THE IMPACT OF EXCHANGE RATE FLUCTUATIONS ON EXPORTS PERFORMANCE IN NIGERIA

BY

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FACULTY OF SOCIAL SCIENCES

UNIVERSITY OF BENIN

BENIN CITY

MAY, 2024

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A PROJECT WRITTEN AND SUBMITTED TO THE DEPARTMENT OF ECONOMIES, FACULTY OF SOCIAL SCIENCES

IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF BACHELOR OF SCIENCE DEGREE (B.Sc.) IN ECONOMIES OF THE UNIVERSITY OF BENIN, BENIN CITY

MAY 2024

DECLARATION

I, Divine-Favour UGWUDIKE do hereby declare that this project titled: "**THE IMPACT OF EXCHANGE RATE FLUCTUATION ON EXPORT PERFORMANCE IN NIGERIA**" is entirely my own work and composition. The work embodied in this project has not been submitted in Candidature for any degree and is not concurrently being submitted for any other degree. All references made to the works of other people have been duly acknowledged.

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Divine-Favour UGWUDIKE **DATE**
(Project Student)

CERTIFICATION

We certify that this work titled, "**THE IMPACT OF EXCHANGE RATE FLUCTUATIONS ON EXPORT PERFORMANCE IN NIGERIA**" was carried out by **Divine-Favour UGWUDIKE** in the Department of Economics, Faculty of Social Sciences, University of Benin, Benin City, Edo State.

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DEDICATION

This research work is dedicated to God Almighty who has been my source of strength, and who has given me the wisdom to carry out this research work successfully from the beginning to the end. To God be the glory for His total and absolute support throughout my academic career up to this point and even beyond.

Worthy to be remembered are my parents, Mr. and Mrs. J. Ugwudike for their moral and spiritual support, and my elder brother James Ugwudike and my elder sister Faith Ugwudike for their unwavering support in my pursuit for academic excellence. May almighty God continue to shower his blessings and favour upon them.

ACKNOWLEDGEMENTS

In undertaking a research work such as this, it is a formidable task for a student and much depends on dedication, hard work and commitment on the part of such student and support and guidance one receives from one's parents, supervisor, lecturers, colleagues, classmate, etc. It is in this connection that I am particularly grateful to God almighty for giving me life to see through to the very end.

My sincere gratitude to my parents Mr. and Mrs. James Ugwudike for their love and support (financially, morally, and spiritually and otherwise) all through my long and trying journey in this institution of learning. I won't forget my elder brother Victory James Ugwudike and my elder sister Faith Ugwudike for their immense contribution to my academic welfare, and every family member at the nuclear and extend level. Thank you for being part of my life and contributing to my successful journey in every way you did.

I sincerely appreciate the priceless efforts and support of my supervisor Dr. S.O Igbinedion for taking out time to constantly read, guide and correct my flaws during the process of writing this project and pushing me to attain perfection. Thank you very much sir. It is my prayer that God bless and lift you up in all endeavors.

I am immensely grateful to my amazing friends, Hon. Aforkaja Nzube innocent, Edomwonyi Abel, Endurance Rider Enomhonbor, Dr. Lucky Osemomo Sule, Eghe-Aideyan Osamagbe, Efosa John for their unwavering financial, emotional, practical,

educational, professional, social, and advocacy support has been the bedrock for my success.

Lastly, my gratitude extends to my course mates for their camaraderie, collaboration, and encouragement throughout this academic journey. Your friendship, academic discussions, and shared experiences have enriched my learning and made this journey memorable.

Together, you have been my pillars of strength, and I am deeply appreciative of your invaluable contributions to my academic and personal growth.

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ABSTRACT

This study examines the relationship between exchange rate fluctuations and Nigeria's export performance with the overarching objective of assessing their impact on the country's economic development. The research aims to determine the extent to which exchange rate changes influence total exports and, consequently, the overall economic growth of Nigeria.

Employing secondary data from the statistical Bulletin of the Central Bank of Nigeria, the analysis focuses on the relationship between exchange rates(EXR), interest rates(INT), inflation rates(INF), and trade balance(EX) as independent variables, and the GDP as the dependent variable. The findings reveal that inflation rates negatively affect GDP, while interest rates have a positive impact. Exchange rate volatility exhibits a negative correlation with GDP growth.

The study concludes that exchange rate fluctuations significantly influence Nigeria's economic performance, particularly its production capacity. Therefore, the implementation of an effective exchange rate regime is imperative. Such a regime would mitigate inflationary pressures enhance Nigeria's balance of trade and bolster its production capabilities, ultimately fostering positive economic growth.

CHAPTER ONE

INTRODUCTION

1.0 Background to the Study

Nigeria aspires to ascend to the realm of the world's foremost industrialized economies by the year 2050 (Obi *et al.,* 2016). A crucial mechanism to accomplish this aspiration entails the formulation of a well-articulated exchange rate framework.

Exchange rate signifies the degree of one currency's units relative to another currency. It designates the requisite number of one currency's units that can procure one or more units of another currency. Thus, the exchange rate can be explicated as the worth of one currency in relation to another (Mordi, 2006).

Ngereboa and Ibe (2013) delineate exchange rate as the ratio of one medium of exchange's unit to the unit of another medium of exchange at a given moment. It governs the general expenditure of domestically produced and imported commodities, encompassing the extent of foreign sector participation in international commerce. Hossain (2002) asserts that exchange rate serves to interrelate the price structures of two dissimilar nations by establishing a global platform for trade, which has a direct bearing on the volume of imports and exports, and a nation's balance of payment situation.

Consequently, exchange rate can be construed as the global valuation metric for the competitiveness of a nation's commercial enterprise. A primary objective of public policy involves the brisk expansion of the economy, and a key indicator of economic growth encompasses a rise in the volume of goods and services produced within the country. Therefore, growth materializes when a nation's productive capacity is on the upswing (Akpan, 2008). The production of goods and services encompasses the quantity of both locally consumed and exported goods of a country, on the one hand, in comparison to the volume of goods and services being imported into the country, on the other hand.

The volume of transactions executed as a result of these two forms of activities involves transactions in foreign currency, and hence the need for an effective exchange rate policy by the country.

These incessant fluctuations, whether positive or negative, breed risk and uncertainty in domestic and international transactions, thereby deterring investment and commerce. Economic growth can be interpreted as an expansion in the production of financial goods and services, measured against a previous time frame. It is estimated in nominal or real (adjusted for inflation) terms. Additionally, the aggregate financial growth is estimated in terms of Gross National Product (GNP) or Gross Domestic Product (GDP). Nigeria's exchange rate policy has undergone multiple adjustments, beginning from the fixed exchange rate regime during the

post–independence era to the pegged regime during the oil boom within the early 1970s and the mid-1980s; and to the variations of the crawling peg system from 1986, as a consequence of the near collapse of the economy between 1982 and 1985 (Akpan and Atan, 2012 paraphrased) and the implementation of the Structural Adjustment Program(SAP) and subsequent deregulation of the Naira.

Macroeconomic determinant that may help any country achieve its optimum degree of growth and development through optimal productive capacity, particularly in a country like Nigeria that is heavily reliant on imports (Olisadebe, 1991). The conversion rate mirrors the proportion at which a monetary unit can be swapped for another, in other words, the cost disparity between the two monetary units. It is the rate of conversion between a foreign monetary unit of the domestic nation. It also identifies the worth of one monetary unit in relation to another. The cost of one nation's monetary unit depicted in terms of another monetary unit is referred to as the conversion rate.

It determines the relative prices of domestic and imported commodities, as well as the degree of the external sector's involvement in international commerce. The exchange rate of an economy plays a critical role because it has a direct impact on all macroeconomic variables, including domestic price indicators, profitability of traded goods and services, resource allocation, and investment decisions, which explains why monetary authorities and private sectors strive for stability in these

variables (Ajakaiye, 2001). It is a crucial macroeconomic variable in the formulation of economic policies in general and economic reform programs in particular, in which these policies aid in the acceleration of macroeconomic goals. In Nigeria, these goals include obtaining and maintaining price stability; achieving and maintaining balance of payment equilibrium; full employment; equitable income distribution; economic growth; and development. In fact, fluctuations in exchange rate have emerge as the foundation of global economic activities, rendering exchange rate management pivotal to the economic frameworks adopted by numerous nations(Todaro, 2004).

In many developed countries, maintaining an appropriate exchange rate has been integral to economic growth, while fluctuations or unsuitable rates have hindered growth in African nations, including Nigeria. In a desperate attempt to enhance the standard of living, alleviate poverty, and gain economic and political power, stability, and prestige, Nigerian monetary authorities have sought internal and external balance since independence in 1960. They achieved this by administratively altering the local currency's foreign exchange rate considering the particular and current economic conditions (Osuka and Osuji, 2008). For at least two reasons, exchange rate changes can have considerable consequences: first, even short-term real exchange rate volatility can impose significant welfare costs (Akpomi and Kayii, 2021; Jongbo, 2014). Such volatility diminishes global trade, shapes financial decision-making, and restricts economic prospects, particularly in an environment

with limited flexibility. Secondly, in the case of prolonged and significant exchange rate fluctuations, which can substantially distort resource allocation, such welfare cost are amplified. Understanding the key causes of the real exchange rate, as well as distinguishing between short-term and long-term real exchange rate changes in Nigeria, is therefore crucial. Fluctuations in interest rate and exchange rate mechanism continue to pose significant challenges in global finance, particularly in developing nations. More countries now think that trade liberalization is a must for economic growth (Obansa, Okoroafor, Aluko and Millicent, 2013).

In Nigeria, the currency rate regime has shifted from controlled to deregulate throughout time. Ewa (2011) acknowledged that the naira's exchange rate was very steady from 1973 to 1979, when the country was experiencing an oil boom and agricultural products contributed to more than 70% of the country's gross domestic product (GDP). When the Federal government adopted the Structural Adjustment Policy (SAP) in 1986, the country transitioned from a peg to a flexible exchange rate regime in which the exchange rate is not entirely determined by market forces, but rather the prevailing system is the managed float, in which monetary authorities intervene periodically in the foreign exchange market to achieve some strategic objectives (Mordi, 2006). The inconsistency of policies, combined with the lack of consistency in exchange rate policies, contributed to the instability of the naira rate (Gbosi, 2005). In 2016, experienced another era in exchange rates after a long wait, The monetary policy committee of the central bank of Nigeria gracefully

acknowledge external demands, consequently instructing its management to enact a flexible currency exchange policy. A flexible exchange rate system is a monetary system that allows the exchange rate to be determined by supply and demand. Each monetary zone must establish its preferable exchange rate arrangement. There are a range of possibilities between a system where the exchange rate Is permanently fixed and a system where it is completely flexible. Economic growth connotes a sustained increase in a country's national income (Jhingan, 1997). When the GNP rises eventually, it depicts a growth in the economy. Conversely, economic development refers to the structural and purposeful conversion of all the economic indicators from a low to a high level (Siyan, 2000). Benson and Victor, (2012) and Aliyu, (2011) noted that despite various efforts by the government to maintain a stable exchange rate, the naira has depreciated throughout the 80's to date. In a view of this background, this research study proposes to examine the impact of exchange rate on economic growth in Nigeria.

This controlled afloat exchange rate system has been the most principal floating system. However, its progress is still marred by weak commitments to defending any parity.

