Exchange Rates Fluctuations and International Trade in a Mono-product Economy: Nigeria's Experience, 1986-2018

Kalu, UKo Kalu[1*] and Anyanwaokoro, Mike[1]

[1]*Department of Banking and Finance, Enugu State University of Science and Technology, Enugu State, Nigeria.*

Authors' contributions

This work was carried out in collaboration between both authors. Author KUK designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Authors AM and KUK managed the analyses of the study. Author AM managed the literature searches. Both authors read and approved the final manuscript.

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ABSTRACT

This study sought to examine the effects of Exchange Rate on the International Trade in a Mono-Product Economy: Nigeria's experience 1986–2018 Nigeria has a large population and as a nation, she imports virtually everything including toilet tissues and toothpicks. In fact, in some quarters, the consumption of imported goods has become a status symbol. With few functional manufacturing firms, her major foreign Exchange earner being Crude Oil accounting for over 70% of her foreign exchange earnings has suffered consistent price decreases and even showing no signs of recovery. Holding to her inability to process sufficient quantities of the Crude for local consumption, a large chunk of the foreign Exchange earned is spent in importing processed Petroleum Products from other Countries. Furthermore, the Citizens' uncontrollable and insatiable appetite for imported goods(ranging from food to fodder, to electronics, Ceramics and all sorts of building materials including raw materials, to automobiles and worst of it all Medical Tourism) including so many

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Corresponding author: Email: sunnexkk@yahoo.com;

ostentatious items has put further strain on her foreign exchange and by implication the Exchange Rate of the Naira. Ex post facto method was adopted In order to test the hypothesis, the researcher adopted Augmented Dickey Fuller, Vector Error Correction Model and co-integration tests. Adopting a VECM and Co-integration framework with particular focus on the Nigerian economy, the following findings were made: Nigerian Economy shared a long run co-integrating relationship with the studied international trade related variables, Nigerian economy adjusts at 81% to the shocks and dynamics of the exchange rate and its correlates and a causal relationship exists between export and exchange rate and all the studied variables in the block exogeneity form. It was recommended that: CBN should continue with the reduced Exchange Rate on Agriculture and other Manufacturing activities as this is capable of increasing Investment which will result in increased Foreign Exchange earnings through export of Agricultural products and even other made –in-Nigeria products, Firms should be licensed to build refineries for processing of Our Crude Oil, this will make refined petroleum Products available, and affordable thereby eliminating the endemic fraud embedded in subsidy payments. Provision of adequate infrastructure in the Country especially in the areas of Power and Medicare; this will go a long way in assisting manufacturing firms as well as reduce the cost of Medical Tourism.

1. INTRODUCTION

Hence, international trade talks about activities which encompass exchange of goods and services between nations (Adeleye et al 2015). They maintained that, the summation of activities relating to trading between the traders across borders must involve minimum of countries should be involved in the activities. The evaluation of an economy in relations to level of growth and income level of individuals has been founded on the level of domestic production, consumption activities as well as its foreign activities on goods and services. Therefore, international trade plays a vivacious role in the reformation of economic and social characteristics of nations round the world, chiefly, developing countries (Adsuyi and Odeloye, 2013).

Foreign exchange serves to purchase goods and render ancillary Services, purchase of financial assets and to avoid losses or take advantage of profit that can arise from changes in the rate of foreign exchange as well as achieving and maintaining international competitiveness and hence ensures viable Balance of Payment position, to send or receive gifts or investment income payments, to purchase or sale financial assets from abroad, to avoid losses or make profits that could arise through changes in the foreign exchange rate and transfer payments. It serves as an anchor for domestic prices and contributes to internal balance in price stability. It also helps for payment by foreigners for export of goods and services, for unilateral transfers and investments and investment incomes to the home Country.

Put differently, foreign exchange helps to lubricate international trade, enhances overseas travels and tours, facilitates foreign investments and equally serves in currency speculation, purchase and sale of goods and services from other countries. The fact still remains that in this globalized world, no nation can live absolutely independent since all economies are directly or indirectly connected through services, assets and/or services goods markets [1-4]. This linkage is made possible through international trade and foreign exchange. An economy that exports more than it imports will enjoy favourable balance of trade as it receives more foreign Exchange than it pays in her international transactions with the rest of the world.

Among the factors that determine the volume of international trade, exchange rate plays an important role because it directly affects domestic prices, profitability of traded goods and services, allocation of resources and investment decision. Stability of exchange rate is therefore required for better outcome of international trade and favourable balance of payment [5-8].

Exchange rate volatility has been experienced by most countries around the world after the exit of Bretton Wood system of fixed exchange rate regime in the 70s. The continuous increase in volatility of exchange rates over the years has been the source of concern for both researchers and policy makers around the globe [9-13]. This development affected economies of most developing countries especially those with mono-cultural economy of which Nigeria is one. The

manufacturing sector has almost wound up making Nigerians to almost depend solely on Imports for their daily needs' this has further put a strain on her foreign Exchange.Fluctuation of exchange rate makes international transaction risky such that risk averse traders tend to reduce the export-import activities and reallocate production to domestic markets. Hooper and Kohlhagen [14] argued that higher exchange rate volatility leads to higher cost for risk-averse traders and less foreign trade. Panda and Mohanty [15] asserts that high volatility in exchange rate usually has negative effect on price discovery, export performance and sustainability of current account balance. This is possible for a country like Nigeria, in which the economy is subjected to the vicissitudes and vagaries of the oil market such that shocks in international oil prices were immediately felt in the domestic economy Omojimite and Akpokodje (2015).

Without international trade, each country would have to be totally self-sufficient. Each would have to make do only with what it could produce on its own. This would be the same as an individual being totally self-sufficient, providing all goods and services, such as clothing and food that would fulfill all wants and needs. International trade allows each nation to specialize in the production of those goods it can produce most efficiently. Specialization, in turn, allows total production to be greater than would be true if each nation attempted to be completely autonomous. To have a sustained and somewhat less fluctuating Exchange Rate, a Country should strive to earn more Foreign Exchange through Exports than it expends through Imports over a period of time.

The difference between the Exports of a nation and her Imports is its Balance of Trade. When the demand for a particular Currency increases against its supply, the price tends to increase and verse versa. The computation however, does not include: include money re-spent on foreign stock, nor does it factor in the concept of importing goods to produce for the domestic market. Balance of Trade could be surplus or deficit depending on whether Exports are higher than Imports or the other way round; higher Exports than Imports results into a positive or surplus Balance of Trade while higher Imports than Exports mean a negative or deficit Balance of Trade.

One of the most prominent impacts of currency fluctuations can be seen in international trade.

Generally, a weaker currency stimulates exports and makes imports expensive, thus decreasing the country's trade deficit. On the other hand, a strong currency can reduce exports and make imports cheaper, effectively widening the trade deficit. While it is generally assumed that a strong currency is a good thing for a nation's economy; in reality, it might not be so. An unjustifiable strong currency can cause a drag on the economy over the long term, as entire industries are rendered uncompetitive and thousands of jobs are lost. As Gross Domestic Product is directly linked to exports, a weaker currency may actually help the country's economy, contrary to popular belief [16-20]. On the other hand, a depreciating currency can result in inflation as the cost of importing goods increases. Currency fluctuations also have a direct impact on the monetary policy of a country, as exchange rates play a vital role in deciding interest rates set by a country's central bank. Constant currency fluctuations can also affect the market adversely, causing it to become volatile, and affecting both local and foreign trade.

The Exchange Rate of the Naira to the US$ has fallen steadily from N1.75/$1 in 1986 to N305.5/$ in 2018, this has become a source of concern in many quarters especially to Nigerians and others who follow the economic trend of Nigeria judging by the fact that she makes so much from the sales of crude oil alone daily and this has lasted over many years. She is the 8th largest exporter and Africa's largest producer of Crude Oil which generates a daily income that is supposed to sustain the economy and assist other neighbouring nations. For instance, she exported 1,979,451 barrels per day in Dec. 2018 as against 1,811,106 barrels/day in Dec. 2017 averaging 1,812,900/day from Dec. 1980 – Dec., 2018. Nigeria's Oil Export reached an all-time high of 2,464,120 in 2010 and all-time low of 935,200/day in 1983 www.ceicdata.com/en/indicator/nigeria.visitor-arrivals-growth/amp

This is not to talk about the Excise duties, Taxes, Royalties and other revenues associated with the Oil Industry including revenue from the service (Finance and others) not forgetting the manufacturing, extractive and other sectors of the economy [21-23].

Efforts by ordinary citizens at unraveling this mystery has left them with yet many unanswered questions: some blame it on the consumption pattern of Nigerians (majority of the citizens

believe that every imported Product is superior to the home made ones. They import virtually everything including Raw materials, Building Materials, Motor vehicles of all sorts including Trucks and their spare parts, Clothes, Shoes, Perfumes and Textiles, Industrial as well as house-hold items both normal and ostentatious in nature, Toilet tissues and toothpicks just to mention but a few. In fact, in some quarters, the consumption of imported goods has become a status symbol). However, some still think that the problem lies with not having serious/functional manufacturing firms who offer real/better alternatives to the imported products. Some have blamed it on poor infrastructure, lack of accountability by the politicians (where even revenues and property meant for the Government are diverted to individual pockets) While others attribute it to the effects of the Oil boom which led to the neglect of other sectors (yet it is clear that even the oil sector/industry is still not getting due attention as each administration tend to do turn around maintenance on our existing refineries) and to date, they are still performing at below 60% of installed capacity let alone building new ones. This has left us in the continuous cycle of Exporting crude oil while Importing refined petroleum products thereby fueling other economies at the detriment of ours, this is not to forget about the payment of subsidies to the importers which the majority of Nigerians have acknowledged as a conduit pipe for syphoning of Nigeria's treasury. Other Schools of thought blame it on the failure of our educational and health systems and even insecurity (unending strikes) which has led to so much foreign exchange being used on Education and Medical treatments abroad.

The implication of all the scenarios is that Nigeria likely imports more than she Exports thereby having balance of trade deficits and many times because of the worsening state of affairs, her external reserve is being depleted just to meet up with current consumptions. These are equally suspected to be part of the reasons why the Naira is consistently fluctuating against other currencies especially the green bag.

This study therefore aims to ascertain the Effect of Exchange Rate fluctuations on international Trade in an Economy such as Nigeria, 1986 – 2018.

The main objective is to examine the Effects of Exchange Rates fluctuations on International Trade: Nigeria's Experience 1986 – 2018.

The Specific Objectives were:

i) To ascertain the volatility profile of Exchange Rate in Nigeria
ii) To ascertain the effect of Exchange Rate fluctuations on Balance of Trade in Nigeria (1986-2018),
iii) To find out the Effects of Exchange Rate fluctuations on Imports volume in Nigeria (1986 – 2018)
iv) To examine the Effects of Exchange Rate fluctuations on Export volume in Nigeria (1986 – 2018)
v) To examine the Effects of Exchange Rate fluctuations on Trade shock in Nigeria (1986 – 2018)

In line with the objectives above, the following hypotheses guided this study.

