielded contrasting results, making it difficult to ascertain the effects of forex trading on the economic growth of Nigeria. Oleka et al. (2014) noted that the nature of foreign exchange and the value of a country’s currency determine the level of growth in her economy, citing that weak exchange rates may be a signal of economic instability or recession. While some studies found significant positive effects of foreign exchange on economic growth (Abdu et al., 2021; Onomereroso ,2021; Aslam, 2017; Eze & Okpala, 2014), some found that foreign exchange depreciation negatively affected economic growth (Alam, Hasan & Hoque, 2021; Musa, Mohammed, Mohammed & Adamu, 2019; Musa, Maijama, Shaibu & Muhammad, 2019; Nwosu, 2016). More so, some studies concluded that foreign exchange activities did not significantly affect economic growth (Akinbode, Fapetu, Olabisi & Ojo, 2019; Ismaila, 2016).

Despite all the uncertainties surrounding the economic implications of forex trading in Nigeria, many investors and economic agents still see it as a profitable venture and a driver of economic activities. It is therefore necessary to conduct recent research to ascertain the effects of forex trading on economic growth in Nigeria. This article's content is divided into segments. Section one provided a thorough introduction, and Section two reviewed pertinent literature. Theoretical framework for the third section. Section four described in detail the methodology used. Sections five, results and explanation of the data analysis’s and section six, the study's conclusion and its implications for policy, follow.

Literature Review

Foreign exchange refers to those foreign assets that are readily available to and controlled by monetary authorities for direct financing of payments imbalances through intervention in exchange markets to stabilize the currency exchange, and/or for other purposes (Alabi, Ojuolap & Yusuf, 2017). According to Oleka, Sabina and Mgbodile, (2014) defined foreign exchange trading as the process of trading domestic currencies for foreign ones at the prevailing exchange rate. The demand and supply of foreign currency determines the exchange rate and as a result when there is excess demand for foreign currency, the CBN increases supply of Forex to match this demand and stabilize the value of the Naira. On the other hand, when there is less demand for foreign exchange, the CBN reduces its supply of Forex (Nwafor, 2018).

The Foreign Exchange Market

The foreign exchange market is a globally decentralized market for trading convertible currencies through a global network of banks, corporations and individuals. The market which is mostly driven by speculation, arbitrage and professional dealings operates "over the counter" with enormous turnover. This huge turnover has made the market the largest financial market in the world. A huge volume of trading transactions at the market is done largely on electronic trading platforms and the 24-hour dealing desk. Trading at the global foreign exchange market is done by large global investors and retail individuals with computer-driven algorithmic trading strategies. The synergy from these market participants has greatly fine-tuned and set new standards for the global financial market in general (CBN Research Department, 2016).

The Structure of the Nigerian Foreign Exchange Market

The Nigerian foreign exchange market has evolved over the years in line with changing macroeconomic fundamentals and in a bid to ease foreign exchange demand pressures and stabilize the Naira exchange rate. This evolution has resulted in the following sub-markets in Nigeria;

Official Foreign Exchange Market

This window is operated by the CBN for market interventions. The CBN uses it to sell (supply) foreign exchange to authorized dealers. The CBN is the largest single supplier of foreign exchange in this market by virtue of the custodian of the external reserves of the country. At this window, spot transaction is carried out twice in a week by auction (every Monday and Wednesday) and value is received in T + 2 days (that is, the transaction day plus two days). Authorized banks credit their account with the CBN with the Naira equivalent of the foreign currency they intend to buy 48 hours before the auction. Their bids are later submitted to the CBN dealing room by 11am on the bidding day. Such bids must include the name of customer, RC number, Form 'M' number, address, purpose, amount (USD), rate Naira/US$ (or other currencies of interest), mode of payment, Bank name and code. Any bid rate below the cut off for the action is considered unsuccessful. Authorized banks are permitted to source foreign exchange either in their own or customers' account under the wDAS, but only permitted in their customers' account under the rDAS (Obadan, 2012).

Inter – Bank Foreign Exchange Market

The inter-bank foreign exchange market (IFEM) was first introduced in Nigeria in January 1989 to ease demand pressures in the official foreign exchange market. It was abolished in 1995 and re-introduced in October 1999. The interbank foreign exchange market allows the banks to trade among themselves, while the CBN intervene intermittently to ensure a realistic Naira exchange rate. The interbank market comprises authorized banks and large institutions interacting and exchanging foreign currencies through the market process of demand and supply. The system is designed to be funded by the private sector (autonomous sources), with the CBN intervening at its discretion to keep the exchange rate at a desired level. Thus, apart from the CBN, other participants in this market include the banks, private oil companies, the Nigerian National Petroleum Corporation (NNPC), and treasuries of big firms, among others (Obadan, 2012).