1.2 Statement of the Problem

In recent decades, emerging economies employed rigid trade controls to bolster domestic industries. Currently, numerous economic experts attribute the financial decline in certain nations to these protectionist approaches. Ewa (2013) observed that the Naira's exchange rate remained relatively stable during the post-independence era, when agricultural commodities accounted for over 70% of the country's GDP, and during the oil boom from 1973 to 1979, when crude oil dominated exports. Nigeria's adoption of the controversial Structural Adjustment Programme (SAP) in 1986, as part of the Economic Recovery Program (ERP), initiated financial sector reforms. These reforms included abandoning fixed exchange rates in favor of a free-floating regime in the late 1980s. This shift was based on the expectation that flexible exchange rates would stabilize the economy and stimulate growth. The positive growth effects expected from exchange rate channels encompass price stability, trade volumes, investment, and terms of trade. Prior to the Structural Adjustment Program (SAP), Nigeria's exchange rate policy appeared to intentionally promote the overvaluation of the Naira, as it was pegged at ₦1 to 0.90 cents in 1981. This measure encouraged imports while discouraging non-oil exports and fostering an over-reliance on imports. An economy with import levels exceeding exports inevitably experiences an unfavorable balance of payments, resulting in a decline in its currency's value against foreign currencies used in trade. The exchange rate of such a country will be lower in comparison to others; for instance, the Nigerian Naira

currently trades at $1 to ₦197.00 and £1 to ₦281.29 (Omoregie, 2020). The impact of the global economic and financial crisis on the Nigerian exchange rate was evident as the Naira's value against the dollar sharply depreciated from approximately ₦120/$ to over ₦180/$ between 2008 and 2009. This depreciation can be attributed to a significant decline in Nigeria's foreign earnings and national revenue due to the sustained fall in crude oil prices on the global market. The growing emphasis on alternative energy sources, such as wind, bio-energy, and solar, in developed economies has decreased the demand for crude oil, leading to a sharp drop in prices from $110 per barrel to below $50 per barrel between mid-2018 and early 2019, and currently hovering around $38.77 per barrel as of the last quarter of 2020. This further weakened Nigeria's foreign income and revenues required for financing critical sectors that promote job creation, economic growth, increased per capita income, and improved living standards.

Consequentially, there was a substantial reduction in the export of agricultural products, while crude oil exports surged due to higher profit margins. This transition marked the beginning of Nigeria's reliance on oil exports and the subsequent volatility of its exchange rate. Despite government efforts to broaden the economic base through incentives for increasing the export of semi-processed and finished goods to raise foreign exchange earnings, the private sector continues to rely heavily on importation to meet domestic needs, exerting pressure on the economy.

The primary objective of this research is to determine the direct impact of exchange rate fluctuations on Nigeria's economic growth. Exchange rate serves as a significant macroeconomic policy instrument. Therefore, it is essential to assess the magnitude of its influence on the performance of macroeconomic variables in Nigeria and formulate strategies for establishing an effective long-term exchange rate policy. This study is driven by the need to understand why the monetary authorities in Nigeria have faced challenges in simultaneously achieving internal and external balance and improving living standards for its citizens. Despite efforts to achieve macroeconomic stability and domestic price stability, limited positive outcomes have been observed in recent times. Considering the government's multiple attempts to stabilize the exchange rate and foster sustainable economic growth since 1994, it is crucial to pose the following research questions to guide this inquiry.

1.3 Research Questions

This Research is coined to answer the following questions

i. Why is there a persistent exchange rate fluctuation in the market structure in Nigeria?
ii. What are the effects of exchange rate fluctuation on Nigeria’s economic performance?

1.4 Objective of the Study

The Objective of this study is to decide if exchange rate changes significantly affect the total export and whether this influences the development of Nigeria's economy. Determining the impact of the fluctuating exchange rate of the naira on these major overall financial factors would, however, depend on the prevailing conditions in the economy at any particular time. The specific objectives are to:

1. To determine persistent exchange rate fluctuation on the market structure in Nigeria.
2. To Ascertain the effect of exchange rate fluctuation on Nigeria's export performance.
3. To formulate policy that will guide the price strength and price levels reliable with those of the country's trade partners.

1.5 Research Hypothesis

In line with the research objectives, the following hypothesis was generated:

H_0: Exchange rate fluctuation does not influence the market structure in Nigeria.

H_1: There is no significant relationship between Exchange rate fluctuation and the Nigeria's export performance.

1.6 Significance of the Study

Given the sustained devaluation of the naira in the foreign exchange market and the concomitant rise in the cost of living, the timeliness of this research is undeniable. Its primary significance lies in providing a deeper understanding of the factors responsible for persistent exchange rate fluctuations and the most effective measures for managing them and stabilizing the exchange rate. Notably, this investigation will assist the Nigerian government and the Central Bank of Nigeria (CBN) in understanding the advantages and disadvantages of various exchange rate systems. This knowledge will facilitate the development of an effective exchange regime tailored to the specific characteristics of the Nigerian economy, both in the short term and long term, fostering sustainable economic growth. Moreover, this study will serve as a valuable reference for future researchers exploring this subject.

1.7 Limitations of the Study

This study focuses on evaluating the Nigerian exchange rate policy as a driver of economic sustainability. Consequently, its scope is limited to the economic growth rate of Nigeria, excluding the socio-political dimensions of foreign exchange rate systems. Furthermore, the study's findings may be influenced by the time and resources available for its conduct.

1.8 Scope of the Study

As noted by Benson and Victor (2012) and Aliyu (2011), despite various government efforts to maintain a stable exchange rate, the naira has depreciated consistently since the 1980s.Against this backdrop, the present study endeavors to investigate the ramifications of foreign exchange rate volatility on Nigeria's economic expansion over a 39-year period. The scope encompasses both the administrative and autonomous exchange rate periods, including the fixed exchange rate and floating exchange rate systems. The analysis relies on key macroeconomic performance indicators of Nigeria between 1980 and 2018.

CHAPTER TWO

REVIEW OF RELEVANT LITERATURE

2.1 Conceptual Framework

The impact of exchange rates on the economy gained prominence as a topic of discussion in the 1970s. This shift primarily resulted from the transition of numerous developing countries from a fixed exchange rate system to a floating exchange rate system. Exchange rate instability introduces uncertainty and risk in investment decisions, adversely affecting macroeconomic performance (Mahmood and Ali, 2011).

Despite attempts by the rule of law to ensure a trustworthy exchange rate, the Naira has continued to depreciate from the mid-1980s till this day – from N0.61 in 1981 to N370 in 2020, against the US Dollar. It is therefore of great significance to firstly ascertain the factors that impact the exchange rate

Factors that determine exchange rate

According to Bergen (2017), the following factors determine a country's exchange rate:

1. INFLATION DIFFERENCES:

Usually, an economy with a steadily lower rate of inflation is represented by a rise in the purchasing intensity of the home currency compared to foreign currencies. Accordingly, countries with higher inflation experience a conscious reduction in their currency relative to the market value of their trading counterparts. This is usually accompanied by an increased interest rate.

2. INTEREST RATE DIFFERENCES

Interest rates, growth, and exchange rates are significantly interconnected. By regulating interest rates, the Central Banks can effectively manage both the rate of inflation and the nation's swap rate, in this way influencing the general value level and purchasing intensity of the domestic currency.

Higher interest rates offer investors in an economy a better return on their investments compared to other countries. This is because higher interest rates attract foreign investment and cause the rate of exchange to increase. i.e. the exchange value of the domestic currency increases against the currencies of other countries.

3. CURRENT ACCOUNT DEFICITS

The current account is the record of business dealings between a nation and its trading partners, reflecting all transactions between the trading nations for goods, services, interest, and profits. Therefore, a deficit in the current account shows that

the nation is consuming more in terms of trade i.e. importation, than it earns through export. Thus, the nation is forced to borrow capital from foreign sources to cover the deficit. This increased demand for foreign currency lowers the nation's exchange rate until locally produced items become cheap enough for foreigners and imported commodities are too costly to even consider for purchase by local buyers (Bergen, 2017)

4. PUBLIC DEBTS

A nation’s debt profile is a significant determinant of its exchange rate. Countries embark on large-scale deficit financing to actualize national infrastructure and sustain government funding. Even though such activities help stimulate the domestic economy, countries with huge government debts are less attractive to foreign investors. A large public debt could lead to inflation. The government may print more money to settle part of the debt, resulting in an increase in money supply in the economy, which would ultimately cause inflation. In a case where the government is unable to finance its deficit through domestic methods, such as selling Treasury bonds and raising money through taxes, it has to increase the supply of securities available for purchase to foreign investors, thereby lowering the price of these securities, and devaluing the domestic currency relative to foreign currencies. Hence the debt will be settled and paid off with less real dollars in the future. (Bergen, 2017)

It is important to note that foreign investors are less willing to hold government securities denominated in the domestic currency if the risk of default by the country is high. Therefore, a nation's credit rating is paramount.

5. TERMS OF TRADE

The term of trade is the ratio of export prices to import prices. It is connected to current accounts and balance of payment. When a nation's value of exports is greater than its imports, it creates favorable terms of trade for the exporting nation. This signifies a high demand for the nation’s exports, leading to increased revenue from exports and a rise in the value of the domestic currency relative to the foreign nation's currency. However, when there is an increase in the price of a nation’s exports relative to its price of imports, the exporting nation will experience a decrease in volume of exports and an increase in demand for foreign goods, resulting in a fall in the value of the domestic currency against the foreign nation’s currency.

Historical Analysis

Evolution of Exchange Rate Policy in Nigeria

An exchange rate policy establishes a stable and suitable exchange value between the domestic currency and foreign currencies utilized in trading activities. Nigeria has implemented various strategies and alternatives to achieve this goal over the years.

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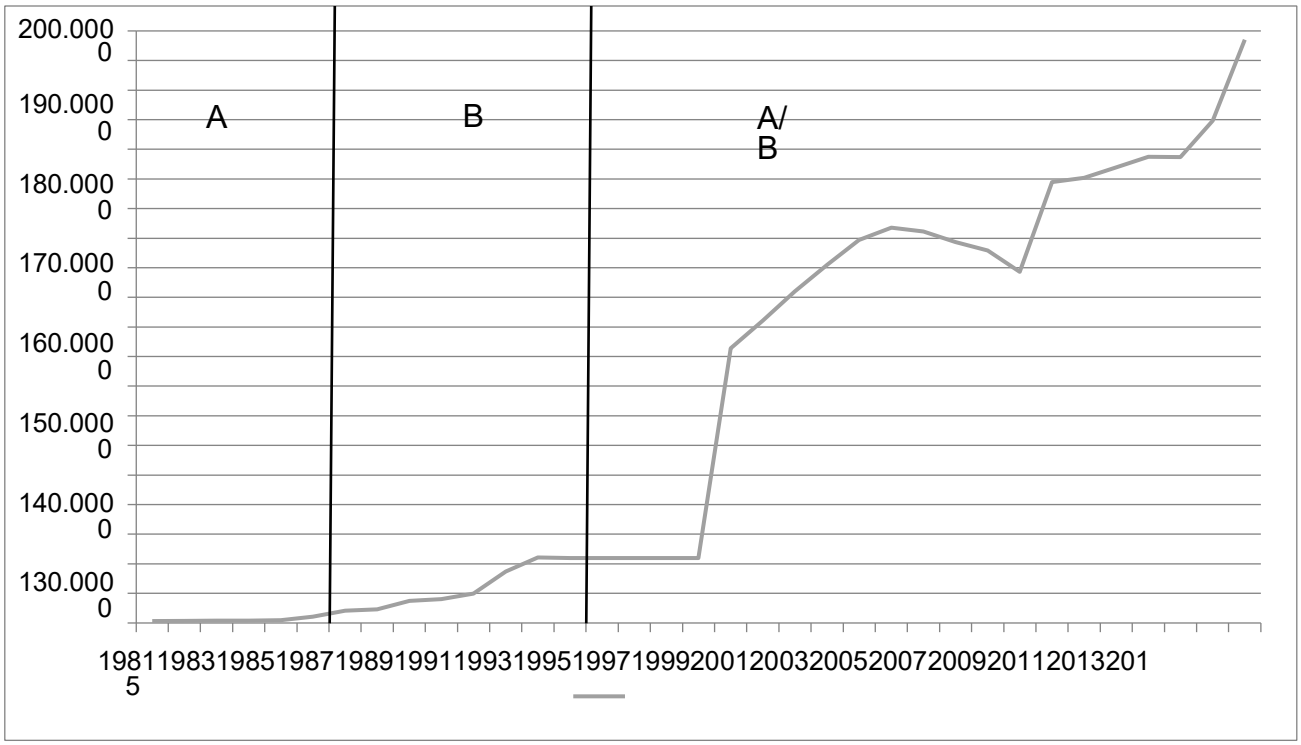

Figure 1: Exchange Rate Patterns under Different Regimes

Source: CBN Statistical Bulletin (2015)

Column A depicts the fixed exchange rate period in Nigeria (1962-1986). During this time, political considerations played a significant role in determining the exchange rate. From 1962 to 1973, the Nigerian currency was pegged to the British pound at a ratio of 1:1, but it was later devalued by ten percent until the early 1980s.