H01: There is no fluctuation in Exchange Rate in Nigeria from 1986 – 2018
H02: Exchange Rate fluctuations has no significant Effect on Balance of Tradein Nigeria (1986 – 2018)
H03: Exchange Rate fluctuations has no significant effect on Exports Volume in Nigeria (1986 – 2018)
H04: Exchange Rate fluctuations has no significant effect on Imports Volume in Nigeria (1986 – 2018)
H05: Exchange Rate fluctuations has no significant effect on Trade shock in Nigeria (1986 – 2018)

2. REVIEW OF RELATED LITERATURE

2.1 Conceptual Review

According to E-Finance Management (2017), International trade is the exchange of goods and services between the countries. In simple words, it means the export and import of goods and services. Export means selling goods and services out of the country, while import means goods and services flowing into the country. In such trade, products that are transferred or sold from a party in one country to a party in another country is an export from the originating country, and an import to the country receiving that product. What constitutes exports to Country 'A" may be Imports for Country "B" Imports and exports are basic elements in International Trade and the interplay of these two elements give rise to concepts of utmost importance in International trade such as Terms of trade and balance of trade. This is equally accounted for in a country's current account in the balance of payments.

Market Business News (2019) sawInternational Trade as the exchange of products and services from one country to another; in other words, imports and exports. International trade consists of goods and services moving in two directions: 1. Imports – flowing into a country from abroad. 2. Exports – flowing out of a country and sold overseas. They made a distinction between visible and invisible trade as below: Visible trade refers to the buying and selling of goods – solid, tangible things – between countries. Invisible trade, on the other hand, refers to services.

It means economic transactions that are made between countries. Among the items commonly traded are consumer goods, such as television sets and clothing; capital goods, such as machinery; and raw materials and food. Other transactions involve services, such as travel services and payments for foreign patents (seeservice industry). International trade transactions are facilitated by international financial payments, in which the private banking system and the central banks of the trading nations play important roles. Adding that trading globally gives consumers and countries the opportunity to be exposed to new markets and products. Almost every kind of product can be found in the international market: food, clothes, spare parts, oil, jewelries, wines, stocks, currencies, and water. Services are also traded: tourism, banking, consulting, and transportation. Nations would be limited to the goods and services produced within their own borders without international trade (Wonnacott et al 2019).

International trade and the accompanying financial transactions are generally conducted for the purpose of providing a nation with commodities it lacks in exchange for those that it produces in abundance; such transactions, functioning with other economic policies, tend to improve a nation's standard of living. Much of the modern history of international relations concerns efforts to promote freer trade between nations. This article provides a historical overview of the structure of international trade and of the leading institutions that were developed to promote such trade. Most economists globally agree that international trade helps boost nations' wealth. When a person or company purchases a cheaper product or service from another country, living standards in both nations rise.

There are several reasons why we buy things from foreign suppliers. Perhaps, the imported options are cheaper. Their quality may also be better, as well as their availability. The exporter also benefits from sales that would not be possible if it solely sold to its own market. The exporter may also earn foreign currency. It can subsequently use that foreign currency to import things. International trade supports the world economy, where prices or demand and supply are affected by global events. Countries go for trade internationally, when there are not enough resources or capacity to meet the domestic demand. So, by importing the needed goods, a country can use their domestic resources to produce what they are good at. Then, the country can export the surplus in the international market. Primarily, a nation imports goods and services for the following reasons: Price, Quality, Availability and Demand. E-Finance Management (2017),

Most economists globally agree that international trade helps boost nations' wealth, alleging that when a person or company purchases a cheaper product or service from another country, living standards in both nations rise. There are several reasons why we buy things from foreign suppliers. Perhaps, the imported options are cheaper. Their quality may also be better, as well as their availability.

Okechukwu [24] further stated that International trade supports the world economy, where prices or demand and supply are affected by global events, adding that it allows Countries to get new ideas, allows them access to resources they do not have and It reduces the risk of economic collapse. The exporter also benefits from sales that would not be possible if it solely sold to its own market. The exporter may also earn foreign currency. It can subsequently use that foreign currency to import things.

In his view, Taylor [25] added that it leads to improvement in Income, Production of satisfaction owing to the exchange of goods and services, more demand, production and sales through expanded markets and Economies of scale. Trading globally in the views of Wikipedia (2016) gives consumers and countries the opportunity to be exposed to new markets and products. Almost every kind of product can be found in the international market: food, clothes, spare parts, oil, jewelries, wines, stocks, currencies, and water. Services are also traded: tourism, banking, consulting, and transportation. Nations would be limited to the goods and services produced within their own borders without international trade.

With international trade, there is greater competition and more competitive pricing in the market. This means that consumers have more choice and more affordable options. The economy of the world – which is driven by supply and demand – also benefits. Imagine one world in which every single country traded internationally. Now imagine another world where international trade did not exist. In which world would consumers be better off? Also, in which world would the countries be richer. In the world with international trade, both the consumers and the countries would be better off. Market Business News (2019).

Considering why Countries go for trade internationally, when there are not enough resources or capacity to meet the domestic demand. So, by importing the needed goods, a country can use their domestic resources to produce what they are good at. Then, the country can export the surplus in the international market. Primarily, a nation imports goods and services for the following reasons: Price, Quality, Availability and Demand. E-Finance Management (2017). When trade takes place between two or more nations several factors are to be considered which include: currency, government policies, economy, and judicial system, laws, and markets influences In such trade, products that are transferred or sold from a party in one country to a party in another country is an export from the originating country, and an import to the country receiving that product. What constitutes exports to Country 'A" may be Imports for Country "B" Imports and exports are basic elements in International Trade and the interplay of these two elements give rise to concepts of utmost importance in International trade such as Terms of trade and balance of trade. This is equally accounted for in a country's current account in the balance of payments.

Nowadays, international trade has become a necessity, but a country must maintain a proper balance between imports and exports to ensure that the economy stays on the growth track. E-Finance Management (2017), Market Business News (2019)

It has equally been observed that blocking trade harms the economy**,** blocking trade in the hope of giving domestic infant companies a chance to grow hurts the national economy. Specifically, it harms the country's economy's long-term prospects. When governments adopt a protectionist policy, other nations retaliate.

Subsequently, there are tit-for-tat responses and sometimes even trade wars. Eventually, unemployment rises, and the creating of wealth declines. Since the turn of the century, Venezuela has pursued a policy of nationalization and protectionism. Protectionism refers to taking measures to reduce imports.

Although international trade exists across the world, imports and exports are regulated by quotas and mandates from each country's customs authority. The importing nation may impose a tariff – a tax – on certain products. Some markets have special trade deals which list what goods may be freely traded, and which ones are restricted.

The European Union has 27 member states which can trade freely with each other – there are no tariffs or quotas. On June 23rd, 2016, the British electorate voted in a referendum to leave the European Union (EU). With a Soft Brexit, the UK would still have unfettered access to the EU's 500 million consumers but would have to sign up to the free movement of people. With a Hard Brexit, the country would regain total control of its borders but would lose free access to the market. Tariffs on goods exported to the EU would be between 10% and 20% with a Hard Brexit. NAFTA (North American Free Trade Agreement) consists of three countries – the USA, Canada and Mexico – which also trade freely with each other. The Global System of Trade Preferences (GSTP) is a preferential trade agreement between emerging economies and LDCs. LDC stands for Less Developed Country. In most cases, the agreements involve either lifting or reducing tariffs. However, the LDC member nations do not have to reciprocate. A country that does not import or export goods and services is an autarky Okechukwu [24].

2.1.1 Exchange rate policies & regimes in Nigeria

The main objectives of exchange rate policy in Nigeria are to preserve the value of the domestic currency, maintain a favourable external reserves position and ensure external balance without compromising the need for internal balance and the overall goal of macroeconomic stability. Nigeria has one of the world's most complex foreign exchange systems, with at least five exchange rates simultaneously available until recently. Reforming the system to establishing a coherent and unified foreign exchange market that can gain the confidence of

its users is one of the biggest challenges facing the foreign Exchange Administrators.

Baum & Mustapha [26] noted that the basic objective of preserving and maintaining the value of the external reserves were consistent with the demands of post independent development strategies of Nigeria. This exchange rate policy was presumed to allow wide variations in the value of external assets.

The Central Bank used the simple average and marginal rate at the inception of the second tier foreign exchange market (SFEM). The apex body adopted the simple average of the successful bid rates in selling foreign exchange to the authorized dealers. This system was used up to 1987 when a new Dutch auction system was introduced.

The Dutch auction system known as DAS of bidding was introduced by April 1987. This system entailed the use of the marginal rate to determine successful bids.

The successful dealers were debited at their various bid rates plus 1% exchange equalization levy [27]. Due to some observed wide differential of 55% between the Foreign Exchange Market (FEM) rates and autonomous rates, the system was dropped by December 1988.

The modified foreign exchange market known as Interbank Foreign Exchange Market (IFEM), a fusion of the auction rate and the autonomous rate, a unified exchange rate, was applicable on daily basis to all dealers. This came on board in January 1989.

The Dutch auction system was modified and reintroduced by the central bank and the use of marginal rates by December 1990. Under this system, the authorized dealers were no longer allowed to bid for themselves but only for their customers to forestall speculative bidding and encourage transparent competitiveness. The frequency of the Dutch auction market trading was reduced to once a week. However, the exchange rate suffered a cumulative depreciation as a result.

The modified Dutch auction system was introduced (MDAS) was introduced due to poor performance of the Naira in relation to other currencies. Here weighted average was used to penalize the highest and lowest bidders who were regarded as unsuccessful. This regime resulted in the appreciation of the naira.

Between 1992 and 1993, completely deregulated exchange rate regime was introduced by the central bank as a result of the persistent instability in the foreign exchange market which reflected in the wide difference between the official and parallel market. This system made the CBN to buy and sell FOREX in the market actively and supply in full all requests made for FOEEX, though it fail to bridge the gap between the official and parallel market. This also led to the adoption of wholesale Dutch auction system known as WDAS by February 2006 to October 2013.

The interbank foreign exchange was introduced by February 2015. This system allowed interbank foreign exchange transaction to take place in a competitive manner such that participants are able to respond to price signals freely. In February 2017, the Central Bank commenced a weekly forex intervention in the forex market to manage the exchange rates within tolerable limits and between then and July 2018, it had intervened $23.2billion. The intervention is done through buying and selling foreign exchange. The CBN sells forex directly to end users through selected banks at the current autonomous selling rates. All these attempts have been unable to resolve the Nigeria economic challenge of evolving a stable exchange rate policy.

After ostensibly floating the naira and ending a 16month long dollar peg in June 2016, which caused the local currency to immediately plummet from N197:US$1 to N282:US$1, the Central Bank of Nigeria (CBN) soon reverted to its old habit of endeavouring to manage the market, resulting in the reemergence of multiple exchange rates. The regulator has since introduced new windows for foreign exchange transactions, including for small and medium sized enterprises and personal and business travel allowances.