Bureaux-de-Change Market

BDCs were introduced in Nigeria in 1989 in order to expand the foreign exchange market and improve small end-users access to foreign exchange for Business Travel Allowance (BTA), Personal travel allowance (PTA), mortgage monthly payments, school fees, medical bills, and credit card payments, among others, subject to a set limit. BDCs act as dealers in the spot market and buy/sell foreign currency with small margin (premium) as returns. They also buy and sell foreign bank notes, and Travellers' Cheque (TCs) from members of the public, banks and the CBN. BDCs rarely buy or sell coins because of the higher cost of storage and shipping compared with banknotes. One of the risks of BDCs is currency run, where there are more buyers of a currency than sellers or vice versa due to currency speculation. Currency speculation is the feeling or perception by traders that a particular currency is either overvalued or undervalued leading to a rush in demand or supply of such currencies. If the activities of the BDCs are not regulated they could be channels for money laundry to fund terrorist activities (CBN Research Department, 2016).

Exchange Rate

The term exchange rate refers to the price of one currency to another. It represents the number of units of a given currency of one country is to be exchanged for a unit of another country's currency (Oleka, Sabina & Mgbodile, 2014). According to Musa (2020), Exchange rate is the rate at which a country's currency is exchanged with another country's currency. Ayodele (2014) further defined exchange rate as the price of foreign currency over a local one while a more similar definition given by CBN Research Department (2016) sees exchange rate as the price of one currency in terms of another currency.

Therefore, the exchange rate of the naira simply refers to the amount of domestic currency (in this case, Naira) required to purchase a foreign currency. When the amount of naira required to buy a unit of a foreign currency falls, the naira is said to appreciate or strengthen or increase in value and when the amount of naira rises, the naira is said to depreciate or weaken or decrease in value. Depreciation is caused either by a decrease in demand for domestic currency or an increase in supply of the domestic currency, while an appreciation is caused by an increase in demand for domestic currency or a decrease in supply of domestic currency (CBN Research Department, 2016).

When exchange rate fluctuates sporadically in value within a given period of time, it is said to be volatile. According to Yakub, Sani, Obiezue, and Aliyu (2019), exchange rate volatility refers to appreciation or depreciation of domestic currency over a period of time. When there are large swings in the exchange rate over a period of time, the exchange rate is considered volatile. Thus, exchange rate volatility is a measure of the degree or frequency by which the price of the foreign exchange changes over time. The larger the magnitude of the price change, or the more speedily it changes over a period, the more volatile the exchange rate is. If the price increases or falls with very wide margins over a period, it shows that the exchange rate is unstable or volatile and the foreign exchange market is said to be experiencing volatility (CBN Research Department, 2016).

Types of Exchange Rates

Nominal Exchange Rate (NER)

Nominal exchange rate is the worth or value of another country's money or currency that can be exchanged for a unit of home country's currency. The nominal exchange rate is the exchange rate as generally understood and quoted (Onomereroso, 2021). According to Nwobia, Ogbonnaya and Okoye (2020), it may be quoted as so many units of domestic currency per units of foreign currency or conversely. In Nigeria, it is quoted as so many units of Naira per unit of a foreign currency (eg US Dollar).

Real Exchange Rate (RER)

Real exchange rate is the nominal exchange rate that is corrected for inflation measures i.e. the ratio of domestic price level to the foreign price level. It is also referred to as the ratio of price of tradable to the price of non-tradable (Nwobia et al., 2020). The importance of the real exchange rate for a Central Bank is related with the effects of the real exchange rates on the Central Bank balance sheet and, in turn, with its ability to conduct a prudent monetary policy. Any changes in the real exchange rates would lead to fluctuations in short term capital flows. These fluctuations would then have an effect on the Central Bank's net foreign assets. The changes in the volume of net foreign assets would lead to changes in the volume of currency in circulation on the liability side of the balance sheet (Onomereroso, 2021).

Bilateral Exchange Rate (BER)

Bilateral exchange rate is a rate between the monies or currencies of two countries only. For instance, the bilateral rate between Nigeria's naira and United Kingdom's Pounds Sterling can also be written as N650/£1 (CBN Research, Department, 2016).

Nominal Effective Exchange Rate (NEER)

Nominal effective exchange rate is the rate that compares home country's money or currency to other countries' currencies, especially countries that are trading with it. For example, if we compare the exchange rate of the naira to the currencies of the countries Nigeria trades with such as the United Kingdom, Italy, France, India and so on we would get a single rate called the Nominal Effective Exchange rate. This rate is used to measure how well the naira is doing when compared with the currencies of the other countries.

Real Effective Exchange Rate (REER)

The use of the term "effective" in describing exchange rate in the literature portends two different meanings. First, it connotes "weighted average". It is synonymous to

multilateral RER (MRER). Second, it connotes incorporation of all forms of taxes charged on imports and exports (Onomereroso, 2021). Real effective exchange rate is the nominal effective exchange rate that is corrected by inflation measures, which is the ratio of domestic price level to the price levels in the trading partners' countries (Obadan, 2012). The REER reflects competitiveness of the home country's goods or products when compared with goods produced in other countries it trade with (CBN Research Department, 2016).

Fundamental Effective Exchange Rate (FEER)

The fundamental effective exchange rate is also known as equilibrium real effective exchange rate. This rate is a function of macroeconomic fundamentals and these fundamentals jointly determine the movement in the rate. The external fundamentals include international terms of trade, international transfers including foreign aid, and world real interest rates, while the domestic fundamentals include those variables that are directly affected by policy decisions (Obadan, 2012).