In September 1986, the system transitioned to a flexible exchange rate regime, as shown in column B, where market forces primarily influenced the exchange rate.

This was exemplified by the floating of the Naira in the Second-tier Foreign Exchange Market (SFEM).

Following the challenges faced by subsequent iterations of the flexible exchange rate regime, such as the Autonomous Foreign Exchange Market (AFEM) introduced in 1995 and the Interbank Foreign Exchange Market (IFEM) introduced in 1999, the Dutch Auction System (DAS) was reintroduced in 2002 with the primary objectives of reducing exchange rate premiums, preserving dwindling external reserves, and achieving a realistic exchange rate for the Naira.

The Dutch Auction System fulfilled these objectives. The Central Bank launched the Wholesale Dutch Auction System (WDAS) in 2006 to combine the benefits of the Dutch Auction System and further promote a liberalized foreign exchange market. Under the Wholesale Dutch Auction System (WDAS), authorized dealers were permitted to trade foreign exchange independently based on orders received from customers.

These exchange rate regimes have impacted economic performance. The trend analysis above (Fig. 1) indicates that the transition from a fixed system to a flexible/floating system has led to a steady increase in Nigeria's exchange rate. However, the exchange rate experienced a sharp depreciation in two post-Structural Adjustment Programme (SAP) periods, in 1998 and 2008. During these periods, the

exchange rate was market-driven, prompting the CBN to intervene in 2008 to halt the continuous decline in the exchange rate.

Trend Analysis of exchange rate, money supply and Gross Domestic Product

The graph below illustrates the relationship between exchange rate movements, money supply (M2), and economic growth (RGDP). As the exchange rate appreciated, real economic growth also increased, albeit at a declining rate from 1981 to 1992. However, the economy recovered and grew rapidly from 1992 to 2013, as depicted below. There was also an increase in broad money supply (M2) during this period; however, it is noteworthy that the Naira experienced a depreciation in value despite the increase in money supply.

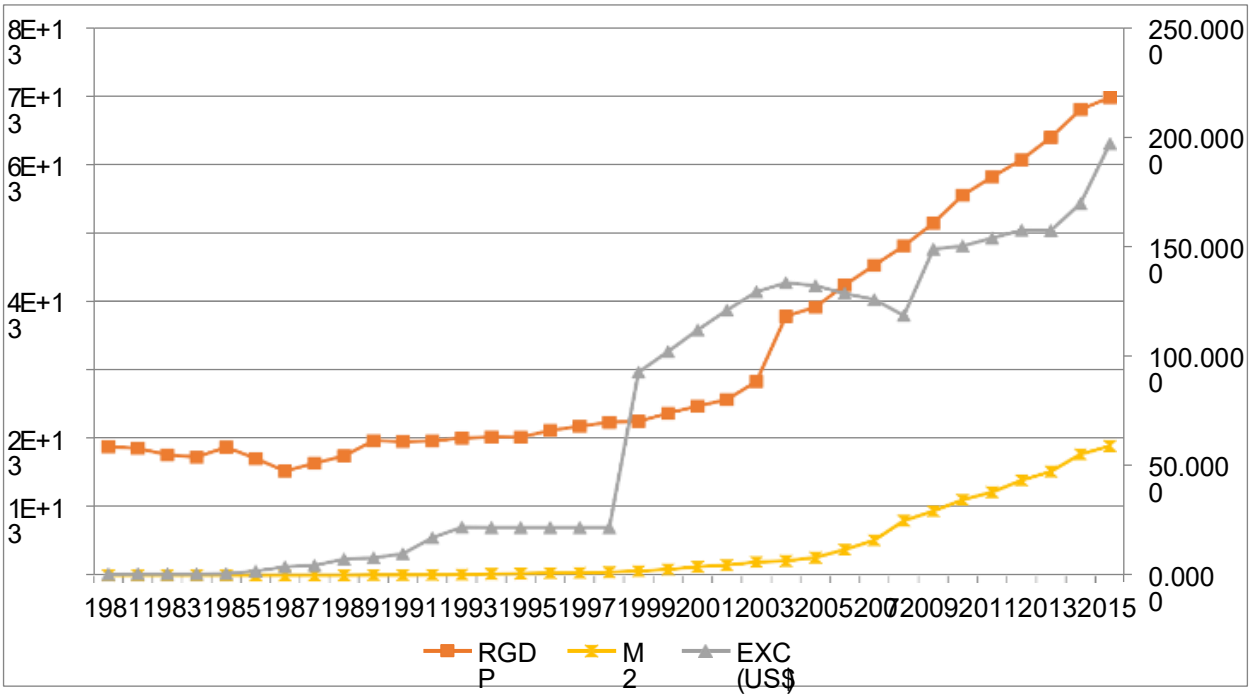

Figure 2: Fluctuation of currency exchange rate, quantity of money supply and Gross Domestic Product (GDP)

Source: CBN Statistical Bulletin (2015)

Nigeria's economic landscape has undergone significant fluctuations, largely attributed to the volatile exchange rate of its currency, the Naira. A key factor in this fluctuating trend is the heavy reliance of the Nigerian economy on a single export commodity—crude oil—rendering it susceptible to market fluctuations in the global oil industry. As depicted in the graph, Nigeria's external reserves remained below US$11 billion from 1981 to 2002, but experienced a marked increase from approximately US$7.5 billion in 2003 to nearly US$51.3 billion by the end of 2007. This surge is explained by the threefold rise in the price of crude oil from US$31 per

barrel in 2003 to US$95 per barrel by the end of 2007 (World Bank Data, 2014). Despite this improvement in external reserves due to increased oil export earnings, the overall economy continued to face challenges.

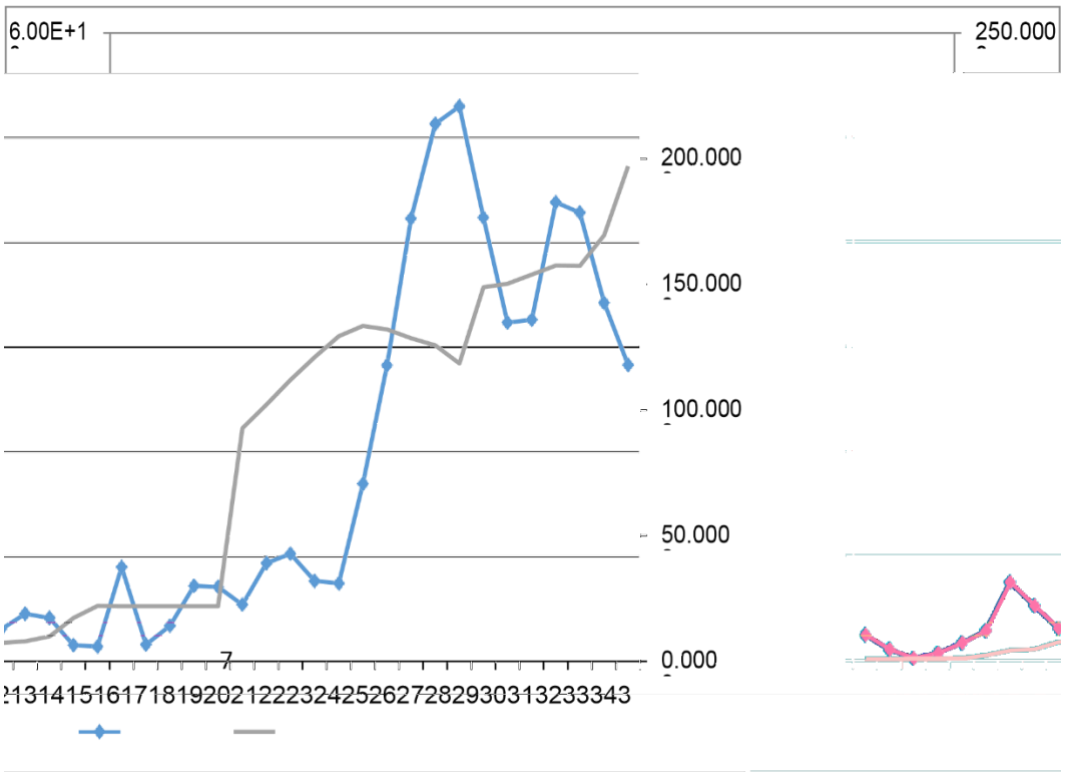

Figure 3: Trends in Exchange Rate and External Reserves

Source: CBN Statistical Bulletin (2015)

An examination of Nigeria's exchange rate evolution reveals a causal relationship between foreign exchange rate fluctuations and key macroeconomic factors such as inflation, GDP growth, and budget deficit-to-GDP ratio.

The exchange rate fluctuations during the 1990s mirrored the inflation rate. During periods of high inflation, exchange rate instability was pronounced. For instance, as the inflation rate surged from 7.5% in 1990 to 57.2% in 1993 and 72.8% in 1995, respectively, the exchange rate depreciated from N8.04: $1 (1990) to N22.05: $1 (1993) and N81.65: $1 (1995) over the same period. Conversely, as the inflation rate declined from 72.8% in 1995 to 29.3% in 1996 and 8.5% in 1997, and further stabilized at an average of 10.0% from 1998 to 2009, the exchange rate exhibited a similar pattern of appreciation. A comparable trend was observed for the budget deficit-to-GDP ratio and GDP growth rate.

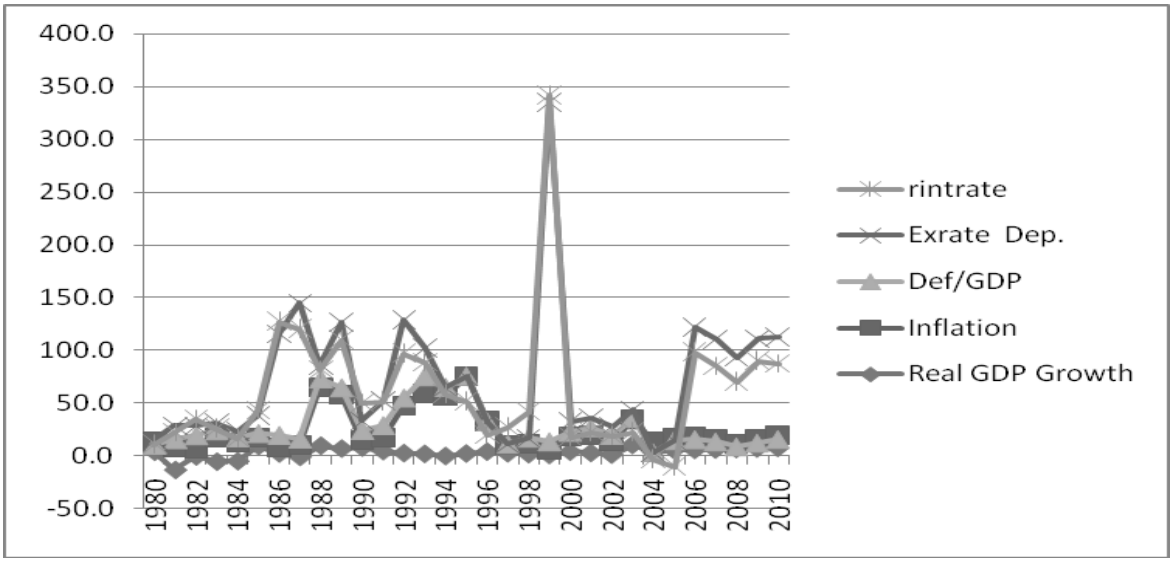

Figure 4: movement showing Exchange Rate and Specific Macroeconomic Indicators in Nigeria (1980-2010)

Source: Underlying information from Central Bank of Nigeria Statistical Bulletin Various Years

2.2 Theories of Exchange Rate

2.2.1 Optimum currency area (OCA) theory

The earliest theoretical framework for the determination of exchange rate regimes is based on the Optimal Currency Area theory developed by Canadian economist Robert Mundell (1961), building upon earlier work by Abba Lerner and later extended by Mc Kinnon (1963). This theory centers around the concepts of symmetry of shocks, degree of openness of an area, and efficient labor market mobility. The theory posits that certain regions not defined by political boundaries would benefit from a common currency. In essence, it suggests that there exists an optimal geopolitical area that should share a currency, although this geopolitical area does not necessarily coincide with political borders. An optimal currency area could encompass multiple countries, portions of multiple countries, or regions within a single country.