This has further fragmented the market. The authorities have also continued to prohibit importers of 41 categories of goods and services from accessing the country's foreign exchange markets, a policy introduced in June 2015 in an effort to suppress demand for hard currencies [28].

In April 2017, faced with persistent shortages of foreign exchange in the country, partly due to the drop in the nation's oil revenue but also the reluctance of investors to bring money into the country, the CBN opened a special Investors' & Exporters' (I&E) foreign exchange window where

investors and exporters trade currencies at market determined rates.

These rates, known as the Nigerian Autonomous Foreign Exchange Rate Fixing (Nafex), started at N372.89: US$1 when the window was launched and was around N362:US$1 at the end of August, compared with an official rate of N305:US$1. The opening of the I&E window therefore amounts to a partial and unofficial devaluation of the naira.

Following the introduction of the I&E window the nation's private banks began quietly trading with each other based on the Nafex rates rather than the official rates. In early August the FMDQ OTC Securities Exchange, a Lagos based trading platform, asked banks to start quoting Nafex rates, in effect merging that I&E window with the main interbank one and aligning them with the parallel market. With the dollar now being sold between banks, at the I&E window and bureaux de change and on the black market at around market rates, it is probably the case that most business related foreign exchange transactions in the country are now being conducted at market rates. The official rate is primarily used for government transactions, to dispense cheap dollars to some privileged buyers and as an administrative tool.

A multiple exchange rate system allows the government to subsidize certain sectors of the economy that it regards as important to support for economic or political reasons. For instance, by selling hard currencies to petroleum products importers at official rates, the government is indirectly subsidizing fuel prices, despite its claim that subsidy payments have ended.

Transferwise (2017), identified the following as the causes of exchange rate fluctuations: Supply and demand being the most basic factor affecting exchange rates. It's relatively easy to understand, but not always easy to predict. In simple terms, when there's an excessive supply of something the value attached to it decreases, while an increase in demand raises value. Interest rates and Inflation, Political and Economic stability, Balance of trade deficits, Government debt.

According to Agugwa (2017), zeroed the causes of fluctuations in Naira value as: Political Instability, Imports, exports, steady fall of oil Prices, Government policy, Nigerians obsession with foreign products, Inflation, Public debt and Current-Account deficits. Nigerian stock markets, SMEs collapsing on the long run.

Chand (2019) opined the following as causes of exchange rate fluctuations; Trade Movements, Capital Movements, Stock Exchange Operations, Speculative Transactions, Banking, Operations, Monetary Policy , Political Conditions!

Quora (2018), added that When dollar rate decreases it means that value of rupee increases and vice-versa. ... If demand for rupees is higher than that of dollar rate will decrease because not many will be trading rupees for dollars, hence, to make dollar more lucrative/ attractive, its value will be reduces, giving us lower dollar rate.

In a trifling economy which is not capable of influencing the general prices of transacted goods and services, an increase in the worth of domestic currency will drop the domestic prices of dealt goods, while decrease in the value of domestic currency raises domestic price of traded goods (Begg, 2003). In the same vein, on international trade, an increase in the value of domestic currency pull down the price of transacted goods, in so doing dropping the number of goods and services supplied and demanded locally leading to fall and rise in the number of goods bringing in and those going out. Conversely, decrease of the local currency increases the values of trans acted goods thereby swelling the quantity supplied and dropping the quantity demanded locally making the quantity of goods going out of the country to rise, while the quantity coming in drops (Adeniji, 2013).

Resulting from the above, it can be deduced instabilities in exchange rate affect greatly the country's balance of payment stands, therefore exchange rate policy is geared towards how equilibrium can be maintained in the country's balance of payment account.

Hence, exchange rate policy attempts to achieve this by manipulating the relative price arrangement in the local currency terms between transacted goods and non-transacted goods as well as general level of local prices (Adeniji, 2013).

An increase in exchange rate volatility may be associated with either an increase or decrease in the volume of international trade depending on the source of the change in fluctuation. Also, increase of exchange rate volatility dampens

international trade i.e. it reduces international trade. Also the effect of exchange rate misalignments on trade policy can be used in determining the relationship between exchange rate and international trade. The extent of the exchange rate may indirectly affect governments decisions regarding other policies especially those affecting international trade. Trade policies may be used to compensate for some of the effects of an overvalued currency and countries may also be using trade policy as a substitute for exchange rate overvaluation, so as to deal with persistent disequilibria in the trade balance. Some of these policies include antidumping interventions. (Broda and Romalis, 2010).

The exchange rate volatility can arise from three different factors: Variations in basic issues (e.g., buying power of consumers), variations in the basic characteristics of foreign exchange market (e.g., noise traders, portfolio changes, excess rumors, and cause effects), and the noisy signal of expected fluctuations in future policy (e.g., interest rate, money supply, inflation rate and output growth) (Tadesse 2009).

It is well established in the literature that exchange rate volatility affects economic activity in the country. There are conflicting arguments in previous studies about the relationship of exchangerate volatility with international trade. Previous studies can be divided into three categories:

(1) Studies which reported positive results, (2) studies which reported negative results, and (3) studies which reported diverse results. The empirical studies that relate to the first category by showing the positive relationship between exchange rate volatility and international trade include Cheong et al. (2005); Kim (2017); Hwang and Lee (2005); Vieira and MacDonald (2016).

For instance, Cheong et al. (2005) investigated the dynamic interrelationship between trading volume, price competitiveness, and exchange rate uncertainty by focusing on the manufacturing industry of the U.K. and found that exchange rate volatility positively affects export trade and ultimately affected the economic performance of the country.

The approaches to measuring exchange rate volatility have been transformed with the passage of time to present new econometric techniques. However, there is no consensus in the literature on a single measure for volatility.

The most common measures of variance are used for it, but these vary with studies. The volatility can be measured by taking the standard deviation or rate of change within period one, a moving standard deviation of the real or nominal exchange rate (Bahmani-Oskooee and Hegerty 2007).

There is a mixed trend of using exchange rate measures, and neither rate dominates the other in the literature. Previous studies have used both the real and nominal rate as a measure of the exchange rate. The real exchange rate measures the actual price of imported and exported goods. The real exchange rate integrates the price levels of the exporting and importing countries; it also measures the volatility in the price level. Therefore, the volatility of the nominal exchange rate is usually desired at first (Bahmani-Oskooee and Hegerty 2007).

Akhtar and Hilton (1984) conducted a pioneer study to examine the exchange rate volatility.

They measured the exchange rate volatility by using the standard deviation of daily observations for the period of three months.

Aghion et al. (2009) also computed exchange rate volatility as the annual standard deviation of the growth rate of the effective real exchange rate.

Moreover, Grossmann et al. (2014) also used the annual standard deviation of daily US spot exchange rates to compute exchange rate volatility.

Kenen and Rodrik (1984) introduced moving standard deviation to measure month-wise variations in exchange rate. This method has the benefit of being stationary. This method was prominently used before co-integration analysis was invented. Bleaney (1992) also used the same method by using the level instead of measuring the change in exchange rate.

Engle and Granger (1987) introduced the new time series method, namely "Autoregressive.

Conditional Heteroskedasticity (ARCH)", to measure volatility. In the literature, it is more commonly used to measure exchange rate volatility. This method calculates the variance of the disturbance term for each period as a part of errors in prior periods. This model can be extended by adding more lags; the further

extension is commonly known as the GARCH model, which includes the moving average method. Moreover, Aftab et al. (2017) also measured exchange rate volatility by using the GARCH process.

Truell and Miller (2019), added that fluctuations affect not only multinationals and large corporations, but also small and medium-sized enterprises. Therefore, understanding and managing exchange rate risk is an important subject for business owners and investors. There are various kinds of exposure and related techniques for measuring the exposure. Of all the exposures, economic exposure is the most important one and it can be calculated statistically and companies resort to various strategies to contain economic exposure.

2.1.2 The concept of 'Mono-cultural economy'

The term mono-cultural economy refers to an economy mainly dependent on a single product or resource for economic growth and development. The concept could further be referred to a case where any country depends on a single product sales or exports for its budget funding especially to the tune of 70% of revenue. Mono-cultural economy could also refer to the situation when any country depends on a basic product resource for overall higher percentage of national earnings and contribution to the Gross Domestic Product (GDP). Idemudia (2012) captures this mono-cultural concept in the case of Nigeria as thus, "The discovery of oil in 1956, and its subsequent extraction since 1958, over the past 50 years, has transformed the Nigerian economy from an agricultural based economy to an economy essentially dependent on petroleum" (Idemudia 2012,).

(Sachs and Warner, 1995, 2001) in their work noted resource poor countries grew more and faster than the resource abundant countries understudied from 1970 and 1990. The explanation for this trend can be traced to the low cost of commodities, non-quality institutions and some endless cases of corruption associated with some countries dependent on basic resources. Given the occurrence of long term trends in commodity prices, developing countries usually have smaller economies than industrialized countries due largely to their preference to exports of basic or primary commodities whose prices are usually lower compared to manufactured goods and services with higher prices that are the mainstay of any

developed economy. Developing countries assume a small economic model because of their trading in commodities. They also become price-takers as the prices of commodities are determined by the global markets for primary traded commodities (Frankel 2010). The quality of institutions was identified as being a relevant factor in fostering economic development as it would not be necessary to canvass macroeconomic or microeconomic policies if the right kind of institutional structure is not there to provide support. Institutional quality essentially makes the difference between countries that experience good economic growth and development and those that do not experience the same features (Frankel 2010).

The discussion here provides insight into the extent of Nigeria's mono-cultural economy dependent on crude oil export. It also provides data from Nigerian government sources that affirms the enormous contribution of crude oil export to the revenue receipts of the government within a given period.

Nigeria's economy has over the years remained a mono-cultural economy heavily dependent on crude oil export for economic development. With this scenario, crude oil exports account for Nigeria's major source of foreign exchange earnings representing about 90% of export products. The value of oil export rose from below 1% in 1958 to about 97% in 1984 and to less than 90% since then. Oil was produced about 1.8 million bpd accounting for over 95% of exports and contributing 25 to 30% to the GDP. Nigeria has since moved to become the sixth largest producer of oil at the global level. Unequivocally, crude oil export dominated the greater percentage volume of the Nigeria's export product and accounts for over 95% of total value of merchandise exports (Nigerian Bureau of Statistics, 2016).

Nigeria ranks amongst the group of countries that have high dependence on crude oil export, ranging between 80% and 90% of merchandize exports (Dabrowski, 2016). Some other countries identified include Oman, Qatar and Saudi Arabia, etc.