Economic Growth

Economic growth in simple terms may be described as the increase in the productivity or in the productive capacity of a country. Economic growth is usually measured as continuous increase in national income which results into increase in the quantity of goods and services produced in the country (Akinbode, Fapetu, Olabisi & Ojo, 2019). In other words, economic growth is defined as the increase in per capita income or gross domestic product (GDP) over a period of time (Musa, 2020). Basically, it is defined as the increase in a country's total output of goods and services. According to Jhingan, (2010), economic growth is a sustained increase in a country's national income. It refers to a quantitative and sustained increase in the country's per capita income accompanied by expansion in its labour force, consumption, capital and volume of trade. It is measured as the percentage rate of increase in real Gross Domestic Product or GDP growth rate (Musa, 2020).

Theoretical Framework

Contractionary Theory of Devaluation

The Contractionary theory of the effect of exchange rate devaluation on economic growth was first mentioned by Diaz-Alezandro (1963) who argued that devaluation could lead to a redistribution of income from people with high marginal propensity to consume to those with high propensity to save rendering a negative effect on the aggregate demand. Proponents of the Contractionary effects of exchange rate devaluation further noted that devaluation increases the price of traded goods, which feeds into the general price level rendering a negative real balance effect. This, in turn, will result in lower aggregate demand and output (Edwards, 1986).

Also, if, as is the case with Nigeria, the demand for imported goods is inelastic due to the dominance of capital and essential intermediate and consumers' goods in a country's import basket, then devaluation may be contractionary (Upadhaya & Upadhaya, 1999). Apart from these demand side channels, contractionary effects can also arise from the supply side (Edwards, 1986; Upadhaya & Upadhaya, 1999). The increased cost of imported inputs might affect production and output adversely.

This theory provides a framework within which the fluctuation of exchange rate is

expected to affect economic growth. Consequentially, it explains how forex trading impacts economic growth. Going by the contractionary theory of devaluation, if forex trading leads to the depreciation of exchange rate, output growth will be negatively affected, however, if it leads to the appreciation of exchange rate, output growth will be positively affected.

Expansionary Theory of Devaluation

The expansionary theory of exchange rate devaluation posits that currency devaluation should have expansionary effects on overall economy. This theory thrives on the Marshall-Lerner condition that currency depreciation would lead to improved trade balance if the price elasticity of exports and imports exceed one. It is therefore argued that by expanding the production of the traded sector in general and exports in particular, devaluation should have an expansionary effect on the overall economy. Devaluations are also believed to contribute to the enhancement of external competitiveness stimulating production in the export sector. On the other hand, as a direct consequence of nominal devaluations import prices go up, which is likely to depress the demand for imports in the domestic economy. Increased exports and reduced imports are expected to improve the external trade balance, and many developing countries have relied upon devaluations to correct fundamental disequilibria in their balance of payments (Kondker, Bidisha & Razzaque, 2012).

The Optimal Currency Area (OCA) Theory

The ground-breaking optimal currency area (OCA) theory, developed by Mundell (1961) and McKinnon (1963), remains a theoretical foundation for the adoption of exchange rate policies. This theory emphasizes the need to ensure stability in the business cycle and trade. It is based on concepts of labor market mobility, degree of openness, and symmetry of shocks. In the view of the theory, a fixed exchange rate regime can accelerate trade and output growth by reducing exchange rate uncertainty and the cost of hedging and encouraging investment by reducing currency premium from interest rates. Nevertheless, it can also retard output growth and trade by slowing down and stopping the necessary relative price adjustment process (Iheanachor & Ozegbe, 2021). According to Mundell (1961), the optimum currency area can be defined as the geographical area that would maximize economic benefits by keeping the exchange rate fixed within the area.

However, in his two later articles, Mundell (1973) completely changed the argumentation about the optimum currency area. His global monetarist view on the subject was as follows: If two countries can adopt a common currency (that needs a common central bank and foreign reserves) without substantial change in their purchasing parities, they gain better allocation of capital. As a result, they will get rid of uncertainty in the evolution of exchange rates and assets will be better diversified. Foreign reserves have to increase less than proportionally with the size of the economy, too. As a result, under the asymmetric shocks in the countries with a common currency, there is no decline in output, because the costs of absorbing the shocks would be effectively spread in time.

Kawai (1987) emphasized that if countries are highly integrated in financial trading, then capital flows can smooth temporary asymmetric shocks. In the long run there is a

wealth effect due to capital flows. Kawai (1987) points out that the surplus region accumulating net claims raises expenditures and the deficit region "decumulating" net claims lowers them, thereby contributing to real adjustment.

Empirical Review

Onomereroso (2021) examined the effects of foreign exchange management and economic growth in Nigeria. The variables used to proxy foreign exchange management include foreign reserves, exchange rate, inflation rate, trade openness and foreign direct investments. On the other hand, real GDP was used to measure economic growth. Using the Autoregressive Distributed Lag (ARDL) bound testing method, the findings of the study revealed that foreign reserves has positive and significant impact on the economic growth in Nigeria both on the long and short run while exchange rate depreciation has negative significant impact on the short run and then positive impact on the long run.