The theory suggests that implementing monetary policies based on geographical and geopolitical regions, rather than by country, leads to enhanced economic efficiency. The OCA concept can benefit a region by increasing trade within the area. However, the benefits of increased trade should outweigh the costs incurred by each country or individual within the region from giving up their own currency as a tool to influence economic policy.

There are four criteria for an optimal currency area:

1. A large, accessible, and integrated labor market that allows workers to move freely throughout the area, mitigating unemployment in any single zone.

2. The flexibility of prices and wages, along with the mobility of capital, to smooth out regional economic imbalances.

3. A centralized budget or mechanism to redistribute wealth to parts of the area that suffer due to labor and capital mobility.

4. The participating regions have similar business cycles and timing for economic data to prevent a shock in any one area.

A notable example of a common currency system based on the OCA theory is the European Union's trading currency - The Euro. However, the OCA theory came under scrutiny in 2010 as sovereign debt issues faced by several heavily indebted countries in Europe challenged the viability of the European Union.

2.2.2 Mint parity theory

The Mint Parity Theory elucidates the determinant of the exchange rate between two gold standard countries. Under this system, the currency used is comprised of gold or can be converted to gold at a fixed rate.

Therefore, the exchange rate between the two countries is the gold content of the domestic currency relative to the foreign currency, i.e., the value in terms of gold of the home currency compared to the value in terms of gold of the foreign currency. This exchange rate is referred to as the Mint Rate. A country is said to be operating on the gold standard if the following criteria are met:

1. The official monetary unit is defined in terms of gold or is convertible to gold at a fixed rate.

2. The government buys and sells gold in unlimited quantities at an officially fixed price.

3. There are no restrictions on the import and export of gold.

Under the gold standard, the exchange rate tends to remain close to the ratio of gold values of the currencies involved. This is called the Mint Par.

The Mint Par is a consequence of the relationship between the statutory bullion counterparts of the standard monetary units of the two countries, on a similar metallic basis.

In contemporary times, determining the exchange rate based on gold content or mint parity has become obsolete due to the following reasons:

1. No country in the world today operates on the gold standard.

2. Modern currencies are based on paper or fiat currency standards.

3. Free buying and selling of gold at the international level are prohibited by governments of various states worldwide.

The operation of the gold standard relies on flexible internal prices; however, today, governments pursue independent domestic price and employment policies without considering exchange rates.

2.2.3 Purchasing power parity (PPP) theory

The Purchasing Power Parity (PPP) theory posits that under a system of inconvertible paper money, the exchange rate between two currencies is determined by the general purchasing power of the two currencies in their respective countries. There are two forms of the PPP theory - the Absolute version and the Relative version.

According to the Absolute version of the PPP theory, the exchange rate is determined by the ratio of domestic purchasing power of the foreign currency to the domestic purchasing power of the home currency. The exchange rate will be in equilibrium when the purchasing power of money is equal in both trading nations.

This can be mathematically expressed as:

$R = P_a.Q_o/P_b.Q_o$

Where R = Exchange rate between Country A and Country B

P_a = Price in Country A

P_b = Price in Country B

Q_o = Same Quantity of goods in both countries

For instance, suppose a set of goods costs N10,000 in Nigeria, and $1,000 in the United States.

Thus:

Purchasing Power of N10,000 = Purchasing power of $1,000

The exchange rate between the Naira and the Dollar, will be calculated as follows.

US$1 = Cost of Goods in Nigeria/Cost of same goods in USA

= 10,000/1,000 = N10

N1 = Cost of goods in USA/Cost of same goods in Nigeria

= 1,000/10,000 = US$0.1

The Relative form of the PPP hypothesis clarifies the connection between the progressions in interior buying power and the adjustments in exchange. The adjustment in balance pace of trade relies upon the adjustment in proportion of the inward buying forces of the concerned monetary forms.

Along the line, the new pace of trade is dictated by the result of the old buying power equality and the proportion of changes in the interior buying intensity of the monetary forms

This is mathematically represented below as follows.

$R_1 = R_0 * (P_{a1}/P_{a0}/P_{b1}/P_{b0})$

Where R_0 =Equilibrium exchange rate in the Base year

R_1 = Equilibrium exchange rate in the current year

P_{a0}= Price Index of Country A in the base year

P_{a1}= Price Index of Country A in the current year

P_{b0}= Price Index of Country B in the base year

P_{b1}= Price Index of Country B in the current year

The relative version of the PPP leads to the following conclusions:

1. Currency maintains its purchasing power parity if it devalues by an amount equal to the excess of domestic inflation over foreign inflation. In other words, Currency Depreciation = Domestic Inflation – Foreign Inflation.

2. The price level in a country and its rate of exchange move in opposite directions. For example, if the price level in Nigeria rises, the Naira exchange rate in terms of foreign currency will decline and vice versa.

3. If the degree of cost in nation an ascent and the degree of cost in nation B continues as before, the conversion scale will move for Country B contrasted with Country A and vise versa.

4. If the price level in country A rises and the price level in country B remains the same, the exchange rate will depreciate for Country B against Country A and vice versa.

5. If the price levels in both Country A and Country B rise (or fall) at the same rate, there will be no change in the rate of exchange.

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The Purchasing Power Parity has been criticized by some economists as defective for the following reasons:

1. Limitations of Index Numbers

Price index numbers are considered unreliable for the following reasons:

a) Price index numbers use historical prices and do not reflect current prices.

b) Price index numbers in different countries use different sets of commodities.

c) Price index numbers also include commodities which are not traded internationally.

d) Price index numbers may be founded upon varying significance assigned to distinct commodities.

e) Price index numbers across various nations employ different base years and thus hinder direct comparison.

2 The PPP theory establishes a direct correlation between the price levels of two currencies and their exchange rate. Nonetheless, numerous factors, such as tariffs, speculation, and capital flows, can exert influence on exchange rates.

3 Per the PPP theory, exchange rates ought to reflect the aggregate prices of goods and services within an economy. However, only a subset of goods and services

engage in international trade. Internally traded goods exert no impact on exchange rates.

4 The PPP theory presumes that price level fluctuations trigger changes in exchange rates. Empirical evidence suggests otherwise: exchange rates often dictate price levels, not the reverse. Halm *et al.* contend that price levels follow, rather than precede, exchange rate adjustments.

5 The PPP theory holds relevance only in the long term. It offers no solutions for short-term exchange rate issues, rendering it impractical.

2.2.4 Balance of payment or modern theory

The equalization of installments hypothesis constitutes the most up-to-date and well- regarded theory of exchange rate determination, it is also known as the Demand and Supply Theory of Exchange Rates.

This hypothesis posits that international trade flows are dictated by the demand and supply of foreign currencies in the market. Consequently, a decrease in the demand for Country A's currency at a given exchange rate manifests as a Deficit in Country A's balance of payments. Conversely, an increase in the demand for Country A's currency at a given exchange rate signifies a Surplus in Country A's balance of payments. The term "balance of payments" denotes market equilibrium in this context.

A Deficit balance of payments triggers a decline or devaluation of a country's currency, while a Surplus balance of payments leads to an appreciation in the currency's value.

When market forces operate freely, demand and supply of foreign currencies establish an exchange rate that balances the market, precluding the emergence of genuine surpluses or deficits (Ellsworth et al.). If the exchange rate is allowed to adjust fully to changing demand and supply conditions, a country's balance of payments status will dictate the value of its currency relative to other currencies (Walter et al.).

The balance of payments records international payments made for various transactions, such as imports, exports, investments, and other financial exchanges. Inbound payments are referred to as credits and constitute the supply of foreign currency, while outbound payments are termed debits and represent the demand for foreign currency. The supply of foreign currency emanates from exporting countries, and the demand for foreign currency in balance of payments terms comprises imports.

A balance of payments deficit or surplus triggers an adjustment in the demand and supply of foreign currencies, resulting in exchange rate changes. A balance of payments deficit indicates that debits (demand for foreign currency) exceed credits (supply of foreign currency), leading to a decline in the domestic currency's value

relative to foreign currencies or an increase in the exchange rate. Conversely, a balance of payments surplus implies that the supply of foreign currency surpasses the demand for foreign currency, causing an increase in the domestic currency's value relative to foreign currencies or a decrease in the exchange rate.

The balance of payment theory is considered superior to other theories for the following reasons:

1 It asserts that trade rate is influenced by the prevalence and adaptability of foreign trade in the market.

2 It incorporates exchange rate determination as an integral component of broader economic equilibrium theory.

3 The theory acknowledges factors beyond goods exports and imports that influence foreign exchange demand and supply, thereby affecting the exchange rate.

4 It suggests that trade imbalances can be rectified by adjusting the pace of trade, whether through depreciating domestic currency for a deficit or appreciating it for a surplus.

Although the balance of payment theory is considered the most modern theory on exchange rate, it has been criticized for the following draw backs.

1. The theory is based on unrealistic assumptions of perfect competition and noninterference of the government in the foreign exchange market. Today, most countries have adopted a policy of exchange control.

2. The theory assumes that there is no causal relation between the rate of exchange and the internal price level. In reality there's a definite relation between both variables.

3. The theory does not clearly state the relationship between the balance of payments and exchange rate. According to the theory, the balance of payment determines the rate of exchange; however, exchange rate also determines the balance of payment.

4. The theory assumes that the demand for raw materials imported from other countries is perfectly inelastic and hence independent of the fluctuations in price and exchange rate. In reality the demand for most essential commodities have some degree of elasticity, and thus are influenced by the price fluctuations due to changes in the rate of exchange.

5. The theory unrealistically assumes that balance of payment is a fixed quantity.

2.2.5 The elasticity approach

The elasticity approach recognizes that exchange rate depreciation may enhance balance of payments. It claims that the effectiveness of depreciation in improving the exchange rate, and thus the balance of payments, depends on the elasticities of demand for the country's imports and exports.

The Marshall – Lerner Condition

The Marshall-Lerner condition expresses that a money depreciation will in the long run improve the equalization of installments. Subsequently, so as to achieve this expansion yet to be determined of installments, the total of interest versatility for imports and fares needs to increment. Named after two business analysts – Alfred Marshall and Abba Lerner, the hypothesis clarifies that when a nation downgrades its money, the cost of its fares will diminish. However, for an increased demand to occur, the products have to be elastic in nature. This is mathematically represented as follows.

Let Ex^d Em^d = Price elasticity of demand for exports and imports respectively Ex^s Em^s = price elastic of supply for exports and imports respectively. Therefore, according to Marshall-Lerners conditions, devaluation will increase a country’s balance of trade, if $Ex^d + Em^d > 1$ (Assuming Ems is infinite.)

The elasticity approach based on the Marshall-Lerner condition rests on several restrictive assumptions.

1. The investigation is established upon fractional balance for example it considers just the impacts of conversion scale varieties in the market for fares and imports, all other conditions held constant, so that the demand curves for export and import remain constant. However, in reality, exchange rate variations will cause price effects on other variables, in the system, which will shift the demand curves for both imports and exports.

2. The approach assumes that for a successful currency depreciation all elasticities of supply are infinite, so that price of exports in the nation of origin, doesn't ascend as request expands, the cost of unfamiliar merchandise rivaling trades doesn't fall as interest for them (unfamiliar products) falls, and the cost of imports in unfamiliar money doesn't fall as the interest for imports falls, and the cost of homegrown products contending with imports doesn't ascend as the interest for import substitutes increments. There are four flexibilities of gracefully, however the simple formula can be altered to fuse the versatility of flexibly for imports and fares however the flexibility of gracefully for products that rival import and fares are limitlessly flexible.