There are a number of negative implications of the mono-cultural oil economy of Nigeria which account for what could be described as the reasons Nigeria needs to urgently diversify away from Oil. Some of such factors are: Increasing Demand for Foreign Exchange, Depreciation in

the value of Naira, Decline in Government Revenue, Budget funding crisis, Need to diversify away from Oil, Acute shortage of infrastructure, Nigeria's exploding population, Security concerns, High youth population and rising rate of unemployment, The unpredictability of Nigeria's accruable revenue from oil exportand Corruption continues to plaque Nigeria. Attama (2014)

According to Anyaehei and Areji (2015), there have been a whole lot of strategies provided by the Nigerian government to tackle the problem of mono-economy. Although, efforts have been channeled towards the diversification of the economy, but these efforts have been in futility in that governmental policies in these areas have not been effective due to a number of challenges mentioned below.

Anyaehei and Areji (2015) are of the view that the Nigerian economy does not reflect productivity rather, it is characterized by sharing of wealth and who gets what. This orientation is rooted in the nation's psyche by the easy revenues gotten from extraction of natural resources, especially petroleum. Investment of funds gotten from petroleum resources are not on long term productive ventures. Loans from both government and private sectors operate on high interest rate and can only be economically used for only short term projects. Hence, most of the loaned funds are used for trading (especially importation) which involves high turnover. Consequently, this discourages investments in the industrialization of the economy. A chunk of the country's revenue goes to the hands of those in the political class who lavish it on ostentatious materials which are mostly imported. Also, resources are wasted on bogus white elephant projects that are often times incomplete and if completed, cannot be maintained resulting to dilapidation and rendering the product useless. They further note that main stream of the economy, the business and working class, are deprived of the necessary resources which can encourage skill acquisition, industrialization and productivity. Those who hold political offices are among the highest paid in the world while the common citizens and workers are among the least paid in the world. This is exactly the reason why many professionals and other elites abandon their areas of specialization and either juggle for political positions or leave the country for a better condition of service. There is urgent need for the nation to re-channel her resources towards productivity and not bureaucracy.

Wealth gained from resources should be channeled towards creating productive jobs and industrialization. The importation of foreign goods should be restricted in order to ensure the survival of indigenous industries (Anyaehei and Areji, 2015).

According to Anetekhai (2013), "the key components of macroeconomic policies are fiscal, monetary and trade policies." He explains fiscal policies as focusing on budgetary, tax and debt management policy instruments. Budgetary policy influences economic stability and rate of inflation in the economy. These, in turn, influence the climate for the flow of investment, especially foreign private investment. Tax policies that focus on personal and corporate tax rates, tax reliefs, and other tax concessions are key incentives (or disincentives) factors affecting consumption and investment decisions. A favourable corporate tax policy regime enhances after-tax profits and, to that extent, may promote increased investment. A country's external debt burden affects its international credit rating and its capacity to finance public investment. International credit rating affects the flow of foreign private investment while the level and quality of public investment directly affect the flow of both foreign and domestic private investment (Anetekhai, 2013).

While monetary policies refer to the combination of measures designed to regulate the value, supply and cost of money in the economy, in consonance with the expected level of economic activity. Liquidity, interest rates and foreign exchange rates are the channels through which monetary policy influences economic activities. Liquidity is affected by money supply. Money supply influences credit supply and interest rate (cost of capital). Interest rate, in turn, influences consumption, savings and investment decisions in the economy. Basically, the existence of interest and exchange rate differentials, resulting from monetary policy measures, induces substitution between domestic and foreign assets (foreign currencies, bonds, securities real estate, etc) as well as domestic and foreign goods and services (CBN, 1997). Since 1986, the main instruments of market-based monetary policies have included the open market operations (OMO), changes in reserve requirements and discount policy. Open market operations involve the discretionary power of the CBN to purchase or sell securities in the financial markets in order to influence the volume of liquidity and levels of interest rates that ultimately affect money supply (Anetekhai, 2013).

Finally, he says that trade policies are a very important component of structural adjustment policies. The main focus of trade policies is on measures to regulate export and import trade through such measures as tariffs, export and import quotas and prohibitions. They influence the investment climate in many ways. For example, a liberal trade policy constitutes an incentive for foreign investors who may need to import raw materials and / or export products. But a protectionist trade policy may also serve as an incentive for investors in non-tradable products that are largely locally consumed, or investors in import -substitute products (Anetekhai, 2013).

Poor /Dilapidated Infrastructure, Poor corporate governance and institutions, Endemic Corruption and Mismanagement of Resources, Poor and unstable educational systems and Economic Implications of a Mono-cultural economy

A mono-cultural economy is one characterized by generating a large chunk of revenue from just one source of export. An epitome of such case is Nigeria that got infested by the Dutch disease from 1973 where she gradually abandoned other sectors of her economy and tended towards a mono-product economy where a huge part of her revenue is generated from only one source at the expense of other potentially valuable sources.Export trade in Nigeria is majorly characterized by one commodity (crude oil) which is responsible for about 90% of the revenue generated by the FGN. This puts the economy of the country in a potential state of quagmire in that, what if crude oil prices collapse in the global market? And what if Nigeria's major customers of crude oil desist from purchasing from her? This of course will put the economy of the country in an ailing state bringing about negative implications discussed below:

2.2 Theoretical Review

2.2.1 The Theory of absolute advantage

The theory of Absolute Advantage was propounded by Adam Smith in 1776 in his publication *An Inquiry into the Nature and Causes of the Wealth of Nations*. According to Adenugba and Sotubo (2013), "this theory uses a two by two by two model, i.e. there are two countries involved in the trading of two commodities and using only two factors of production; labour and capital. The theory says that a country should export products in which it

is more productive or efficient than other countries it' is in trade relations with" This means that "goods for which it can produce more output per unit of input than others can (i.e. in which it has an absolute advantage) while importing those goods where it is less productive than other countries" (Adenugba & Sotubo, 2013)

2.2.2 The theory of comparative advantage

This theory is credited to David Ricardo who propounded it in 1817 after a thorough perusal of Adam Smith's work. Ricardo was not satisfied with the vagueness of Adam Smith's theory (Adenugba and Sotudo, 2013). Thus, filling the lacunar, Adenugba and Sotudo (2013) explains that according to Ricardo's theory of comparative advantage, even if a nation has an absolute cost disadvantage in the production of both goods, there still exists a basis for mutually beneficial trade. The less efficient nation should specialize in the production and exportation of the good in which it is relatively less inefficient (where its absolute disadvantage is least) while the more efficient nation should specialize in the production and exportation of the good in which it is relatively more efficient (where its absolute advantage is greatest). This theory proved to be better than Smith's absolute advantage theory because it is possible for a nation not to have an absolute advantage in anything but it is not possible for one nation to have a comparative advantage in everything and the other nation to have a comparative advantage in nothing.

2.2.3 Optimal currency area (OCA) theory

The earliest and leading theoretical foundation for the choice of exchange rate regimes rests on Optimal Currency Area (OCA) Theory, developed by Mundell (1961) and McKinnon (1963).This theory is concerned with stabilization of the business cycle and trade. It is based on concepts of the symmetry of shocks, the degree of openness, and labor market mobility. According to the theory, a fixed exchange rate regime can increase trade and output growth by reducing exchange rate uncertainty and thus the cost of hedging, and also encourage investment by lowering currency premium from interest rates. However, it can also reduce trade and output growth by stopping, delaying or slowing the necessary relative price adjustment process.

2.2.4 The monetary model of exchange rates

This theory postulates that exchange rates are determined in the process of equilibrating or

balancing the stock or total demand and supply of money in each nation. According to the monetary approach, the nominal demand for money is stable in the long run and positively related to the level of nominal national income but inversely related to interest rate. The nation's money supply is equal to its monetary base times the multiplier. The nation's monetary base is equal to the domestic credit created by its monetary authorities plus its international reserve.

2.2.5 The portfolio balance approach

The portfolio balance approach also called the asset market approach differs from the monetary approach in that domestic and foreign bonds are assumed to be imperfect substitutes, and by postulating that the exchange rate is determined in the process of equilibrating or balancing the stock or total demand and supply of financial assets (of which money is only one) in each country. Thus portfolio balance approach can be regarded as a more realistic and satisfactory version of the monetary approach. In the portfolio balance model, individual and firms hold their financial wealth in some combination of domestic money, domestic bond, and a foreign bond denominated in foreign currency.

2.2.6 Purchasing power parity theory (Karl Gustav Cassel, Sweden (1866 – 1945)

This explains changes in exchange rate due to large change in the prices of goods and services in different countries. It suggests that currencies fluctuate because rates of inflation change. The higher the rate of a Country's inflation, the less valuable would be its currency in the International Market. Reason being that Inflation erodes the purchasing power. The theory of purchasing power parity (PPP) illustrates the relation between prices and exchange rate.As a principle of exchange rate determination, the easiest and powerful form of PPP (i.e. absolute PPP) is based on an international multi-good edition of the law of one price. Absolute PPP envisage that the exchange rate should adjust to equate the prices of national baskets of goods and services between two countries because of market forces driven by arbitrage. Purchasing Power Parity is price levels between two countries should be equivalent to one another after adjustment of exchange rate. The main base of this theory is the rule of one price, where the cost of identical goods should be the same around the world. If the difference in price is very large between two countries for the same product after exchange rate adjustment, an arbitrage opportunity is created, because the product can be obtained from the country that sells it for the lowest price.

2.2.7 Interest rate parity (IRP)

This states that there is an orderly relationship between spot and forward exchange rates and nominal exchange rate for two currencies. Here, a Country with a higher rate of interest must bear a discount on its currency and vice versa. i.e what you gain as interest in X Country is affected by a discount in its currency when you sell it in the currency market.

2.2.8 Balance of payments theory

This states that exchange rate is determined by independent exogenous factors which have no relationship with domestic prices and the money supply. It was advanced to explain the changes in prices occasioned by variations (depreciation/appreciations) in the exchange rate as seen during WWI. It further explained that a passive deficit of payments leads to a reduction or depreciation of the rate of exchange while an active (surplus) Balance of Payment by strengthening the foreign exchange gives rise to an appreciation in the exchange rate.

2.2.9 Mint parity theory

This attempts to explain the determination of exchange rate under the gold standard when two currencies are on the full-fledged gold standard Vaish [29] It explains that their currency units are either made of gold or given purity and weight or are freely convertible into gold at given purity or fixed rate. Exchange based on the weight of the metallic content. It however applies only when the two currencies are made of the same metal.

2.2.10 International fisher relation theory

This states that between two countries, the one with the higher rate of Inflation must have a higher interest rate. For instance, if the rate of inflation in Nigeria is 2% higher than the rate in japan, Banks in Nigeria must pay approximately 2% higher to depositors.

2.2.11 Foreign exchange expectations theory

This posits that the difference between the current forward rate and the current spot rate is

the expected change in the spot rate. The forward rate is the expected or future spot rate. The basic assumption of this theory is that traders do not worry themselves about risks and where they are, the forward rate can be either higher or lower than the expected spot rate.