Abdu, Umar, Mohammed and Ajannah (2021) examined the effect of exchange rate on economic growth from 1986 to 2019 using secondary data sourced from Central Bank of Nigeria Statistical Bulletin of various issues. From 1986 being the year the monetary authority shifted from fixed exchange rate regime to flexible exchange rate regime to 2019. The regression analysis using ordinary least square was used to analyze the data. The result revealed that exchange rate has significant positive effect on economic growth while interest rate and inflation rate have significant negative effect on economic growth. In conclusion, exchange rate promotes economic growth.

Oleka, Sabina and Mgbodile (2014) analyzed the impact of foreign exchange rate on the growth of Nigerian economy. Time series data were obtained from the CBN publications on trends of GDP growth rate for the assessment for the periods 2000 to 2014. The nominal GDP was used as dependent variable indicating economic growth of Nigeria. While independent variables like money supply, inflation rate, employment rate and foreign exchange rates were used as economic (performance) indicators. Multiple repression models were used to analyze the data in order to establish a functional relationship between the dependent variable and independent variables. The result revealed that there is variation on money supply and naira exchange rate; hence the monetary policy instruments were not efficacious in the attainment of price and exchange rate stability in Nigeria. Again, growths in money supply impact negatively on the economy as they breed inflation and there are significant relationships among M , real 1 exchange rate, unemployment rate and inflation rate.

Eze and Okpala (2014) carried out a quantitative analysis of the impact of exchange rate policies on Nigeria's economic growth: a test of stability of parameter estimates using the Chow test procedure to determine the structural stability of the relationship between exchange rate and output of goods and services. Their study revealed that, apart from government expenditure (GEX), both exchange rate (EXR) and money supply (M2) are highly significant in the determination of Nigeria's economic growth performance. Also, the conducted Chow test showed that the relationship between exchange rate and economic growth performance in Nigeria have not undergone any significant structural changes. The implication is that no matter the exchange rate regime, whether fixed or flexible, what matters is the effectiveness of the management. Nigeria can substantially

improve on its economic growth performance through improvements in the overall management of its exchange rate policy.

Musa et al (2019) estimated the impact of foreign exchange rate on economic growth of Nigeria. The study makes used of Autoregressive Distributed Lag model (ARDL) on time series Data, for the period 1981-2017. The data set on real effective exchange rate, inflation rate, money supply, lending interest rate, real GDP and foreign direct investment, oil revenue and trade openness (% of GDP) were tested for stationary using ADF and PP tests and established stationarity at I (1) for five variables and I (0) for two variables. The correlation test result shows that the highest correlation is between money supply and oil revenue while the lowest correlation is between inflation rate and foreign direct investment. The ARDL Co-integration test revealed the existence of long-run relationship among the variables. ARDL test results reveal that real effective exchange rate is negatively and significant in explaining economic growth in Nigeria in the long-run. In the short-run, the lag value of real effective exchange rate is insignificant in explaining the changes in the current rate of economic growth. in the same period, the lag value of money supply is negative and significant in explaining GDP. But in the long run it is positive and significant in explaining economic growth in Nigeria. The rate of inflation both in the short run and long run is negatively and significant in explaining GDP. The Error Correction Term value of 20.7% shows the speed of adjustment toward long-run equilibrium. The findings of the study imply that interest rate in Nigeria is inflationary. Meaning that increase in the rate of interest rate will lead to an increase inflation rate. Therefore, the research study concludes that the impact of foreign exchange rate on the economic growth of Nigeria is negative and significant and that the monetary authorities should adopt flexible exchange rate in Nigeria.

Musa et al (2019) investigated the impact of crude oil price and exchange rate on economic growth in Nigeria using an autoregressive distributed lag model covering the period from 1982-2018. The results indicated that crude oil price and exchange rate have significant positive impact on economic growth in both the long-run and the short-run periods. The findings suggested that crude oil price and exchange rate which are the focal points of the study, could affect economic growth in both the long-run and the short-run. Therefore government should diversify its earnings in agriculture, industrialization and investment in order to reduce the heavy reliance on crude oil and income fluctuation resulting from the fluctuation in crude oil prices.

Akinbode et al (2019) assessed empirically the impact of exchange rate on economic growth in Nigeria from 1981 to 2016. Data on GDP, Exchange rate, foreign direct investment (FDI), inflation rate, imports, exports, trade openness, final consumption expenditure (FCE), interest rate, and government expenditure were obtained from the different issues of the CBN Statistical Bulletin. Data series were assessed for stationarity with the aid of the ADF test. Bound test was conducted and the model was estimated within the ARDL framework supported by the relevant post estimation diagnostic tests. The bound test showed that there was long run relationship among the study variables. Model estimation revealed that import, lag of trade openness, FDI, lag of exchange rate, interest rate and inflation significantly affected the growth of the economy in the short run. In the long run, economic growth was affected by trade openness, FDI, exchange rate, government expenditure and interest rate. It was concluded that the present year

exchange rate did not affect economic growth in the short run but its one year lag did, while exchange rate had negative effect on the growth of the Nigerian economy in the long run.