3. The elasticity approach disregards the financial impacts of changes in swapping scale. Moreover, it is expected that the exchange is at first adjusted and that the adjustment in conversion scale is little.

2.3 Empirical Literature

Earlier studies investigating the impact of exchange rate scale variations on monetary progress have presented conflicting findings. Certain investigations have shown both short-term and long-term effects of exchange rate scale variations on monetary growth. The character of these effects varies, with some studies indicating a positive relationship and others a negative relationship, while a few indicate minimal significance in the relationship. According to the IMF (1984) and the European Commission (1990), empirical evidence for a significant positive (or negative) impact of exchange rate scale stability on exchange rate and growth in small open economies remains inconclusive. Bosworth, Collins, and Yuchin (1995) conducted a study on a large sample of developed and developing countries, providing evidence that real exchange rate volatility hinders monetary growth and diminishes productivity growth.

Arise *et al.* (2000) employed the Johansen's co-integration procedure and Error Correction Model to examine the influence of real exchange rate instability on exports for thirteen (13) Less Developed Countries. The study, conducted using quarterly data from 1973 – 1996, revealed that an upward movement in real

exchange rate led to a significant negative impact on the demand for exports in both the short-run and long-run in all thirteen countries.

Mauna and Reza (2001) investigated the impact of exchange rate growth, real exchange rate volatility, and exchange rate divergence on selected North African countries, namely Morocco, Algeria, and Tunisia. By decomposing the real exchange rate into fundamental and monetary determinants, and applying standard statistical measures of exchange rate variations and the measures of exchange rate risk developed by Purée and Steinher (1989), the study showed that exchange rate depreciation positively affects the volume of manufactured exports while exchange rate misalignment and volatility have a negative impact. The overall result of the study suggested that all manufacturing sub-sectors are responsive to exchange rate volatility, but the degree of responsiveness varies across sectors.

Broda and Romails (2003) discovered that real exchange rate volatility has a substantial negative effect on trade-separated products. The study utilized a cross-exchange rate model, where the Ordinary Least Square and Generalized Method of Moment methods were employed to analyze the data. After considering the direction of causality, they found that a 10% increase in volatility reduces separated product trade by 0.7%, while a 10% increase in trade reduces exchange rate volatility by 0.3%.

Eichengreen and Lablang (2003) conducted their assessment in 12 countries over a period of 120 years and discovered a substantial negative association between exchange rate stability and growth. They subsequently interpreted that the results of such evaluations critically depend on the time period and the model.

Using panel estimations for over 180 countries, Edwards and Levy Yeyati (2003) found evidence that countries with more flexible exchange rate regimes grow faster. Ozturk and Kalyoncu (2009) utilized quarterly data for six countries – South Korea, Pakistan, Poland, South Africa, Turkey, and Hungary – from the period 1980 - 2005 to investigate the effect of exchange rate volatility on exchange rate flows in each country. Employing the Engle-Granger stationary based cointegration procedure, the results of the study indicated a significant negative impact on trade in Pakistan, Poland, South Korea, and South Africa, and a positive effect on Turkey and Hungary.

Mukherjee and Pozo (2011) examined the impact of exchange rate volatility on the volume of bilateral trade from a sample of 200 countries using a Gravity Model for the analysis. The results indicated a negative impact, linking exchange rate instability and the volume of bilateral trade. However, at a very high level of volatility, the effect decreases gradually.

Kogid *et al.* (2012) investigated the effect of exchange rate on monetary growth in Malaysia using time-series data for the period 1971 – 2009. The ARDL Bounds test

was utilized to analyze the data. The study found that a long-run co-integration exists between exchange rate (nominal and real) and monetary growth. Consequently, exchange rate significantly influenced monetary growth.

Korkmaz (2013) evaluated the impact of exchange rate on economic growth (GDP) for nine European countries: France, Germany, Greece, Italy, Spain, Turkey, Poland, and the United Kingdom. The study analyzed annual data from 2002 to 2011 and employed panel data analysis. It determined a direct correlation between exchange rate and economic growth for the nine countries examined.

Serenis and Tsounis (2014) examined the effect of exchange rate volatility on tourism revenues for Croatia and Cyprus during 1990-2012. Utilizing the ARDL technique, they concluded that exchange rate volatility positively influences tourism revenues for both countries.

Tiwari and Sharma (2015) explored the relationship between foreign exchange and economic growth in China using time-series data from 1980 to 2013. Their analysis, which included Co-integration, Granger Causality test, and Vector Error Correction Mechanism (VECM), revealed that foreign exchange and GDP were cointegrated and demonstrated the existence of a long-term equilibrium relationship between them.

Jibrin *et al.* (2017) assessed the impact of exchange rate on Gross Domestic Product (GDP) and other macroeconomic variables for a sample of ten (10) ECOWAS member states. These countries were Benin Republic, Burkina Faso, Cape Verde, Gambia, Ghana, Guinea, Guinea Bissau, Liberia, Nigeria, and Sierra Leone. Employing the Ordinary Least Square technique, their analysis showed that exchange rate had a significant impact on GDP in Benin Republic, Guinea Bissau, Liberia, and Nigeria.

Osuntogun *et al.* (1993) examined the effects of exchange rate uncertainty on Nigeria's non-oil export performance as a secondary objective in their study of key issues in promoting Nigeria's non-oil exports. This marked the initial effort in Nigeria to determine the impact of exchange rate risks on exports, but did not consider cross-sectional effects.

Ubok-udom (1999) explored the relationship between exchange rate variability and growth in the standard of domestic output in Nigeria (1971-1995), examining the context surrounding the implementation of the Structural Adjustment Program (SAP) in Nigeria and concluding that the glaring weaknesses of the Nigerian economy reduced the effectiveness of currency devaluation in producing desirable outcomes in the economy. Using proxies to capture episodes of currency devaluation, empirical results indicated that all coefficients of the explanatory variables had negative (-) signs.

Ogun (2006) investigated the effect of real exchange rate on the growth of non-oil exports in Nigeria, using the trade model theory of determinants of export growth alongside two specific measures of real exchange rate misalignment: the Purchasing Power Parity (PPP) and a model-based estimate of Equilibrium Real Exchange Rate (ERER). They found that regardless of the misalignment measure applied, both real exchange rate misalignment and volatility had a negative effect on the growth of Nigeria's non-oil exports.

Akpan (2008) examined the foreign exchange market and economic growth in an emerging oil-based economy in Nigeria from 1970-2003. The study identified a positive correlation between exchange rate and economic growth.

Adebiyi and Dauda (2009) employed an error correction model and identified a positive and significant relationship between manufacturing production and real exports. Thus, a 1% increase in real exports increases the index of manufacturing production by 12.2%. This suggests that the liberalization policy impacted exports positively through exchange rate devaluation.

Aliyu (2010) investigated the effect of exchange rate volatility on Nigeria's non-oil exports from 1986-Q1 (first quarter) to 2006-Q4 (final quarter), using Vector Error Correction and VAR models. The results established a long-run stable and negative relationship between Naira exchange rate volatility and non-oil exports in Nigeria. However, the result was positive for US exchange rate volatility and non-oil exports.

David, Umeh, and Ameh (2010) analyzed the impact of exchange rate fluctuations on Nigeria's construction industry using a multiple regression tool. The results observed a negative relationship between exchange rate volatility and the construction sector performance.

Joseph (2011) utilized the Generalized Auto-backward Conditional Heteroscedasticity (GARCH) approach to assess the impact of exchange rate unpredictability on Nigerian currency, leveraging data from 1970 – 2009. The analysis revealed a negative and statistically insignificant correlation between exchange rate instability and currency exchange.

Oyovwi (2012) explored the impact of exchange rate unpredictability on economic growth in Nigeria. The study utilized time series data from 1970 – 2009. The Generalized Auto-backward Conditional Heteroscedasticity (GARCH) model was employed to gauge exchange rate uncertainty. The investigation discovered that in the short term, economic growth was positively and significantly correlated with exchange rate volatility, while in the long term, a negative relationship existed between the two variables. The long-term outcome also suggests that an increase in oil prices stifles economic growth in Nigeria, effectively negating the revenue benefit of rising oil prices.

Azeez *et al.* (2012) analyzed the impact of exchange rate volatility on macroeconomic performance in Nigeria. The study included Real GDP as the

dependent variable, while Exchange rate (EXR), Balance of payment (BOP), and Oil Revenue (OREV) were the independent variables. Quarterly data was collected for the period 1986-2010. The study employed the Ordinary Least Square (OLS) method and Johansen Cointegration test for the short and long-term effects of the exchange rate volatility. The results showed that Exchange rate (EXR) and Oil Revenue (OREV) were positively correlated with Real GDP, while Balance of Payment (BOP) was negatively correlated with Real GDP.

Asher *et al.* (2012) examined the impact of exchange rate fluctuations on Nigeria's economic growth from 1980 to 2010. The result showed that the Real exchange rate has a positive impact on economic growth. Akpan and Atan (2012) explored the impact of exchange rate movement on real output growth in Nigeria for the period 1986-Q1 to 2010-Q4. The study applied a Generalized Method of Moments procedure for analysis and found there was no significant relationship between changes in real exchange rate and output growth. Instead, it suggested that Nigeria's economic growth has been predominantly influenced by monetary factors. Hence, the conclusion was that exchange rate adjustments are necessary but not sufficient to revitalize the Nigerian economy.

Usman and Adejare (2012) examined the impact of foreign exchange systems on industrial development in Nigeria using time series data for the period 1985 – 2005. The variables used in the study included GDP (the dependent variable), World Price

Index, Per capita income, and Net exports as the independent variables. Using the OLS and correlation techniques, the study concluded that exchange rate significantly affected industrial development.

Dickson and Ukavwe (2013) employed the Error correction and GARCH model to investigate exchange rate volatilities on exchange rate variations Nigeria using annual time series data from 1970-2010. The result of the study showed that exchange rate volatility is not significant in explaining variations in imports but was found to be statistically significant and positive in explaining variations in exports. Obansa, Okoroafor, Aluko and Millicent (2013) investigated the relationship between exchange rate and economic development in Nigeria for the time span 1970 -2010. The result indicated that exchange rate positively influenced economic development. They correspondingly deduced that exchange rate movement would foster the growth of Nigeria's economy.

Taiwo and Adesola (2013) explored the impact of exchange rate volatility on bank performance using two proxies for bank performance – loan loss to total advances ratio and capital adequacy ratio. Government expenditure, Interest rates and Real GDP were also included as independent variables, alongside Exchange rate. The study revealed that the impact of exchange rate on bank performance is sensitive to the type of proxy used for bank performance. Loan loss to gross advances ratio shows that volatile exchange rate may affect the ability of banks to manage loans,

leading to an increased level of bad loans, while capital adequacy ratio has no significant relationship with exchange rate.

Usman, Musa, and Sa'idu (2013) investigated the impact of exchange rate volatility on trade in Nigeria. The study employed OLS techniques, Granger causality tests, ARCH, and GARCH procedures. The Augmented Dickey-Fuller approach was used to test for the presence of Unit root. The causality analysis revealed a causal relationship between exchange rate and trade volume in the country; however, the direction of causality runs from exchange rate to trade, i.e., exchange rate volatility causes trade fluctuations. Consistent with this finding, ARCH and GARCH tests demonstrated that exchange rate is unstable, but exports are non-volatile.

The study, therefore, concluded that exchange rate volatility has a positive effect on trade in Nigeria. Adeniran *et al.* (2014) analyzed the impact of exchange rate on the rate of economic growth in Nigeria for the period 1986 - 2013 using the Ordinary Least Square technique. Additionally, the study found that interest rate and inflation negatively affected economic growth. The study recommended that government should stimulate export promotion policies in order to maintain a favorable balance of trade, develop adequate infrastructural facilities to attract foreign investment, and establish effective fiscal and monetary policies.

Akpan *et al.* (2015) employed the Generalized method of moments (GMM) and dynamic panel data model to examine the effects of exchange rate volatility on

Nigeria's economic growth using quarterly data from 1986-2014. The study found that there is no direct relationship between exchange rate and growth, rather Nigeria's economic growth has been significantly influenced by monetary factors. It suggested a comprehensive program of exchange rate reforms in line with the exchange rate policy adopted.