The Study however, was anchored on the Monetary Model of exchange rates, to this, Nzotta [30,31], posits that it assumes that changes in the supply of money affect the exchange rate either directly or indirectly. The model tries to explain the changes in exchange rates in terms of changes in the demand for and supply of money between two currencies (Olisadebe, 1991). Conceptually, an increase in real income given a fixed nominal money supply, leads to a fall in prices, thus making exchange rates to appreciate. Conversely, an increase in money demand, leads to increase in prices, which eventually leads to exchange rates depreciation.

The model draws heavily on the traditional quantity theory of money postulated by Irving Fisher and expresses a relationship between stock of money and the general price level.

2.3 Empirical Review of the Literature

Bahmani-Oskooee and Aftab (2017) studied the Malaysian industries that were involved in trade activity with the U.S. by using a nonlinear Autoregressive Distributed Lag (ARDL) approach.

They highlighted the asymmetric effects of exchange rate volatility due to changes in the expectations of traders at the moment of currency depreciation as compared to a situation of currency appreciation.

Amusa (2003), utilized a gravity equation similar to that of Rose (2000) for a broad sample of countries using annual data from 1970 to 1979. The measure of volatility is the same as that employed by Rose, except that the standard deviation of the log change in monthly exchange rates was measured only over the current year. Her main objective was to address several estimation problems in previous studies of the effect of volatility on trade. When these problems were not addressed and ordinary least squares were used, she founds a small effect: reducing volatility from its sample mean of about 5 percent to zero resulted in an increase in trade of only 2 percent. When the more appropriate method was

used, but without taking account of endogeneity, eliminating exchange rate uncertainty led to an estimated 4 percent increase in trade. However, when endogeneity was taken into account through the use of instruments, volatility had an insignificant effect on trade, a result that was robust on the choice of instruments.

Pickard, (2003) uses stochastic coeficients econometric modeling to forecast real exchange rate volatility and examine how expected and unexpected volatility affect bilateral trade flows of certain steel products between Canada, Mexico and the United States using monthly data for the seven-year period 1996-2002. The results of the model indicate that the effects of exchange rate volatility on bilateral trade flows for this sector are relatively minor, where sustained changes in the spot exchange rate, sectorial economic growth, and the price of goods being traded all exert more significant influence on trade levels than exchange rate volatility.

For instance, Baum, Caglayan and Ozkan (2004), relying on a nonlinear specification rather than linear alternatives, show that the effect of exchange rate uncertainty on trade flows is positive yet complex. They also consider the role of income volatility on trade flows among several industrialized countries but its effects are not clear. A subsequent analysis by

Odusola and Akinlo (2005) also examine the link between exchange rate depreciation, inflation and output in Nigeria. These authors conclude that exchange rate depreciation exerts expansionary effect on output in the medium and long-run but has contractionary impact in the short-run

Todani and Munyama (2005) investigated the impact of exchange rate variability on aggregate South African exports to the rest of the world including goods services and gold exports using ARDL bounds testing procedure on quarterly data for the period 1984-2004. GARCH (1,1) as a measure of volatility was captured using the moving average standard deviation. Hence, the result revealed that depending on the measure of variability employed, either there existed no statistically significant relationship between South African exports and exchange rate volatility or when such significant relationship existed, it was positive.

On their part, Mehlum *et al.* (2006) concurred with the idea that there exists a natural resource

curse, but that it only applied to those countries with weak institutions. They used the data sourced from 42 resource abundant countries with more than 10% of GDP from resource exports and their average yearly growth from 1965 to 1990 in the assessment. They theorized that natural resource abundance had a harmful impact for economic development in countries with institutions that are 'grabber friendly'. The examples of Nigeria, Zambia, Sierra Leone, Venezuela and Angola as rich resource countries were drawn and indicated the applicability of resource curse and slower growth.

Isitue and Igue (2006), examined the effects of exchange rate volatility on US – Nigeria trade flows using GARCH modeling, co-integration, error-correction and variance decomposition on data for the period 1985 to 2005. These authors found that exchange rate volatility had a negative and significant effect on Nigeria's goods exported to the US.

In line with the theoretical expectation, US GDP exerted a positive effect on Nigeria's exports but curiously, the effect was not significant in the export function. Hence, scarcity and inconsistent result from the findings of studies particular to Nigeria as well as capturing the happenings in the current period of high exchange rate hike, the study of the impact of exchange rate volatility on international trade is imperative.

In Nigeria, similar studies on this issue have been carried out. Obiora and Igue [32] examined exchange rate volatility and U.S-Nigeria trade flows and they showed that exchange rate volatility of the domestic currency had a negative and significant effect on Nigeria's exports to the United States of America.

But the examples of Asian tigers: Korea, Taiwan, Hong Kong and Singapore as resource poor countries were drawn to show the high rate of economic growth. It was indicated that 'grabber friendly' institutions usually had competing production and rent-seeking activities while producer friendly institutions on their part had complementary production and rent-seeking activities. It is therefore the quality and kind of the institutions in these countries that made the difference. While countries with resource-curse had grabber friendly institutions, but poor resource countries had better institutions that were not grabber friendly (Mehlum *et al.* 2006).

Grier and Smallwood (2007) reported a significant role for exchange rate uncertainty for developing countries" exports as well as a strong role for income uncertainty in most countries. Their results for developing countries provide support to earlier studies including Arize, Osang and Slottje (2000), Sauer & Bohara (2001) who report negative effects of exchange rate uncertainty on trade flows for developing countries like Nigeria.

All in all, the empirical literature has reaffirmed the ambiguous nexus between currency volatility and trade as indicated by the theoretical literature on the subject.

On the other hand, Omotor (2008) examines the impact of exchange rate reform on inflationary trend in Nigeria. The author concludes that exchange rate reform policy and money supply are the main determinant of inflation in Nigeria.

Hsing (2008) surveyed US trade with seven South African trading partners over the last 20 or 30 years according to the studied countries and showed that a J-curve existed for Chili, Ecuador and Uruguay while a lack of support was found for Argentina, Brazil, Colombia and Peru. These findings therefore suggested that the conventional wisdom of pursuing real exchange rate depreciation in order to improve the trade balance may not apply in some countries.

Bahmani – Oskooee and Kovyryalova (2008) explored the impact of exchange rate volatility on international trade of 177 commodities traded between the United States (US) and the United Aydin (2010) employed panel data examine the impact of exchange rate volatility in 182 countries from 1973-2008 and discovered different dynamics in the impact of macroeconomics fundamentals on the equilibrium real exchange rate of Sub-Saharan economies in the less advance economies.

Yoon, (2009) showed that the real exchange rate demonstrates different patterns of behavior depending on the exchange rate regime in place. His findings show evidence that real exchange rate series behave as stationary processes during the fixed exchange rate regime. But he acknowledged the fact that, more stationary episodes are found in the gold standard and the Bretton-Woods periods.

The work of Aghion et al. (2009), and Grier and Small (2007), among others, offers a fourth line

of empirical study validating the proposition that the exchange rate volatility impact on real macroeconomic variables has quite different results depending on whether countries are considered developed or less developed. More specifically, they have shown that in countries with relatively low levels of financial development, the exchange rate volatility reduces growth significantly. In contrast, in financially advanced countries the exchange rate volatility has no effect. In spite of such findings, other studies show a positive relationship between exchange-rate volatility and trade flows in less developed countries (LDCs) with relatively low levels of financial development. Chief examples include, Bahmani-Oskooee (1996), Bahmani-Oskooee and Payesteh (1993), Arize et al. (2000), and Arize et al. (2003).

Also, in the context of Nigeria, Aliyu (2009) employed standard deviation measure of exchange rate volatility based on quarterly observation and examined the impact of exchange rate volatility on non-oil export flows in Nigeria between 1986 and 2006. He revealed that exchange rate volatility decreased non-oil exports in Nigeria. Olowe [33] investigated the volatility of Naira/Dollar exchange rates in Nigeria using several variants of Generalized Autoregressive Conditional Heteroskedasticity (GARCH) models. He used monthly data over the period January 1970 to December 2007 and found that all the GARCH family models indicated that volatility was persistent and reported similar evidence for the fixed exchange rate and managed float rate regimes.

Form the theoretical perspectives, there is said to be an equivocal association amid exchange rate risk and foreign trade in terms of the former stimulating or hindering growth in the later (Cote, 1994; Odili, 2014). Empirical evidences have also often revealed three different forms of results; those authors that their study showed negative relationship between exchange rate risk and foreign trade volume are [34,35] Caballero and Corbo, 1989; Chowdhury, 1993; Caporale and Doroodian, 1994; Doroodian, 1999; Arize et al 2000; Saucer and Bohara, 2001; Grier and Smallwood, 2007; Baum and Caglayan, 2009; authors that found positive relationship between exchange rate fluctuation and foreign trade volumes are (Klein, 1990; Franke, 1991; Sercu and Vanhulle, 1992; Zilberfarb, 1993; Dellas and Zilberfarb 1993, Baum, et. al., 2004; Baum and Caglayan, 2010; Naseem and Hamizah, 2009); while, countless practical works have futile result

on the significant relationship between exchange rate risk and the volume of foreign trade among these works are; [16, IMF, 1984, Baily et el 1986; De Grauwe. 1988; Assery and Peel 1991, Bahmani-Oskooee 1991, Viaene and De Vries, 1992 and Gagnon, 1993). It then means that, further studies on the influence of exchange rate risk is highly imperative to be carried out in a country like Nigeria.

Abolagba et al (2010) examined the effects of exchange rate, export volume and domestic saffron production on price of saffron in Iran as the main non-oil export good in the country. Using Autoregressive Distributed lag (ARDL) model, the result showed that, increase in value of exchange rate had statistical significant negative impact on export price of saffron while there was no significant relationship between export price and domestic production of saffron in the long-run.

Orkhan Najafav (2010) in his article exchange rate volatility and international trade, the main objective of this article is to analysis the effect of exchange rate volatility and different exchange rate regimes on international trade, he used panel data including US trade with large number of countries and fixed effects estimation method, high frequency data and large sample is used. Panel least squares method to large sample and up to date data is used to estimate the effect of exchange rate volatility on US import and exports and the different exchange rate regimes are used as instrument for volatility. High panel data including 79 countries, 276 months covering time period from 1985 to 2007. Significant negative effect of exchange rate volatility on trade is found but this effect is not unambiguous.

Ibikunle and Akhanolu (2011) also investigated the impact of exchange rate volatility on trade flow in Nigeria for the period of 1970-2009, using Generalized Autoregressive conditional Heteroskedasticity (GARCH) model, the result revealed an inverse and statistical insignificant relationship between aggregate trade and exchange rate volatility in Nigeria.

The empirical studies that fall in the second category by showing a negative relationship betweenexchange rate volatility and international trade include Mougoué and Aggarwal (2011);

Dincer and Kandil (2011) established theoretically and maintained that, exchange rate risk affects export in the two ways. Firstly, surprising appreciation in domestic currency

against foreign currency will increase the prices of export, while import becomes inexpensive in terms of the good market. These conditions greatly reduce countries' local production ability when dependent on foreign resources for its production. Secondly, from the money market activities, a positive surprise to the domestic currency can decrease local production output (Nyeadi et al 2014).