Ismalia (2016) examined exchange rate depreciation and Nigeria economic growth during the SAP and post SAP period. The study covers the period of 1986–2012, using the Johasen co-integration test and error correction model analyses after conducting the stationary test, the results show that broad money supply, net export and total government expenditure have significant impact on real output performance in the long run while exchange rate has direct and insignificant effect on Nigeria economic growth in both short and long run this implies that exchange rate depreciation during the SAP period has no robust effect on Nigeria economic performance. Therefore, the study suggested that policy makers should not totally rely on exchange rate depreciation policy instrument to induce economic growth, but should use it to complement other macro-economic policies such as monetary and fiscal policies.

Aslam (2017) investigated impact of exchange rate on the economic growth in Sri Lanka. To achieve this objective, the annual time series data from 1970 to 2015 were used and the variables such as gross domestic product, exchange rate, inflation rate, and interest rate were considered and the multiple regressions model using Ordinary Least squared method was employed. Based on the outcome of the multiple regression model, this study confirmed that the exchange rate positively influenced on the economic growth in Sri Lanka at one percent significant level.

Alam et al (2021) explored the impact of foreign reserve in economic growth: An empirical study on Bangladesh. There have been upbeat exports and remittances. Overall inflation is slow & the current account deficit was reduced by higher exports and lower import inflation, but the decrease in the financial account surplus diluted the effect of the decline in the current account deficit on the overall balance of payments deficit. In the context of the Error Correction Process, this research studied the impact of economic development on Bangladesh foreign reserve assets using data for the period 1980- 2014. The findings show that economic growth is extremely important. The model's estimate, that economic growth and foreign reserves have a positive long-term relationship. The model checked by error correction estimates for error correction is negative and statistically important. In addition, the model showed that economic growth has shortterm relationship too. The adjustment speed is more than 60 percent, suggesting that the term for error correction corrects the imbalance of the previous year. Granger causality test confirm that there is long run & short run causality among the variables. The question is whether the accumulation of foreign currency reserves is a required prerequisite for economic development. The empirical findings in this paper indicate that the rise in foreign exchange reserves induces GDP growth, although causality has not been demonstrated in the opposite direction.

Methodology

Then study obtained data from Central Bank of Nigeria Statistical Bulletin 2021. The data used in the study covers a period of 1995 to 2021 and the study adapted an ex-post facto research design. The study adapted and modified the model of Onomereroso

(2021) who modeled real GDP as a function of Exchange Rate (EXCH), Foreign Reserve (FOR), Inflation Rate (INFR), Trade Openness (TRO), and Foreign Direct Investments (FDI).

The model of Onomereroso (2021) is expressed as follows;
RGDP = *f*(EXCH, FOR, INFR, TRO, FDI)……3.1
The study adapts and modified the model in 3.1 by removing inflation rate ,trade openness and foreign direct investment and replacing it with supply of forex since the study deals with forex trading.
However, the model for the study is stated below;
RGDP = *f*(CSFX, EXR, FER)……3.2
$RGDP = a_0 + a_1CSFX + a_2EXR + a_3FER$ .....……..... 3.3
Where: RGDP= Real Gross Domestic Product
CSFX= CBN's Supply of Forex
EXR= Exchange Rate
FER= Foreign Exchange Reserve
a_0 = Intercept of the model
$a_1 – a_6$ = Parameters of the regression coefficients
e_{it} = Stochastic error term

Data Presentation and Analysis
The characteristics of the data series used in the analysis are presented in table 1. The table shows the summary of descriptive statistics used in the analysis. The mean value was shown to be 47831.49 for RGDP, 160.4074 for EXR, 15840.67 for CSFX and 27105.53 for FER. The median value was shown to be 46802.76 for RGDP, 133.5000 for EXR, 12603.80 for CSFX and 32339.5 for FER. The maximum and minimum values for the four variables are 73382.77 and 1611.100, respectively. The skewness has both negative and positive values, indicating that the distribution is both negatively and positively skewed.

Table 1: Descriptive Statistics

	Mean	Median	Maximum	Minimum	Std.Dev	Skewness	Obs
RGDP	47831.49	46802.76	73382.77	21881.56	18992.74	-0.026908	27
EXR	160.4074	133.5000	412.4400	21.89000	102.3471	0.818817	27
CSFX	15840.67	12603.80	37015.02	1675.812	1611.100	0.473062	27
FER	27105.53	32339.5	53000.36	1611.100	16487.65	-0.211742	27

Source: Computer analysis using E-views 12.0

The attainment of stationarity by variable(s) is necessary in model estimation due to the influence of non-stationarity on regression output. To this effect, the Augmented Dickey-Fuller (ADF) unit root test was used to prove that the data were stationary.