Akinlo and Lawal (2015) examined the impact of exchange rate on industrial production in Nigeria over the period 1986-2010 using the Vector Error Correction model for analysis. The study suggested the presence of a long-run relationship between industrial production index, exchange rate, money supply, and inflation rate. It concluded that exchange rate depreciation had no significant impact on industrial output in the short run but had a positive and significant effect in the long run.

Gatawa and Mahmud (2017) examined both the short- and long-run effects of exchange rate volatility on agricultural exports volume in Nigeria from 1981–2014. GARCH and ARDL methods were used to estimate the volatility of exchange rates. Results showed that exchange rate volatility significantly affected the volume of agricultural exports.

2.4 Limitations of the Previous Studies

Previous studies on exchange rate volatility have generally established that both short-term and long-term fluctuations in exchange rate can significantly affect the growth performance of open economies. This section of the work reviews the studies of various authors on aspects of exchange rate.

Evans and Lyons (2002), citing the work of Meese and Rogolf (1983), highlighted that macroeconomic models of exchange rates perform poorly at frequencies higher than one year. They stated that the predictive power of such models is zero.

Bahmani-Oskooee and Kandil (2007) evaluated the validity of conventional wisdom on the impact of exchange rate fluctuations in oil-exporting countries. They concluded that the expansion of non-oil export sectors made currency depreciation expansionary rather than contractionary.

Kandil *et al.* (2007) in their model decomposed exchange rate into expected and unexpected components. According to their model, expected changes in the exchange rate are likely to vary with agents' expectations, which determine movements in the exchange rate over time. Aluko (1988), in his own assessment of the appreciation and depreciation of the naira since 1970 with respect to its impact on income distribution and external reserves of Nigeria, argued that devaluation of the naira which he claimed was overvalued was necessary for the implementation of

SAP. He did not, however, consider the evolving nature of the Nigerian economy. Besides, as a developing economy, Nigeria mainly produces primary goods and imports machinery and a few (major) raw materials for its industries.

He disregarded the specialist's notable expenditure for imports whose decline in value would impose a toll on such imports, subsequently resulting in rampant inflation. Kanyo (1988) criticizes serious currency exchange volatility in his research. He emphasizes its significance in light of the Nigerian economy's developmental aspiration.

Eze (1988), evaluating unfamiliar exchange rate fluctuations and their impact on the Nigerian economy, suggested that the Central Bank of Nigeria stabilize the Naira exchange rate at a rate deemed beneficial to the public. The underground market, where foreign currency can be acquired more readily than through banks, influenced his recommendation. Nevertheless, he recognized the government's necessity to intervene in the foreign exchange rate to mitigate the detrimental consequences of short-term fluctuations on the Nigerian economy.

Proponents of the "big push" model argue that developing economies cannot be described as stagnant but lack the drive and courage to make the transformative leap to the heights this theory proposes. Less developed nations must cast aside their underdevelopment, and the primary path is to mobilize vast resources to initiate the development cycle. According to this perspective, incremental progress alone cannot

enable developing nations to achieve self-sustaining development. Supporters of this model emphasize the need for a significant initial push, similar to the way a vehicle requires a forceful jolt to start with a weak battery, for significant progress. However, they fail to specify the source of this substantial push, whether from the public or private sector.

These scholars' contributions aim to explore the financial repercussions of volatile exchange rates and identify pathways for less developed countries to achieve economic growth and development.

2.5 Definition of Terms

Real Exchange Rate (RER)

The Real Exchange Rate refers to the nominal exchange rate adjusted for the differential rates of inflation between the two currencies. It represents the rate of exchange of a currency in real value terms, taking into account the effects of inflation. The various definitions of the real exchange rate can be grouped into two main categories. The first group defines the real exchange rate in accordance with the Purchasing Power Parity, while the second group defines it in terms of tradable and non-tradable goods.

According to the PPP, the real exchange rate is the nominal exchange rate (e) adjusted by the ratio of the foreign price level (Pf) to the domestic price level (P). This can be expressed mathematically as:

$R_{PPP} = e. (P_f/P)$

Where R_{PPP} = Real Exchange Rate.

In terms of tradable and non-tradable goods, the real exchange rate considers the relative prices of tradable and non-tradable goods as an indicator of a nation's competitiveness in foreign trade. This definition assumes that the prices of tradable goods will be equalized across countries Therefore, the real exchange rate can be mathematically represented as:

$r_r = P_t/P_n = e(P^*_t/P_n)$ Where.

P_t and P^*_t = Domestic and International Prices for tradable goods

P_n = Prices for non-tradable goods. r_r = Real exchange rate.

Therefore, a decline in r_r will indicate the real appreciation of the domestic currency.

The Nominal Exchange Rate (NER)

The Nominal exchange rate alludes to the overall cost of monetary forms of two nations. It is the swapping scale of a cash communicated in current value terms

with no remittance for the impacts of expansion. Ostensible Exchange rate is additionally characterized as the quantity of units of the homegrown cash that are expected to buy a unit of a given unfamiliar money.

For example, according to the CBN exchange rates, the current value of the US Dollar in terms of Naira as at 09/11/2020 was recorded as N380. This means the nominal exchange rate between the Naira and the Dollar is N380: $1.

It is called nominal because it considers the numerical value of the currencies without emphasis on the purchasing power of the currencies.

Real Effective Exchange Rate (REER)

The trustworthy compelling trade off scale is characterized as the measured normal of a nation's cash regarding a record of other unfamiliar monetary standards. It is utilized to figure the estimation of a particular money comparable to a normal gathering of significant monetary forms. Subsequently the genuine successful conversion scale is utilized to assess the unpredictability of a nation's cash against a gathering of monetary forms on the double and is a significant measure while assessing a nation's exchange capacities.

Nominal Effective Exchange Rate (NEER)

The ostensible viable conversion scale is the unadjusted weighted normal rate at which a nation's money is traded for a container of various unfamiliar monetary

forms. A noteworthy distinction between ostensible swapping scale and the ostensible compelling conversion standard is the way that while the former (NER) is determined separately in relation to each currency, the NEER is a single index value that communicates how a homegrown money's worth looks at against numerous unfamiliar monetary forms simultaneously. Hence, if a homegrown money increments against a bushel of different monetary forms inside a gliding swapping scale system, the Nominal Effective Exchange Rate increases in value. If anyway the homegrown money falls, the Nominal Effective Exchange Rate devalues. NEER is used in economic studies and more importantly for policy analysis on international trade. However, NEER can only describe relative value of the domestic currency against the basket of currencies. It does not evaluate the strength of a currency in real terms, it only describes whether a currency is weak or strong in comparison to foreign currencies.

When the NEER index is greater than 1, it signifies that the domestic currency is more valuable than the foreign currency; when the index is less than 1, it implies that the foreign currency is more valuable than the domestic currency.

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Devaluation

Devaluation is an intentional downward adjustment of a country's currency value relative to another currency, group of currency systems, or gold standard. It is utilized as a monetary tool by nations operating under a fixed or semi-fixed exchange rate system. Devaluation aims to reduce trade imbalances by lowering the cost of a nation's exports, thereby making them more competitive in the global market while simultaneously increasing the cost of imports. A higher import cost discourages domestic consumers from purchasing those imports and promotes demand for domestic substitutes.

This leads to a more favorable trade balance for the country. Devaluation's drawbacks include that while increasing the cost of imports protects domestic producers, those producers may become less efficient in the absence of competitive pressure.

CHAPTER THREE

THEORECTICAL FRAMEWORK AND METHODOLOGY

3.1 Theoretical Framework

This premise stems from the understanding that if the factors contributing to the unstable exchange rate of the naira are identified and addressed, the economy will experience rapid growth and development. This is because if the volatile exchange rate of the naira is found to negatively impact crucial macroeconomic variables, such as Real exchange rate, Real interest rate, inflation rate, gross domestic product (GDP), and trade openness, efforts must be made to stabilize the exchange rate. These macroeconomic variables are fundamental indicators of a country's growth and development. Additionally, one of the most compelling arguments in favor of flexible exchange rates is that it is possible to effectively adjust for fundamental shifts in supply and demand over extended periods; flexible exchange rates also necessitate minimal or no government intervention to counterbalance the influence of changing supply and demand conditions on exchange rates. Lastly, flexible exchange rates generally do not transmit.

3.2 Model Specification

The research employs an ex post-facto design, as described by Kerlinger (1964), wherein events have already occurred, and the researcher begins with an observed dependent variable. The study utilizes the Ordinary Least Square (OLS) technique, which serves as a basic linear regression model. This model includes a single independent variable.

Mathematically, it is represented as follows.

$Y = b_0 + b_1X + b_2X_1 + u$

Where:

β_0 = the intercept

β_1, β_2 = the slopes of the variable

Y = The dependent variable

X = The autonomous variable Therefore, in line with the above equation, the model for the study becomes.

$GDP = b_0 + b_1EXR + b_2INT + b_3INF + b_4EX + u$

Where the GDP represents the economic growth of Nigeria,

EXR = represents the exchange rate.

INTv = represents interest rate.

INF = represents inflation rate.

EX = represents exports

u = is the stochastic or error term.

The study employs the Augmented Dickey Fuller test, Cointegration and Granger Causality test. Augmented Dickey Fuller is used to test for the stationarity (or trend stationary) of time series. That is, it is used to ascertain whether a series is stationary or non-stationary.

Hypothesis for the test is as follows:

H0: there is unit root. Series is nonstationary.

H1: the time series is stationary (or trend stationary)

Cointegration tests analyzes the long-run parameters or equilibrium in a system with unit root variables. It follows the assumption that the variance and means of a given series are constants, independent of time. It is used to determine the existence of a correlation between two or more time series in the long run. The test is also used to identify the level of sensitivity exhibited by two more variables to another variable in each model. The most dominant cointegration tests are the Engle-Granger Test, Johansen Test and the Phillips-Ouliaris test.

The Engle-Granger test is utilized in this study. the Granger causality test is used to investigate causality between two variables in a time series. This approach employs empirical data to find patterns of correlation between two variables.

3.3 Methodology

Annual data from 1980-2018 on GDP and exchange rate will be utilized. GDP is measured by Nigeria's Real GDP. Cointegration, Augmented Dickey Fuller (ADF), and Granger Causality tests will be employed to assess the significance of relationships between independent and dependent variables.

1 **Statistical criteria**: These are also known as first order tests and are aimed at determining the statistical reliability of parameter estimates. These estimates are obtained from a sample of observations of the variables included in the model, thus, these statistical tests are used to check the accuracy of the estimates. According to Koutsoyiannis (1997), the most commonly used tests are the square of the correlation coefficient, R^2, its adjusted R^2 test and the standard errors of the parameter estimates.

The R^2 test usually called the coefficient of determination is used in judging the explanatory power of the linear regression of the dependent variable on the independent variables. In other words, it shows the percentage of the total variation in the dependent variable that is explained by the regression model. Therefore, R2 indicates the explanatory power of the regression model, expressing the percentage

of variance in the dependent variable explained by the model. A higher R2 implies a better fit of the regression plane.

The adjusted R^2 was conceptualized to correct the defect that will arise from the addition of new regressors by considering the degree of freedom which decreases as new regressors are introduced into the function. It is a modified version of the R^2 that has been adjusted for the number of predictors in the model, therefore, it is usually lower than the R^2 value.

The reliability or precision of the regression estimation is also gauged by the standard error of parameter estimates. It corresponds to the standard deviation of Y values around the regression line estimate and is often used to assess the goodness of fit of the estimated regression line (Gujarati, 2004). The test helps us determine if the estimates differ significantly from zero, i.e., if the sample from which they were estimated originates from a population with true parameters of zero. Larger standard errors for a parameter indicate lower reliability (i.e., the explanatory variable does not genuinely influence the dependent variable and should not be included in the function), and vice versa. Additional statistical tests include the T-test, used to determine the significance of individual parameter estimates in the regression model, and the F-test, which tests the overall significance of the regression model.