Assessing the case of Nigeria, plagued by various negative occurrences, Idemudia (2012) observed that the challenge before Nigerian government policy makers is not whether Nigeria is experiencing resource curse, but how to handle it. Invariably, Nigeria is faced with a case of resource curse in its oil resource endowment. There had also been the issue of underperformance by public institutions including those meant to serve as a 'checking' on public institutions to ensure transparency, accountability and probity. There is also the issue of corruption in Nigeria, especially in the oil industry. All these instances suggest fundamental systemic problem that must be resolved in order to boost economic growth and development in Nigeria.

Frankel (2012) refers to a term known as 'resource curse' to be the situation where countries with more natural resources fail to develop while countries without natural resources develop faster. "Examples of the Natural Resource Curse are plain to see. Japan, Korea, Taiwan, Singapore and Hong Kong are rocky islands (or peninsulas) that were endowed with very little in the way of exportable natural resources. Nevertheless, they achieved western-level standards of living. Many countries in Africa, the Middle East and Latin America are endowed with oil, minerals, or other natural resources, and yet have experienced much less satisfactory economic performance" (Frankel 2012). Frankel (2012) also cited the example of China and Korea which are low on natural resources and minerals but have grown more as well as the examples of Gabon, Venezuela and Zambia which are high on natural resources but have grown slower in economic development.

Elif Nuroglu and Robert Kunst (2012) in their paper the effect of exchange rate volatility on international trade flows, evidence from panel data analysis and fuzzy approach. The aim of this paper is to analysis the effect of exchange rate volatility on international trade flows by using two different approaches the panel data analysis and fuzzy logic and also to compare the result. A

panel with cross-section dimension of 91 pairs of EU15 countries and with time ranging from 1964 to 2003 was used. An extended gravity model of trade is applied in order to determine the effect of exchange rate volatility on bilateral trade flows of EU15 countries. The estimated impact is clearly negative which indicates that exchange rate volatility has a negative influence on bilateral trade flows.

Abba and Zhang (2012) examined the relationship between exchange rate volatility, trade flows and economic growth of the sub-Saharan African countries with exclusive reference to Nigeria which is considered as small open economy. They used time series data over the period of 1970 – 2009 and the model was analyzed using vector autoregressive (VAR) approach. The findings from the study revealed that, there is significant effects of exchange rate volatility on trade flows and economic growth of Nigeria for the period of study.

Nwude [36], Studied the determinants of foreign exchange rates movements in Nigeria using time series data between 1960 to 2011 using the ordinary least square regression techniques to test the selected variables namely GDP, BOP, external reserves, inflation rate, deposit rate and lending rate as independent variables while the foreign exchange rate was the dependent variable. The result revealed no significant relationship between the dependent and independent variables. The researcher recommended increase in deposit rate as a bait to attract foreign capital inflows.

The work of some other scholars reveals slower growth of localities with natural resource dependence. An inter-state study by Papyrakis and Gerlagh (2007, cited in Weber, 2013, p.169) found that in the United States of America, states with natural gas dependence had slower growth than other states. Weber (2013) also observed the work of James and Aadland (2011) which found that some Counties of the United States of America with natural resources had a slower growth than those without.

In making a case for the root cause of the resource curse, Diamond and Moshacher (2013) stated it can be found in the varied effects resource wealth exacts on the inducements of public officials and citizens. They explained a case where taxes are being the main source of government revenue and are replaced by unearned income or rents seeking, there results

severance of a social contract between the people and the government. Invariably, focus turns from accountability to citizens over taxes paid to easy earned wealth from oil resources thereby eliminating premises for responsibility to the people or State, but settling for corrupt influences out of the resource depended upon. This scenario had largely occurred in Nigeria where many do not pay their taxes and until lately due to the decline in crude oil revenue, the government never thought of being very serious with widespread adequate collection of taxes.

On the study of the relationship between exchange rate volatility and trade flows in Nigeria, Umoru and Oseme (2013) investigated the relationship between trade balance and real exchange rate depreciation adopting the J-curve effect study approach. Using time series data and employing vector error correction model (VECM), the result revealed that, there is cyclical feedback between the trade balance and the real exchange rate depreciation of the Naira and that, there is no empirical proof in favour of the short-run deterioration of the trade balance as implied by the J-curve hypothesis, but there was cyclical trade effect of exchange rate shocks. The implication of this is that, real exchange rate shock would initially improve, then worsen and then improve the country's aggregate trade balance which when correlated with real depreciation provided no support for the J-curve hypothesis in the Nigerian trade balance. Hence, the short run predictions of the J-curve were not observable in Nigeria.

There exists a surfeit of empirical evidence on the impact of exchange rate volatility on trade both in developing and developed countries. Account of some of these studies are presented as follows;

Yutaka Kurihara (2013) examined the effects of exchange rate uncertainty and financial development on international trade. Panel data are used to conduct a dynamic panel model and the method for empirical analysis is ordinary least square (OLS) and robust estimation. Sample period is from 2009 to 2011 and the data used is in yearly average. The result are inconclusive, exchange rate volatility does not significantly influence the volume of international trade. Also, the study found out that exchange rate volatility negatively influences international trade in developing countries. As the volatility of

exchange rate increases, it dampens international trade.

Alessandro Nicita (2013) in his article exchange rates, international trade and trade policies contributes to understand the relationship between exchange rate and international trade by investigating the effect of exchange rate volatility and misalignment on international trade and by exploring whether exchange rate misalignment affects trade policy decisions. The methodological framework consists of fixed effects regressions estimates on a detailed panel data set comparing about 100 countries and covering a period of 10 years (2000 to 2009). The results indicates that exchange rate misalignment do affect international trade flows in a substantial manner.

Currency undervaluation is found to promote exports and restrict imports while the converse holds in the case of overvaluation. The analysis indicates that exchange rate volatility is not probably a major policy concern and this is because of the increasing availability of financial instruments to hedge against exchange rate risks and to the increasing share of intra-industry trade.

Serenis and Tsounis (2013) examined the effect of exchange rate volatility by considering two countries, Croatia and Cyprus, as a sample on sectoral exports for the period of 1990 to 2012. They revealed that exchange rate volatility negatively affected export volume.

Akinlo and Adejumo [37] examined the impact of exchange rate volatility on non-oil exports in Nigeria and found a statistically negative effect of exchange rate volatility on non-oil exports in the long run. In a similar vein, Omojimite and Akpokodje [38] investigated Nigeria's trade performance during the period 1986-2007 and found small positive effect of exchange rate reforms on non-oil exports through the depreciation of the value of the country's currency (naira).

Alayande (2014) examined the relationship between exchange rate and its potential determinants using unit root test and granger-causality test between1980 to 2013. The result showed a highly significant relationship between exchange rate and change in oil price, growth in money supply, foreign exchange reserves, interest rate, inflation rate and change in stock market. The study recommended that policy

makers should study the effect of other variables before making future predictions on exchange rate.

Ayodele [39] found out that both Exchange rate and inflation rate individually and jointly have significance impact on the economic growth of Nigeria as represented by GDP. The inflation rate has positive correlation with GDP while the exchange rate of naira to dollar has negative correlation with the GDP. Orji [40] studied the determinants of real exchange rate in Nigeria using Samuelson hypothesis. The time series study covered 1981 to 2012 and used the ECM technique and discovered that interest rate differential and oil revenues were major determinants of real exchange rate in Nigeria. The study recommended the effective management and control of interest rate in order to achieve and maintain a stable real exchange rate and the diversification of the economy from oil to reduce effect of oil shock. Doganlar [41], used error correction and cointergration method to explored the impact of exchange rate volatility on export. It was observed that the volatility of exchange rate had negative effect on exports. Vergil [42] conducted a study to determine the effect of volatility of exchange rate using standard deviation method and arrived at a conclusion that exchange rate volatility had negative effect on the export performance.

3. METHODOLOGY

The study is Ex post facto because the analysis is based on time series data of activities that have already taken place

To create a more specific relationship Exchange Rate Fluctuations and International Trade in Nigeria within the stipulated period, an empirical study of the presumed reasoning becomes necessary. This study will employ the ordinary least Square (OLS) method in analyzing the relationship between the variables in the model.

The data used for this study were mainly secondary time series data. They include:

IMP - Imports into Nigeria 1986 - 2018
EXP - Exports by Nigeria 1986 - 2018
TS   - Trade Shock 1986 - 2018
INFL - Inflation Rates 1986-2018
EXR - Exchange Rates 1986 – 2018
BOT - Balance of Trade
GDP- Nigeria's Gross Domestic Product 1986-2018.

All the Data were obtained from the websites of the World Bank as well as Nigeria Bureau of Statistics and the Central bank of Nigeria Statistical Bulletin of different series and Editions.

However, majority of the Data came from www. Indexmundi.com

The Balance of Payment (BOP) was the dependent Variable while Imports, Exports, Interest Rates, Inflation and Balance Trade were the Independent Variables

3.1 Model Specification

The choice of the above variables for our model was drawn from our literature. Therefore, two models were created and tested. The first model follows the argument by Devarajan et al. [43] whereas the second model follows the works of Ekpo (1995) with slight modifications, specifically; the study looks at the numerous inputs of the components of public and private investments.

In line with the above, the functional relationship between the variables are stated as

$$NGDP = f(EXR, IMP, EXP, INFL, INT), \qquad (1)$$

$$RGDP = f(EXR, IMP, EXP, INT)/INFL \qquad (2)$$

Where all the variables are as earlier defined.

From Equations (1) and (2), the econometric model is formed as:

$$NGDP\ t = \alpha0 + \alpha1\ EXR\ t + \alpha2\ IMP\ t + \alpha3EXP\ t + \alpha4INT\ t + \mu1\ t \qquad (3)$$

$$RGDP\ t = \beta0 + \beta1\ EXR\ t + \beta2\ IMPt + \beta3\ EXP\ t + \beta4\ INT\ t + \mu2\ t\ /\ \beta4\ INFL\ t \qquad (4)$$

Where:

RGDP t =Nominal Gross Domestic Product at time "t"
RGDP t = Real Gross Domestic Product at time "t"
$\mu1t = \mu2\ t$ = Error term
$\alpha1$, $\alpha2$, $\alpha3$, $\alpha4$, $\beta1$, $\beta2$, $\beta3$, and $\beta4$ are parameters estimates.

From the apriori expectation, $\alpha1$, $\alpha2$, $\alpha3$ and $\alpha4$ > 0. In addition, $\beta1$, $\beta2$, $\beta3$, and $\beta4$ > 0

The study employed the co integration and Error Correction Mechanism (ECM) techniques to

estimate the models. Primarily, the choice of co-integration technique was employed to tackle the problem of spurious correlation often associated with non-stationary time series data and check if there is any long run relationship between the variables in the model. The idea of cointegration (Granger, 1986; [44] creates the connection of steady state equilibrium. The theory of cointegration is essential to integrate short-run dynamics with long-run equilibrium [45]. The ECM was employed to determine the speed at which the dependent variables will return to equilibrium as a result of a change in the independent variables in both models.