Table 2: Result of ADF Unit Root Test at Level

Variables	ADF Test Statistic	Test Critical Value at 1%	Test Critical Value at 5%	Remark
RGDP	-0.274434(0.9161)	-3.711457	-2.981038	Not Stationary
EXR	1.558204(0.9990)	-3.711457	-2.981038	Not Stationary
FER	-1.257076 (0.6320)	-3.711457	-2.981038	Not Stationary
CSFX	1.902841 (0.3259)	-3.711457	-2.981038	Not Stationary

Source: Author's Computation

Table 3: Result of ADF Unit Root Test at 1st Diff

Variables	ADF Test Statistic	Test Critical Value at 1%	Test Critical Value at 5%	Remark
RGDP	-2.922262(0.0569) **	-3.724070	-2.986225	Not Stationary
EXR	-3.293513 (0.0262) **	-3.724070	-2.986225	Stationary
FER	-2.935703 (0.0554) **	-3.724070	-2.986225	Not Stationary
CSFX	-4.204141(0.0033) **	-3.724070	-2.986225	Stationary

Source: Author's Computation

Table 4: Result of ADF Unit Root Test at 2nd Diff

Variables	ADF Test Statistic	Test Critical Value at 1%	Test Critical Value at 5%	Remark
RGDP	-5.860362(0.0001) **	-3.737853	-2.991878	Stationary
EXR	-6.087292 (0.0000) **	-3.737853	-2.991878	Stationary
FER	-3.931006 (0.0064) **	-3.737853	-2.991878	Stationary
CSFX	-6.136310 (0.0000) **	-3.737853	-2.991878	Stationary

Source: Author's Computation

The Augmented Dickey-Fuller (ADF) unit root text in tables 2, 3, and 4 indicates that none of the variables were stationary at level, implying that the variables should be differentiated further. Only EXR and CSFX were stationary at the first difference, according to Table 3. Table 4 shows that at the second difference, all variables were stationary. This is due to the fact that their ADF test statistic value is greater than the Mackinnon critical value of 5% in absolute terms. As a result, the vector autoregression estimation (VAR) method of data analysis was required.

Diagnostic Test

Stability Test

The stability of the VAR model was investigated using the inverse roots of AR characteristic polynomial presented in figure 1.

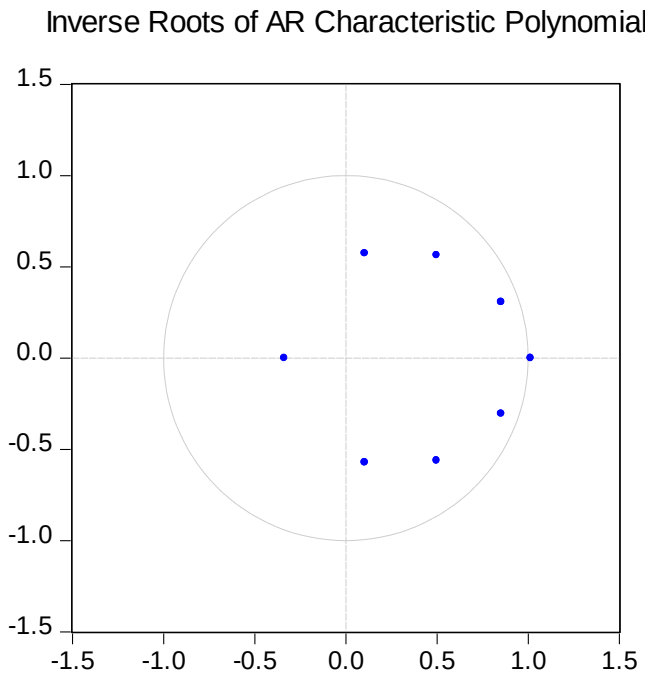
Figure 1: Inverse Root of AR Characteristics Polynomia

Diagnostic Test

Stability Test

The stability of the VAR model was investigated using the inverse roots of AR characteristic polynomial presented in figure 1.

Figure 1: Inverse Root of AR Characteristics Polynomia



Source: Graphs Using E-view Statistical Package, Version 12

The result shows that the VAR is relatively stable since all dots are within the circle except one. The reverse would be the case if the dots lie outside of the circled region.

VAR Residual Heteroskedasticity Tests

To test for heteroskedasticity among the residuals, the Levels and Squares joint test was conducted and the results is presented in table 7

Table 5: VAR Residual Heteroskedasticity Tests (Levels and Squares)

Joint test:

Chi-sq	Df	Prob.
184.9815	160	0.0859

Source: Output Data from E-views 12.0

The joint test of the VAR residual heteroscedasticity test show that there are equal variances among the residuals in the VAR model given that the probability value of the test statistic (Chi.sq) is greater than 0.05 which implied the acceptance of the null hypothesis of absence of heteroskedasticity.

VEC Residual Serial Correlation LM Tests

Table 6 VEC Residual Serial Correlation LM Tests

Lag	LRE* stat	df	Prob.	Rao F-stat	df	Prob.
1	23.11810	16	0.1106	1.636916	(16, 28.1)	0.1229
2	22.92928	16	0.1156	1.618717	(16, 28.1)	0.1282

Source: Output Data from E-views 12.0

The result showed that there is absence of serial/autocorrelation among the residuals since the null hypothesis of no serial or autocorrelation is accepted at 0.05 level of

significance for both lags 1 and 2. That is, the LM-statistics (LRE*stat and Rao F-stat) are not statistically significant (probability values are more than 0.05).