2. **Econometric criteria**: These are second order tests because they determine the reliability of the statistical criteria. These tests are secondary because they

determine the reliability of the statistical criteria. They help us establish whether the estimates possess the desirable traits of being unbiased, consistent, with minimum variance, and efficient estimators. The error term in the regression model must adhere to its econometric assumptions; hence, the criteria aim to detect violations of the employed econometric technique. The assumptions of the econometric method must be met; if they are not, the model must be re-specified (i.e., introducing new variables, omitting some, or transforming the original variables) to create a new form that satisfies the assumptions of the econometric theory (Koutsoyiannis, 1997). In this study, time series data was utilized, and the following econometric tests were conductedAutocorrelation Test: This test is employed to check that successive values of the error term are not autocorrelated, that is, they are independent from the values which was obtained in any previous period. The Durbin-Watson (DW) test for autocorrelation as well as the Breush-Godfrey Serial Correlation LM Test is employed in this study.

I. Heteroskedasticity Test: This test is used to ascertain whether or not the disturbance term has equal variance or spread over time. The Breusch-Pagan-Godfrey test is employed for this purpose.

II. Normality Test: This test checks if the stochastic error term is normally distributed. the stochastic error term is normally distributed if it has a mean value of zero and a constant variance.

III. Stability Test: This test is used to ascertain whether or not the variables adopted for this study were stable over time at 5% level of significance. The CUSUM test is employed for this purpose.

3.4 Nature and Source of Data

The data used for this study are annual times series from 1980 – 2018. They are sourced from the Central Bank of Nigeria (CBN) Statistical Bulletin (Dec 2019).

CHAPTER FOUR

REGRESSION RESULTS AND DISCUSSION

4.0 Introduction

In this section, the various variables employed in this study are tested, presented and interpreted to give meaningful results that can be used for decision making purposes and policies. The section starts with the trend analysis, followed by the descriptive statistics and then the unit root test, co-integration test and error correction model is obtained. The summary of the results and policy implications brings the chapter to a close.

4.1 Presentation and Interpretation of Result

4.1.1 Descriptive analysis

Table 4.1

	EX	RGDP	INT	INF	EXR
Mean	10.20718	180.4421	0.097436	19.11051	86.28744
Median	4.370000	95.39000	3.000000	12.56000	92.34000
Maximum	84.54000	546.6800	18.20000	72.84000	306.0800
Minimum	-9.250000	27.75000	-65.90000	5.390000	0.550000
Std. Dev.	17.25891	162.9666	14.61120	17.08175	87.12982
Skewness	2.455395	0.897958	-2.594180	1.782782	0.833004
Kurtosis	10.12899	2.300184	12.11677	4.992996	3.006380
Jarque-Bera	121.7749	6.036963	178.8062	27.11357	4.510384
Probability	0.000000	0.048875	0.000000	0.000001	0.104853
Sum	398.0800	7037.240	3.800000	745.3100	3365.210
Sum Sq. Dev.	11319.05	1009208.	8112.510	11087.87	288481.0
Observations	39	39	39	39	39

Source: Author's compilation using Eviews 10.0

Table 4.1 above shows that the mean values of RGDP, EX, INT, INF and EXR are 180.4421, 10.20718, 0.097436, 19.11051, 426.4366, 86.28744respectively. The median values which are the middle values of each variable are 95.39000, 4.370, 3.00, 12.5600 and 92.3400 for RGDP, TB, INT, INF and EXR respectively. The maximum and minimum values shows the highest and lowest values for each of the variables in the table above. The standard deviation which is the deviation from the sample mean of each variable are given above as 17.25891, 162.9666, 14.61120, 17.08175, 87.12982 for RGDP, EX, INT, INF and EXR respectively. RGDP, TB, INF and EXR are positively skewed while INT is negatively skewed. RGDP is platykurtic since their kurtosis value is less than 3 implying that majority of its values fall below their sample mean, while TX, INT, INF and EXR are leptokurtic since its kurtosis value is greater than 3 implying that majority of their values are greater than its sample mean. From the Jarque-Bera statistics, it can also be observed that RGDP, TX, INT, INF and EXR are normally distributed given that their probability levels are all above the significance level of 0.05. NEXP is however not a normally distributed curve as can be seen from its probability level which is below the significance level of 0.05.

4.1.2 GRANGER – CASUALITY TEST (Table 4.2)

Pairwise Granger Causality Tests
Date: 12/22/22 Time: 15:09
Sample: 1 39
Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
LNINT does not Granger Cause LNRGDP	37	16.4978	1.E-05
LNRGDP does not Granger Cause LNINT		4.04059	0.0272
LNINF does not Granger Cause LNRGDP	37	1.93664	0.1607
LNRGDP does not Granger Cause LNINF		4.61412	0.0173
LNEXR does not Granger Cause LNRGDP	37	4.79830	0.0150
LNRGDP does not Granger Cause LNEXR		0.38130	0.6860
LNEX does not Granger Cause LNRGDP	37	3.13390	0.0572
LNRGDP does not Granger Cause LNBT		0.60152	0.5541
LNINF does not Granger Cause LNINT	37	3.59745	0.0390
LNINT does not Granger Cause LNINF		2.75968	0.0784
LNEXR does not Granger Cause LNINT	37	0.84879	0.4373
LNINT does not Granger Cause LNEXR		2.64134	0.0868
LNEX does not Granger Cause LNINT	37	1.03261	0.3676
LNINT does not Granger Cause LNBX		0.04321	0.9578
LNEXR does not Granger Cause LNINF	37	0.40694	0.6691
LNINF does not Granger Cause LNEXR		2.28411	0.1182
LNEX does not Granger Cause LNINF	37	0.41527	0.6637
LNINF does not Granger Cause LNBX		0.08336	0.9202
LNBX does not Granger Cause LNEXR	37	0.57207	0.5700
LNEXR does not Granger Cause LNBT		0.14724	0.8637

In carrying out the Granger causality, the hypothesis is stated as follows.

H_0 : The independent variables do notexpalin the changes in the dependent variables

H_1: The independent variables explain the changes in the dependent variable.

Mathematically:

If $F_{statistic} < F_{value}$: Accept Null Hypothesis (H_0)

If $F_{statistic} > F_{value}$: Accept Null Hypothesis (H_0)

3From the table above the result, the value of F-statistic is greater than probability F-value for each of the independent variables (Export, Interest ratew, Inflation rate and Exchange rate) when tested against the dependent variable (Real GDP). This confirm that the independent variables have a causal effect on Real GDP.

4.1.3 Unit Root Test

To carry out the co-integration test, there is need to first of all perform a stationarity test on the variables. This study employs the Augmented Dickey Fuller test to assess the stationarity of the variables in the model. In conducting a unit root test, the order of integration is crucial for determining long-term relationships between variables. Therefore, the null hypothesis that the variable has a unit root is tested and if the absolute values of the test statistics is greater than the critical values, the null hypothesis is rejected implying that the variable is stationary. If the absolute values

of the test statistics is however less than the critical value, we fail to reject the null hypothesis implying the presence of a unit root and that the variable is non-stationary. The unit root tests as well as the order of integration of the variables are shown in the table below.

Table 4.3a Augmented Dickey Fuller Tests At Level

Variables	ADF Test Statistics	1%	5%	10%	Order of Integration	Remarks
LNRGDP	-0.732739	-3.615588	-2.941145	-2.609066	I(0)	Non Stationary
LNEX	-3.045305	-3.615588	-2.941145	-2.609066	I(0)	Non Stationary
LNINT	-5.796594	-3.615588	-2.941145	-2.609066	I(0)	Stationary
LNINF	-3.457547	-3.615588	-2.941145	-2.609066	I(0)	Non Stationary
LNEXR	-1.646421	-3.615588	-2.941145	-2.609066	I(0)	Non Stationary

Source: Author's computation

From Table 4.3a, it can be seen that the absolute values of the ADF Test Statistics for the variables LNRGDP, LNEX, LNINF and LNEXR are lower than the critical values. Hence, we fail to reject the null hypothesis implying that LNRGDP, LNTB, LNINF and LNEXR all have unit roots and are non-stationary at levels, but the absolute value of LNINT is seen to be greater than the critical values, therefore, we fail to accept the null hypothesis, therefore LNINT is stationary at levels.

Table 4.3b Augmented Dickey Fuller Tests at First Difference

Variables	ADF Test Statistics	1%	5%	10%	Order of Integration	Remarks
LNRGDP	-10.91546	-4.226815	-3.536601	-3.200320	I(1)	Stationary
LNEX	-9.643973	-4.226815	-3.536601	-3.200320	I(1)	Stationary
LNINT	-18.83004	-4.226815	3.536601	-3.200320	I(1)	Stationary
LNINF	-6.361434	-4.226815	3.536601	-3.200320	I(1)	Stationary
LNEXR	-5.416896	-4.226815	3.536601	-3.200320	I(1)	Stationary

Source: Author's computation

From Table 4.3b, it can be seen that the absolute value of the ADF Test Statistics for all the variables are higher than the critical values. Hence, we reject the null hypothesis implying that LNRGDP, LNEX, LNINT, LNINF and LNEXR do not have unit roots and are stationary at first difference or of order I(1) at the 5% and 10% level of significance.

4.1.4 Co-Integration Test

After conducting unit root tests, we proceed with the co-integration test, which examines whether multiple non-stationary time series are stationary over time and exhibit a similar long-run trajectory. It is a statistical approach to determine the existence of a long-run relationship among economic variables. The Johansen co-integration test results are presented below:

Table 4.4a: Johansen co-integration test (Trace)

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.962278	206.0865	69.81889	0.0000
At most 1 *	0.717074	84.81886	47.85613	0.0000
At most 2 *	0.603060	38.10379	29.79707	0.0044
At most 3	0.092847	3.916924	15.49471	0.9101
At most 4	0.008384	0.311506	3.841466	0.5768

Trace test indicates 3 cointegrating eqn(s) at the 0.05 level

* Denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Source: Author's compilation using Reviews 10.0

From Table 4.4a, the trace test indicates that there is three co-integrating equation at the 0.05 significance level implying a long run relationship among the variables utilized in this study.

Table 4.4b: Johansen co-integration test (Maximum Eigenvalue)

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.962278	121.2676	33.87687	0.0000
At most 1 *	0.717074	46.71507	27.58434	0.0001
At most 2 *	0.603060	34.18686	21.13162	0.0004
At most 3	0.092847	3.605418	14.26460	0.8985
At most 4	0.008384	0.311506	3.841466	0.5768

Max-eigenvalue test indicates 3 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

From Table 4.4b, the max-eigenvalue test indicates the presence of three co-integrating equation at the 0.05 significance level implying a long run relationship among the variables utilized in this study.

Having determined that the variables are co-integrated using the Johansen Co-Integration Test, the long run model of this study is therefore estimated using lagged values of the dependent and explanatory variables. The results are shown in the table below:

4.1.5 Long Run Model

Dependent Variable: LNRGDP

Method: Least Squares

Date: 12/22/22 Time: 17:18

Sample: 1 39

Included observations: 39

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNINT	-0.270208	0.197816	-1.365956	0.1809
LNINF	-0.415738	0.187544	-2.216751	0.0334
LNEXR	0.216916	0.065698	3.301724	0.0023
LNEX	-0.092002	0.162839	-0.564986	0.5758
C	2.810241	0.482172	5.828295	0.0000

R-squared	0.326174	Mean dependent var	2.047862
Adjusted R-squared	0.246900	S.D. dependent var	0.385983
S.E. of regression	0.334961	Akaike info criterion	0.769603
Sum squared resid	3.814757	Schwarz criterion	0.982880
Log likelihood	-10.00725	Hannan-Quinn criter.	0.846125
F-statistic	4.114527	Durbin-Watson stat	0.287201
Prob(F-statistic)	0.007966		

Source: Author's computation using Reviews 10.0

The Table above shows the long run relationship between dependent variable Real Gross Domestic Product and the independent variables balance of trade, interest rate, exchange rate and inflation rate. The coefficient of interest rate shows a negative relationship between interest rate and real gross domestic product. This implies that a one percent increase in interest rate will result in 0.27 percent decrease in real gross domestic product. The results show that interest rate is not statistically significant factor that affects Real Gross Domestic Product in the long run at 5% level of significance. Inflation rate is seen to have a negative relationship with real gross domestic product, This simply means that a one percent increase inflation rate will decrease real gross domestic product by 0.42 percent. gross. Inflation is statistically significant variable in determining real gross domestic product at 5% significance level.