The secondary data collected were classified and tabulated after which the multiple regression technique was used to estimate the respective relationships. This showed to what extent the dependent variable is related to the independent variables.

This Unit root test are statistical tools carried out by Dickey and Fuller. They looked at the distribution of test statistic and found that OLS estimates are biased down (towards stationary) and OLS standard errors. According to Cochrane, (2005) many time series that you would have thought were stationary based on OLS regression were in fact generated by random walks. Therefore, all the variables shall be subjected to unit root test using the augmented Dickey

Fuller (ADF) test specified in Gujarati [46] as follows.

$$\Delta y_t = \beta_1 + \beta_2 + \delta y_{t-1} + \alpha i \sum_{i-1}^{m} \Delta y_{t-1} + Et . \tag{5}$$

Where:

Δy_t = change time t

Δy_{t-1} = the lagged value of the dependent variables

Σ_t = White noise error term

If in the above δ =0, then we conclude that there is a unit root. Otherwise there is no unit root, meaning that it is stationary. The choice of lag will be determined by Akaike information criteria.

The Johansen (1988) test is used to check for co-integration whichintends to establish long-run

relationship between the variable in the model and Engle-Granger Approach to co integration will be adopted. This approach is based on conducting unit root test on residual obtained from the estimated regression equation. If the residual is found to be stationary at level, we conclude that the variables are co integrated and as such as long-run relationship exists among them.

$$BOP_t = \alpha 0 + \sum \vartheta_i INT_{i-i} + \sum \vartheta_i \ INFL_{ji-i} + \sum \vartheta_i EXP_{ji-i} + \sum \vartheta_{iIMPji-i} + \sum \vartheta_i EXR_{ji-i} + \mu_{i...} \tag{6}$$

In the equation above, BOP_t is the net of Nigeria's imports over her exports of goods and services within a year. The regression will determine whether or not the gross domestic product is determined by the predictor variables.

The main objective of this study is to investigate the causality between the independent and the dependent variables. Granger (1996) proposed the concept of causality and exogeneity: a variable Y_t is said to cause X_t, if the predicted value of X_t is ameliorated when information related to Y_t is incorporated in the analysis.

$$Y_t = \alpha_o + \sum_{i=1}^{n} \alpha_1^y Y_{t-1} \sum_{i=1}^{n} X_{a1} X \mu \tag{7}$$

And

$$X_t = \beta_o + \sum_{i=1}^{n} \beta_1^y Y_{t-1} \sum_{i=1}^{n} X_{\beta 1} XY_t \tag{8}$$

Co-integration is a prerequisite for the error correction mechanism. Since co-integration has been established, it is pertinent to proceed to the error correction model.

$$GDP = \beta_0 + \beta_{1INT} + \beta_{2INFL} + \beta_{3EXP} + \beta_{4IMP} + \beta_{5EXR} + \mu 6$$

- BOP – Gross Domestic Product.
- INT – Interest
- INFL – Inflation.
- EXP - Exports
- IMP - Imports
- EXR - Exchange Rate

ECM represents the Error Correction Model

4. DATA PRESENTATION, ANALYSIS & DISCUSSION OF FINDINGS

To be able to carry out the estimation processes for this study, the dataset for the analyses is presented as Table 1 below covering the period 1986 to 2018.

Table 1. Data for the Study consists of investment, inflation, GDP growth, money supply, monetary policy rate and exchange rate from 1986 – 2018

Year	Imports ($b)	Inflation %	Exports($B)	GDP	MRR/MPR %	Exchange Rate N/$	GDP Growth Rate %
1986	3.42	5.72	5.14	144.83	10	1.75	-8.75
1987	3.98	11.29	7.46	154.98	12.75	4.02	-10.75
1988	3.96	54.51	6.83	163.00	12.75	4.54	7.54
1989	3.397	50.47	8.15	170.38	18.50	7.36	6.47
1990	4.35	7.36	13.68	192.27	18.50	8.04	12.77
1991	7.06	13.01	12.61	202.44	14.50	9.91	-0.62
1992	8.84	44.59	11.91	249.44	17.50	17.30	0.43
1993	8.25	57.17	8.61	320.33	26.00	22.07	2.09
1994	4.5	57.03	4.68	419.20	13.50	22.00	0.91
1995	11.64	72.84	25.89	499.68	13.50	21.90	-0.31
1996	17.14	29.27	36.65	596.04	13.50	21.88	4.99
1997	20.47	8.53	35.86	909.80	13.50	21.89	2.8
1998	18.55	10	22.06	1,259.07	14.31	21.89	2.72
1999	10	6.62	13.1	1,762.81	18.00	92.34	0.47
2000	10.7*	6.93	22.21	2,895.20	13.50	101.70	5.32
2001	13.3*	18.87	22.28	3,779.13	14.31	111.23	4.41
2002	13.7*	12.88	20.3	4,111.64	19.00	120.58	3.78
2003	13.6*	14.03	17.3	4,588.99	15.75	129.22	10.35
2004	14.54*	15	21.8	5,307.36	15.00	132.89	33.74
2005	17.14*	17.86	33.99	6,897.48	13.00	131.27	3.44
2006	25.95*	8.24	52.16	8,134.14	12.25	128.65	8.21
2007	25.1*	5.38	59.01	11,332.25	10.00	125.81	6.83
2008	45.49*	11.58	76.8	13,301.56	10.00	118.55	6.27
2009	29.05*	11.54	59.32	17,321.30	13.00	148.90	6.93
2010	34.18*	13.72	76.33	22,269.98	13.00	150.30	7.84
2011	69.49*	10.84	103.9	28,662.47	13.00	154.74	4.89
2012	54.6*	12.22	92.16	32,995.38	13.00	157.50	4.28
2013	55.98*	8.48	93.55	39,157.88	13.00	157.31	5.39
2014	46.49	8.06	101.9	44,285.56	13.00	158.6	6.3
2015	34.81	9.01		54,612.26	11.00	192.4	2.7
2016	36.40*	15.7	33.27	62,980.40	14.00	253.5	-1.6
2017	35.24*	15.3	40.81	71,713.94	14.00	305.3	0.82
2018	39.73*	16.3		36,477	14.00	305.5	1.86

Source: International Monetary Fund, International Financial Statistics and the World Bank and Wikipedia online Dictionaryhttps://en.m.wikipedia.org/wiki/Economy_of_Nigeria https://www.indexmundi.com/facts/nigeria/lending-interest-rate

The first step in our estimation procedure is the presentation of the basic descriptive statistics designed to show the basic statistical properties of the data used. This is of the form shown in Table 2.

The descriptive statistics in Table 3 presents the measures of central tendency such as the mean and median as well as spread of the variables under study. The combined result of Skewness and Kurtosis which is reported in Jarque–Bera shows as test for normality. This statistics are shown for the growth related variables as well as the exchange rate related variables.

The result above shows that the variables were all stationary at 1st different level. The rejection of the null hypothesis was based on the ADF-stat. being more negative than the critical value at 5% level of significance. The result of the unit root test is the first evidence in favour of cointegration and error correction representation as the estimation technique for this study.

Having concluded some key pre-estimation tests, we set out to address the cointegrating properties of exchange rate and its impact on the Nigerian economy.

The result of the Johansen Rank correlation is shown to this effect in Table 4.

Table 2. Basic descriptive statistics

Variables	Mean	Median	Maximum	Minimum	Std. Dev.	Skewness	Kurtosis	Jarque-Bera	Probability	Obs
GDP	14480.85	4111.64	71713.94	144.83	20323.82	1.448983	3.969267	12.83931	0.001629	33
GDPGR	4.318788	4.28	33.74	-10.75	7.05295	1.82444	10.94186	105.0329	0	33
INF	20.01061	12.88	72.84	5.38	18.26076	1.607083	4.212336	16.22586	0.0003	33
INTR	14.25969	13.5	26	10	3.169604	1.718379	7.128809	38.47783	0	32
XP	36.76516	22.28	103.9	4.68	30.98869	0.957664	2.627387	4.917786	0.08553	31
XR	101.8436	118.55	305.5	1.75	85.91387	0.657563	2.890586	2.394604	0.302008	33

Source: Author's Computation

Table 3. Summary of unit root test result

Variable	ADF Statistic	Critical Values @ 5%	Probability Value	Inference
GDP	-4.39	-2.99	0.0022	I(1)
GDPGR	-8.39	-3.96	0.0000	I(1)
INF	-6.71	-3.62	0.0000	I(1)
INTR	-9.74	-3.73	0.0000	I(1)
XP	-5.21	-3.29	0.0000	I(1)
XR	-4.19	-3.56	0.0012	I(1)

Source: Author's computation

Table 4. Cointegration rank test (Trace)

Hypothesized		Trace	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
r=0	0.929630	134.7464	69.81889	0.0000
r≥1	0.864926	71.05088	47.85613	0.0001
r≥2	0.500375	23.00448	29.79707	0.2458

Source: Authors Computation

Evidently, the result in Table 4 following the trace rank cointegration test not only reported the existence of cointegration, it further showed that two cointegrating vectors exist in this relationship. This is shown by the fact that the null hypothesis of the at most two is rejected implying that there is a long run relationship between exchange rate and the growth of the Nigerian economy.

Having established that a cointegrating relationship exists in the studied relationship, next we investigate the adjustment profile of the Nigerian economy to the shocks and dynamics of exchange rate. This is done using the error correction representation as presented in the ful1 Vector Error Correction estimates presented in Table 5.

The results of the multivariate sets of equations as presented in Table 5 show various degrees of goodness of fit as shown by the associated R$^{2.}$ In addition, the F-statistics subscribes to overall model significance for all the VECM component models. Our attention however goes to the first model with GDPGR as the endogenous variable. A certain return to long run equilibrium following deviation from long run equilibrium is inferred. This is evidenced by the rightly signed error correction term which is negatively signed a -81% with a t-statistics of over 3, suggesting that it is statistically significant. By this, it implies that any deviation caused by the exchange rate related variables are restored in about a year and quarter with an adjustment speed of 81%. The fact that the coefficient of the error term is under

1 or 100% shows the predictability of the relationship as it is without explosive tendencies.

It can be inferred through the cointegration and error correction profile exhibited by our empirical estimations that a relationship exist between the studied exogenous variables and the growth of the Nigerian economy.

The result of the granger causality test and block exogeneity is shown in Table 6.

The result shows the individual and block causality properties of the studied variables. Evidently, no block exogeneity was found with GDPGR as the dependent variable as well as all the other variables except the model with export as the dependent variable. From that block it is seen that interest rate uni-directionally causes export while all the variables in block also causes export.