Normality Test

Normality Test The normality test was done using the Jarque-Bera Normality test, which requires that for a series to be normally distributed; the Jarque-Bera statistics would not be significant.

Table 7 Normality Test

Component	Jarque-Bera	df	Prob.
1	0.289201	2	0.8654
2	2.148162	2	0.3416
3	1.357880	2	0.5072
4	1.263308	2	0.5317
Joint	5.058551	8	0.7513

Source: Output Data from E-views 12.0

Normality test in Table 8 shows that the probability value for each of the variables RGDP, EXR, FER and CSFX are 0.8654,0.3416,0.5072 and 0.5317 are greater than 5% level of significant which indicates that the variables are normally distributed. Also, jointly or when all the variables are combined together the probability value is 0.7513 which indicates that all the variables are normally distributed.

Vector Autoregressive Estimates

Table 8 Results of Vector Autoregressive Estimates Normalised on RGDP

Parameters	Coefficient	Standard Error	t-statistic
RGDP (-1)	1.244407	0.27377	4.54551
EXR (-1)	26.81112	16.6371	1.61153
CSFX (-1)	0.024088	0.06604	1.25090
FER (-1)	0.086104	0.04615	1.86590
C	2824.021	1106.98	2.55111

Source: Output Data from E-views 12.0

Adjusted R-squared = 0.99 F-Statistic = 657.9132

Table 8 revealed that RGDP, EXR, CSFX, FER and C have a positive effect on RGDP. A 1% change in the one-year lag of RGDP, EXR, CSFX, FER and C results in a 1.24 percent, 26.8 percent,0.024 percent, 0.086 percent and 2824.0 percent increase in RGDP, respectively. In terms of individual variable performance, the results show that none of the variables were statistically significant.

The findings revealed that Forex Trading have a positive effect on Nigeria's economic growth, but the effect was insignificant during the study period. The insignificant on economic growth is due to its speculative nature and the size of the forex market relative to the overall economy, its impact on other economic variables, such as inflation, trade balance, and investor sentiment, can indirectly influence economic conditions. However, other factors, such as domestic policies, productivity, and global economic conditions, play a much significant role in determining long-term economic growth.

The adjusted R-squared value of 0.99% indicates that the combined effect of the independent variables explains approximately 99% of the variations in RGDP. It also implies that the model explains the relationship well. Similarly, the F-statistic, which measures the overall significance of the model, revealed a high value of 657.9132, indicating that the effect of forex trading on economic growth in Nigeria is statistically significant.

Conclusion and Policy Implication

Forex trading has been seen to help increase liquidity, facilitate intranational trade, aid in exchange rate stability, encourage capital flow and investment opportunities, and create jobs in the economy; thus, it is necessary to investigate the effect of forex trading on Nigeria's economic growth. As such, the goal of this paper was to investigate the effect between forex trading (CBN's Supply of Forex, Exchange Rate, and Foreign Exchange Reserve) and Nigerian economic growth (RGDP) between 1995 and 2021. The Augmented Dickey-Fuller unit root test was used to examine the series' unit root properties, and the results show that all variables became stationary only after the second differencing. This resulted in the use of vector autoregressive (VAR) model as the method of data analysis.

The analysis revealed that forex trading had insignificant effect on Nigerian economic growth during the study period, so the study makes the following recommendations: The government should provide incentives, access to finance, and infrastructure support to encourage the development and growth of export-oriented industries, as this will increase foreign exchange earnings from exports and improve Nigeria's trade. Nigeria should also diversify its economy away from oil by expanding into non-oil sectors such as agriculture, manufacturing, and services. A more diverse economy can boost foreign exchange inflows and strengthen Nigeria's economic resilience. Furthermore, the country's infrastructure, including transportation, power supply, and communication networks, needs to be improved. A robust infrastructure will attract foreign investors, enhance productivity, and support export activities. More participants, such as banks, corporations, and institutional investors, are needed to increase the liquidity and efficiency of the forex market. A liquid forex market allows for smoother currency exchange and reduces volatility. The central bank should accumulate and manage sufficient foreign exchange reserves to stabilize the domestic currency and provide investors and traders with confidence. Provide secure and cost-effective channels for remittances from Nigerians living abroad. Foreign exchange remittances can be a significant source of foreign exchange inflows and contribute to economic growth. There is also a need to promote collaboration among the government, central bank, and other relevant stakeholders in order to develop and implement coordinated policies that promote forex trading and economic growth.

Reference

Abdu, M.,Umar, R., Mohammed, B. & Ajannah, J. (2021). Exhange rate fluctuations and economic growth nexus: An empirical evidence from Nigeria. *Asian Journal of Economics, Finance and Management, 5*(2), 33-40.

Akinbode, S., Fapetu, O., Olabisi, J. & Ojo, O. (2019). Impact of exchange rate on economic growth in Nigeria (1981-2016) :An ARDL approach.4(2). 151-178.