There is a positive relationship between exchange rate and real gross domestic product. It shows that a 1 per cent increase in exchange rate leads to a 0.22 per cent increase in real gross domestic product. Exchange rate is a statistically significant factor that affects Real Gross Domestic Product at 5% level of significance. Also, there is an existence of a negative relationship between balance of trade and real gross domestic product. It shows that a 1 percent increase in exchange rate leads to 0.092002 percent decrease in real gross domestic product. Export is not statistically significant variable in determining real gross domestic product at 5% significance level.

The co-efficient of determination (R^2) shows that 33% of the variations in real gross domestic product is explained by the explanatory variables in the model. The remaining 67% is due to the other factors captured by the error term. The Durbin Watson statistics value is 0.29 which shows the presence of autocorrelation in the long run estimated model. The model is therefore considered fit for policy interpretation and recommendations.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary of Findings

This research examines the effects of exchange rate volatility on the economic development of Nigeria, with a special focus on production output.

The research analysis employs exchange rate (EXR), interest rate (INT), inflation rate (INF), and trade balance(EX) as independent variable and Real GDP as the dependent variable. The data utilized is sourced from the Statistical Bulletin of the Central Bank of Nigeria.

Inflation rate has a detrimental impact on GDP. The cost of borrowing positively impacts GDP. The responsiveness of the exchange rate negatively affects GDP. The responsiveness of the exchange rate negatively affects GDP. In the autocorrelation analysis, the invalid assumption is recognized. The parameters exhibit a consistent difference and are adequately specified. Based on the empirical study conducted, some scholars contend that exchange rate is positively correlated with economic growth, while others argue that the relationship is adverse. Nonetheless, the observational analysis of the study reveals that exchange rate is inversely correlated with economic growth.

5.2 Conclusion

Given the economic implications of exchange rate fluctuations, establishing an effective exchange rate regime is paramount. A sound exchange rate fluctuation, establishing an effective exchange rate regime is paramount. A sound exchange rate policy can mitigate inflationary pressures, enhances Nigeria's trade balance, and foster domestic production capabilities, which are crucial indicators of sustainable economic prosperity.

5.3 Policy Recommendations

Corresponding to the conclusion drawn within this analysis, the following policy suggestions are proposed to foster a more consistent foreign exchange rate structure:

1. Small-scale manufacturing industries ought to receive support to alleviate production costs and consequently amplify their output capacity in terms of both value and quantity.
2. The government should establish efficient strategies to promote exports with the aim of incentivizing local businesses to augment their production and export volumes. This would bolster the nation's export foundation relative to its import base, culminating in a surplus trade balance.

3. The government should stimulate diversification in exports pertaining to agriculture, agro-investments, and agro-allied industries. These initiatives will augment foreign exchange revenues and fortify the national GDP.
4. The government should dedicate increased investment to infrastructural development across both rural and urban hubs to entice foreign investment into the economy. Such infrastructure will contribute to job creation, income growth, and an enhanced standard of living citizens
5. The government should focus its attention on developing policies that will impact the country's balance of payment, thus creating a favorable balance between the domestic and foreign sectors.
6. Stricter import tariffs should be put in place to discourage importers from bringing foreign goods into the country.
7. Finally, the government should influence the foreign exchange rate, by positive economic reforms that will reduce the adverse effect of unstable foreign exchange rate on the Nigerian economy with respect to trade flow.

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APPENDIX

DATA FOR THE STUDY

Year	RGDP	EXR	INT	INF	TB
	US' Billion	US' Billion	%	%	
1980	64.2	0.55	-3.5	9.97	6.54
1981	164.48	0.62	-65.9	20.81	-1.63
1982	142.77	0.67	-4.6	7.7	-0.56
1983	97.09	0.72	-8	23.21	0.99
1984	73.48	0.77	4.3	17.82	2.44
1985	73.75	0.89	2.3	7.44	2.8
1986	54.81	1.75	4.3	5.72	0.75
1987	52.68	4.02	-4.8	11.29	3.27
1988	49.65	4.54	-3	54.51	2.68
1989	44.00	7.36	-6.6	50.47	7.18
1990	54.04	8.04	17.5	7.36	5.96
1991	49.12	9.91	1	13.01	5.63
1992	47.79	17.3	-15	44.59	4.65
1993	27.75	22.07	-7.1	57.17	1.78
1994	33.83	22	-15.9	57.03	1.37
1995	44.06	21.88	-31.5	72.84	3.87
1996	51.08	21.88	-5.3	29.27	2.96
1997	54.46	21.89	12.1	8.53	3.18
1998	54.60	21.89	11.5	10	-1.63
1999	59.37	92.34	6	6.62	4.87
2000	69.45	101.7	-1.1	6.93	16.01
2001	74.03	111.23	12.1	18.87	5.05
2002	95.39	120.58	3	12.88	6.15

2003	104.91	129.22	9.9	14.03	4.37
2004	136.39	132.89	-2.6	15	11.75
2005	176.13	131.27	-1.6	17.86	15.87
2006	236.10	128.65	-5.6	8.23	38.88
2007	275.63	125.81	9.2	5.39	8.64
2008	339.48	118.57	6.7	11.58	35.79
2009	295.01	148.88	18.2	12.56	3.55
2010	361.46	150.3	1.1	13.72	28.92
2011	404.99	153.86	5.7	10.84	40.32
2012	455.50	157.5	6.2	12.22	84.54
2013	508.69	157.31	11.2	8.48	25.69
2014	546.68	158.55	11.4	8.06	32.72
2015	486.80	192.44	13.6	9.01	0
2016	404.65	253.49	6.7	15.68	-9.25
2017	375.75	305.79	5.8	16.52	-0.02
2018	397.19	306.08	6.1	12.09	-8

DESCRIPTIVE STATISTICS

	TB	RGDP	INT	INF	EXR
Mean	10.20718	180.4421	0.097436	19.11051	86.28744
Median	4.370000	95.39000	3.000000	12.56000	92.34000
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Sum Sq. Dev.	11319.05	1009208.	8112.510	11087.87	288481.0
Observations	39	39	39	39	39

GRANGER CAUSALITY TEST

Pairwise Granger Causality Tests

Date: 12/22/22 Time: 15:09

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Lags: 2

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LNBT does not Granger Cause LNRGDP	37	3.13390	0.0572
LNRGDP does not Granger Cause LNBT		0.60152	0.5541
LNINF does not Granger Cause LNINT	37	3.59745	0.0390
LNINT does not Granger Cause LNINF		2.75968	0.0784

LNEXR does not Granger Cause LNINT	37	0.84879	0.4373
LNINT does not Granger Cause LNEXR		2.64134	0.0868
LNBT does not Granger Cause LNINT	37	1.03261	0.3676
LNINT does not Granger Cause LNBT		0.04321	0.9578
LNEXR does not Granger Cause LNINF	37	0.40694	0.6691
LNINF does not Granger Cause LNEXR		2.28411	0.1182
LNBT does not Granger Cause LNINF	37	0.41527	0.6637
LNINF does not Granger Cause LNBT		0.08336	0.9202
LNBT does not Granger Cause LNEXR	37	0.57207	0.5700
LNEXR does not Granger Cause LNBT		0.14724	0.8637

ADF UNIT ROOT TEST (At level)

Variables	ADF Test Statistics	1%	5%	10%	Order of Integration	Remarks
LNRGDP	-0.732739	-3.615588	-2.941145	-2.609066	I(0)	Non Stationary
LNTB	-3.045305	-3.615588	-2.941145	-2.609066	I(0)	Non Stationary
LNINT	-5.796594	-3.615588	-2.941145	-2.609066	I(0)	Stationary
LNINF	-3.457547	-3.615588	-2.941145	-2.609066	I(0)	Non Stationary
LNEXR	-1.646421	-3.615588	-2.941145	-2.609066	I(0)	Non Stationary

First Level

Variables	ADF Test Statistics	1%	5%	10%	Order of Integration	Remarks
LNRGDP	-10.91546	-4.226815	-3.536601	-3.200320	I(1)	Stationary
LNTB	-9.643973	-4.226815	-3.536601	-3.200320	I(1)	Stationary
LNINT	-18.83004	-4.226815	3.536601	-3.200320	I(1)	Stationary
LNINF	-6.361434	-4.226815	3.536601	-3.200320	I(1)	Stationary
LNEXR	-5.416896	-4.226815	3.536601	-3.200320	I(1)	Stationary

COINTEGRATION TEST

Table 4.4a: Johansen co-integration test (Trace)

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.962278	206.0865	69.81889	0.0000
At most 1 *	0.717074	84.81886	47.85613	0.0000
At most 2 *	0.603060	38.10379	29.79707	0.0044
At most 3	0.092847	3.916924	15.49471	0.9101
At most 4	0.008384	0.311506	3.841466	0.5768

Trace test indicates 3 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Table 4.4b: Johansen co-integration test (Maximum Eigenvalue)

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.962278	121.2676	33.87687	0.0000
At most 1 *	0.717074	46.71507	27.58434	0.0001
At most 2 *	0.603060	34.18686	21.13162	0.0004
At most 3	0.092847	3.605418	14.26460	0.8985
At most 4	0.008384	0.311506	3.841466	0.5768

Max-eigenvalue test indicates 3 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

4.1.5 Long Run Model

Dependent Variable: LNRGDP

Method: Least Squares

Date: 12/22/22 Time: 17:18

Sample: 1 39

Included observations: 39

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNINT	-0.270208	0.197816	-1.365956	0.1809
LNINF	-0.415738	0.187544	-2.216751	0.0334
LNEXR	0.216916	0.065698	3.301724	0.0023
LNBT	-0.092002	0.162839	-0.564986	0.5758
C	2.810241	0.482172	5.828295	0.0000

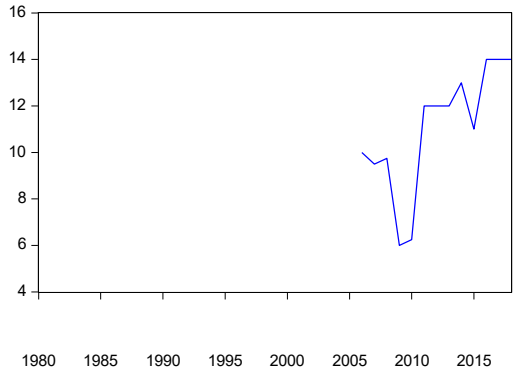
R-squared	0.326174	Mean dependent var	2.047862
Adjusted R-squared	0.246900	S.D. dependent var	0.385983
S.E. of regression	0.334961	Akaike info criterion	0.769603
Sum squared resid	3.814757	Schwarz criterion	0.982880
Log likelihood	-10.00725	Hannan-Quinn criter.	0.846125
F-statistic	4.114527	Durbin-Watson stat	0.287201
Prob(F-statistic)	0.007966		

TREND ON THE VARIABLES

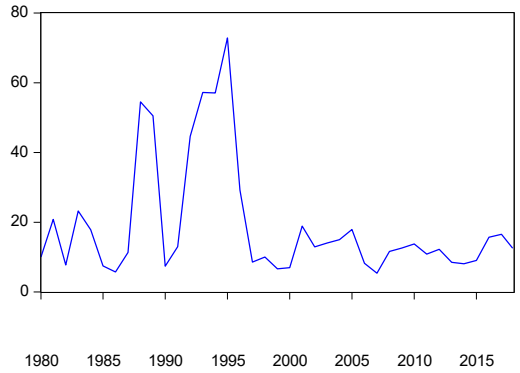
REAL GDP

NOMINAL GDP

INTEREST RATE (MPR)



INFLATION RATE %



EXCHANGE RATE (N:$)TRADE BALANCE (FOR OIL andNON OIL EXPORTS + IMPORTS