More so, there is a gradual decomposition of own shocks by GDP as well as shocks emanating from the influencing variables as studied. This is shown by the variable decomposition reported in Table 7 below:

For the want of space, only the variance decomposition of the key endogenous variable is shown. It is clearly seen that shocks from GDPGR dies out gradually and is dispersed to the exogenous variables. In addition the impulse response in the system is also shown in the graph presented below as Fig. 1.

Table 5. Summary of the vector error correction estimates

| Vector Error Correction Estimates					
Error Correction:	D(GDPGR)	D(INF)	D(INTR)	D(LOG(XP))	D(XR)
CointEq1	-0.812125	-0.654703	0.189269	-0.022074	0.780417
	(0.24443)	(0.57578)	(0.11558)	(0.01067)	(0.51448)
	[-3.32253]	[-1.13708]	[1.63754]	[-2.06975]	[1.51691]
D(GDPGR(-1))	-0.147568	0.109723	-0.064675	0.011195	-0.373722
	(0.18587)	(0.43783)	(0.08789)	(0.00811)	(0.39122)
	[-0.79393]	[0.25060]	[-0.73585]	[1.38041]	[-0.95527]
D(INF(-1))	-0.099714	-0.099374	0.133334	-0.003158	0.241135
	(0.10864)	(0.25590)	(0.05137)	(0.00474)	(0.22866)
	[-0.91788]	[-0.38833]	[2.59560]	[-0.66616]	[1.05457]
D(INTR(-1))	0.760771	-0.484885	-0.440467	-0.077372	-0.030379
	(0.48443)	(1.14112)	(0.22907)	(0.02114)	(1.01964)
	[1.57044]	[-0.42492]	[-1.92287]	[-3.66051]	[-0.02979]
D(LOG(XP(-1)))	2.746927	-15.00609	-0.462203	0.250404	-14.35710
	(3.81736)	(8.99215)	(1.80507)	(0.16656)	(8.03484)
	[0.71959]	[-1.66880]	[-0.25606]	[1.50337]	[-1.78686]
D(XR(-1))	-0.136012	-0.232951	0.010476	0.008579	0.010503
	(0.13261)	(0.31236)	(0.06270)	(0.00579)	(0.27911)
	[-1.02569]	[-0.74577]	[0.16708]	[1.48280]	[0.03763]
C	0.929075	2.322063	-0.006133	0.049064	6.918445
	(1.76884)	(4.16667)	(0.83641)	(0.07718)	(3.72308)
	[0.52525]	[0.55730]	[-0.00733]	[0.63572]	[1.85826]
R-squared	0.543924	0.303016	0.364523	0.635735	0.221899
Adj. R-squared	0.382956	0.057022	0.140237	0.507171	-0.052725
Sum sq. resids	966.6071	5363.530	216.1293	1.840234	4282.314
S.E. equation	7.540507	17.76237	3.565598	0.329012	15.87138
F-statistic	3.379081	1.231801	1.625258	4.944886	0.808008
Log likelihood	-78.40338	-98.96641	-60.42840	-3.236594	-96.26487
Akaike AIC	7.116949	8.830534	5.619034	0.853050	8.605405
Schwarz SC	7.460548	9.174133	5.962633	1.196649	8.949005
Mean dependent	0.500833	-0.430417	-0.083333	0.119345	5.294167
S.D. dependent	9.599364	18.29153	3.845412	0.468666	15.46882

Source: Authors Computation
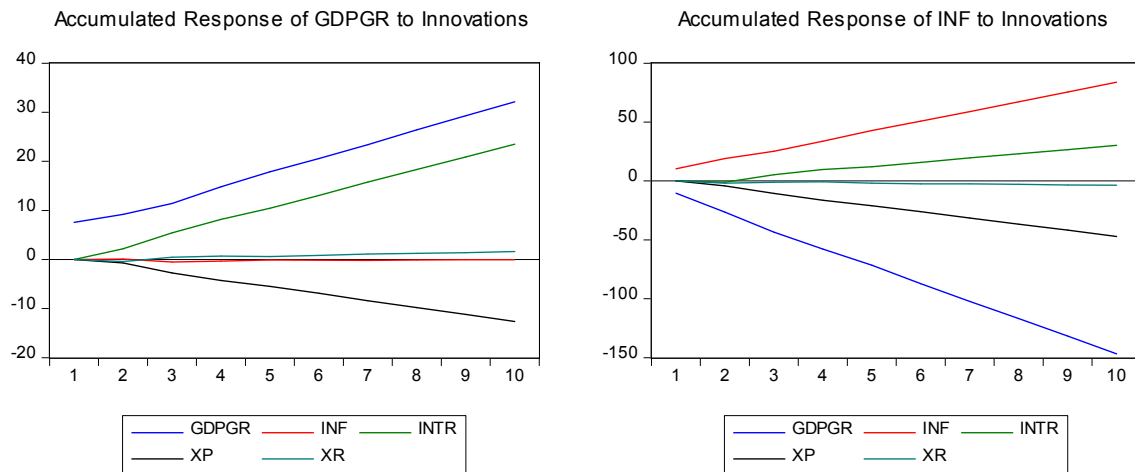
Fig. 1. The graph shows the dispersal and responses of the shock in the VAR system

Table 6. Granger causality and block exogeneity test

Dependent variable: D(GDPGR)

Excluded	Chi-sq	df	Prob.
D(INF)	0.842496	1	0.3587
D(INTR)	2.466291	1	0.1163
D(LOG(XP))	0.517807	1	0.4718
D(XR)	1.052039	1	0.3050
All	3.645375	4	0.4561

Dependent variable: D(INF)

Excluded	Chi-sq	df	Prob.
D(GDPGR)	0.062802	1	0.8021
D(INTR)	0.180557	1	0.6709
D(LOG(XP))	2.784892	1	0.0952
D(XR)	0.556167	1	0.4558
All	3.865988	4	0.4244

Dependent variable: D(INTR)

Excluded	Chi-sq	df	Prob.
D(GDPGR)	0.541482	1	0.4618
D(INF)	6.737130	1	0.0094
D(LOG(XP))	0.065565	1	0.7979
D(XR)	0.027914	1	0.8673
All	7.266328	4	0.1225

Dependent variable: D(LOG(XP))

Excluded	Chi-sq	df	Prob.
D(GDPGR)	1.905535	1	0.1675
D(INF)	0.443770	1	0.5053
D(INTR)	13.39931	1	0.0003
D(XR)	2.198692	1	0.1381
All	18.78114	4	0.0009

Dependent variable: D(XR)

Excluded	Chi-sq	df	Prob.
D(GDPGR)	0.912534	1	0.3394
D(INF)	1.112118	1	0.2916
D(INTR)	0.000888	1	0.9762
D(LOG(XP))	3.192852	1	0.0740
All	4.362485	4	0.3592

Source: Authors Computation

Table 7. Variance decomposition of GDPGR

Period	S.E.	GDPGR	INF	INTR	LOG(XP)	XR
1	7.540507	100.0000	0.000000	0.000000	0.000000	0.000000
2	8.263997	93.27349	1.924813	0.205975	4.157494	0.438230
3	10.46011	76.37633	17.29934	0.503305	5.227455	0.593568
4	12.17805	68.87822	24.63487	0.576455	5.376930	0.533523
5	13.75461	65.29763	28.13449	1.048747	4.931302	0.587840
6	15.01097	62.92741	30.67314	1.051213	4.764477	0.583765
7	16.15002	61.38793	32.17704	1.065806	4.826465	0.542759
8	17.27668	60.00686	33.53654	1.139058	4.804275	0.513272
9	18.33100	58.92637	34.65153	1.158462	4.762193	0.501439
10	19.31466	58.13905	35.44286	1.183003	4.742930	0.492160

Source: Authors Computation

5. SUMMARY OF FINDINGS, CONCLUSIONS & RECOMMENDATIONS

Adopting a VECM and Cointegration framework with particular focus on the Nigerian economy, the following findings are reported:

- That the Nigerian Economy shared a long run cointegrating relationship with the studied international trade related variables.
- That the Nigerian economy adjusts at 81% to the shocks and dynamics of the exchange rate and its correlates.
- That a causal relationship exists between export and exchange rate and all the studied variables in the block exogeneity form.

It is evident from the results of this study that Exchange Rate is Volatile and has a significant negative impact on Nigeria's balance of Trade/Gross Domestic Product. This conforms with the results of existing Studies on Exchange rate Volatility and the Nigerian Economy by : Obiora and Igue [32], Akinlo and Adejumo [37], Omojimite and Akpokodje [38], Aliyu [47], Olowe (2009). This could be attributed to over reliance on Crude Oil, Importation of Processed Petroleum Products as well as her insatiable appetite for Ostentatious/Foreign made Products and even Medical Tourism abroad. Fluctuations in the prices of Crude Oil; a major export product has exposed the economy to external shocks that caused the present economic crisis . No wonder the Exchange Rate of the Naira has plumated over the years from in N1.75/$ 1986 to N305.5/$ in 2018

From the discussion of findings, the following recommendations are necessary:

- Provision of adequate infrastructure in the Country especially in the areas of Power and Medicare; this will go a long way in assisting manufacturing firms as well as reduce the cost of Medical Tourism
- Encouraging Local Manufacturing of Goods and Services, this will help the nation to earn more foreign Exchange. Equally of essence is the proper management of the foreign exchange earned by the Country as this will boost her external reserve.
- Inflation should be put at a reasonable level that will reverse the negative real Exchange Rate thereby making the Naira stable in the Foreign exchange market.
- CBN should continue with the reduced Exchange Rate on Agriculture and other Manufacturing activities as this is capable of increasing Investment which will result in increased Foreign Exchange earnings through export of Agricultural products and even other made –in-Nigeria products.
- Firms should be licensed to build refineries for processing of Our Crude Oil, this will make refined petroleum Products available, and affordable thereby eliminating the endemic fraud embedded in subsidy payments.
- The policy implication of this result is that Exchange Rate stability will increase non-oil exports. Thus, the collaborative efforts of all agents are required in ensuring an enabling environment that will support current economic diversification in the face of the dwindling fortunes of crude oil.

The findings of this study has contributed to existing knowledge as it has empirically and scientifically revealed a strong link between Exchange Rate Volatility and Economic Growth in Nigeria. The study contributes to the existing body of knowledge as it helps to fill up all loopholes arising from other research works. Also, the findings of this study will aid an effective and efficient management of Foreign Exchange by the Central Bank of Nigeria as well as other Policy makers. It will guide analysts, consultants, other professionals, leaders and even the entire populace especially as it relates to Exchange Rates Management and its effect on Productivity.

It is important to equally state here that further research work could be carried out on the contributions of Corruption to the Exchange Rate Fluctuations in Nigeria as well as the Effects of Decay in Infrastructure on the Exchange Rate of the Naira and even the Nigerian Economy To this extent therefore this research work is suggesting the use of correlation analysis or discriminate analysis. All these will enable other researchers to evaluate the effects of Exchange Rate Fluctuations on Productivity in Nigeria.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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