Akpan, E. & Atan, J. (2012). Effects of exchange rate movements on economic growth in Nigeria. *CBN Journal of Applied Statistics, 2*(2), 1-14.

Alabi, H., Ojuolape, K. & Yusuf, F. (2017). The impact of exchange rate fluctuations on economic growth in Nigeria. A Project submitted to the Department of Economics: Baze University.

Alam,J, Hassan,M.M & Hoque,M.T (2021) Impact of foreign reserve in economic growth: An empirical study on Bangladesh. *European Journal of Business and Management,13(8),*100-109.

Aslam, J. (2021). Impact of foreign reserve in economic growth: An empirical study on Bangladesh. *European Journal of Business and Management, 13*(8), 100-109

Aslam, A.L. (2017) Impact of exchange rate on economic growth in Srilanka. *World Scientific News. 5(4),*252-266.

Ayodele, T. (2014). An Empirical Evaluation of the Impact of Exchange Rate on the Nigeria Economy. *Journal of Economics and Sustainable Development, 5*(8), 24-30.

CBN Research Department, (2016). Foreign exchange rate. *Education in Economics Series, 4,* 1-43.

Diaz-Alejandro, C. (1963). A note on the impact of devaluation and the redistributive effect. *Journal of Political Economy, 71(6),* 577-580.

Edwards, S. (1986). Are Devaluations Contractionary? *Review of Economics and Statistics*, 501-508.

Eze, T. C., & Okpala, C. S. (2014). Quantitative analysis of the impact of exchange rate policies on Nigeria's economic growth: A test of stability of parameter estimates. *International Journal of Humanities and Social Science, 4*(7), 265-272.

Iheanachor, N. & Ozegbe, A. (2021). The consequences of exchange rate fluctuations on Nigeria's economic performance: An autoregressive distributed lag (ARDL) approach. *International Journal of Management, Economics and Social Sciences, 10*(2), 68-87.

Ismaila, M. (2016). Exchange rate depreciation and Nigeria economic performance after structural adjustment programmes. *NG-Journal of Social Development, 5*(2), 122-132.

Jhingan, M.L. (2010). *Macroeconomics Theory*. Delhi: Vrinda Publication Limited.

Kawai, M. (1987). Optimum Currency Areas," in" *The New Palgrave: A Dictionary of Economic Theory and Doctrine*, Vol.3. ed. by John Eatwell, Murray Milgate, and Peter Newman(New York: Macmillan Press), pp. 740–743.

Kondker, B., Bidisha, S. & Razzaque, M. (2012). The exchange rate and economic growth. Working paper, October 2012.

McKinnon, R. (1963). Optimum currency areas. *American Economic Review, 53(3),* 717-724.

Mundell, R.A.(1961) A Theory of Optimum Currency Areas. *The American Economic Review, 51(4),* 657-665.

Musa, N. (2020). Impact of trade openness and exchange rate volatility on economic growth in Nigeria. *Interdisciplinary Journal of African and Asian Studies, 6*(2), 185-198

Musa KS, Maijama'a R, Shaibu HU, Muhammad, A. (2019). Crude oil price and exchange rate on economic growth: ARDL approach. *Open Access Library Journal, 6*(5),1-15

Musa KS, Muhammad A, Mohammed N. & Adamu, S. (2019) Foreign exchange rate and economic growth nexus: New evidence from Nigeria. *Journal of Economics and Sustainable Development.10* (18),145-156.

Nwafor, M. (2018). Effect of naira rate on economic growth in Nigeria. *ILARD International*

Journal of Banking and Finance Research, *4*(1), 58-66

Nwobia, C., Ogbonnaya, N. & Okoye, N. (2020). Effect of exchange rate fluctuation on Nigeria external trade. *International Journal of Economics, Business and Management Research, 4*(10), 45-67.

Nwosu, N.C.I. (2016). Impact of exchange rate volatility on economic growth in Nigeria, 1987-2014. An Unpublished Ph.D Thesis submitted to the Department of Banking and Finance, University of Nigeria, Nsuka.

Obadan, M.I. (2012). *Foreign Exchange Market and the Balance of Payments: Elements, Policies and the Nigerian Experience*. University of Benin, Benin City.

Oleka, C., Sabina, E. & Mbodile, C. (2014). Empirical analysis of the relationship between foreign exchange rate and economic growth in a developing economy: Nigerian experience. *World Journal of Management and Behavioral Studies, 2*(2), 28-36.

Onomereroso, M. (2021). Foreign exchange management and economic growth in Nigeria. Thesis Department of Economics & Development Studies, College Of Arts and Social Sciences.

Upadhyaya, K. & Upadhyay, M. (1999). Output effects of devaluation: Evidence from Asia. *Journal of Development Studies.35)*, 89-103.

Yakub, M. U., Sani, Z., Obiezue, T. O. & Aliyu, V. O. (2019). Empirical investigation of exchange rate volatility and trade flows in Nigeria. *Central Bank of Nigeria Economic and Financial Review,* 57(1):25-46