

## **THE EFFECT OF EXCHANGE RATE MOVEMENTS ON EXPORT AND IMPORT TRADE IN NIGERIA**

**\*<sup>1</sup>Adesina Olufemi Dadepo and <sup>2</sup>Daodu Babalola Julius**

<sup>1</sup>Department of Accountancy, The Federal Polytechnic, Ile-Oluji, Ondo State,

<sup>2</sup>Department of Banking and Finance, Rufus Giwa Polytechnic, Owo, Ondo State

[olufemiadesina@fedpolel.edu.ng](mailto:olufemiadesina@fedpolel.edu.ng), [daodubablo@gmail.com](mailto:daodubablo@gmail.com)

### **ABSTRACT**

*The study examined the effect of Exchange rate movements on import and export trade in Nigeria. Export and Import trade were segregated into oil and non-oil sectors. Secondary data were sourced from The Central Bank of Nigeria (CBN) 2019 Statistical Bulletin covering thirty eight years from 1981-2019. The study employed Error Correction model to estimate the co-efficient of the variables. It was established that Exchange rate has positive and significant effect on oil export in Nigeria. It implies devaluation of naira improve the revenue from oil export. Though, there is instability of earnings from crude oil. In the same direction, exchange rate has positive effect on non-oil export, oil import and non-oil import but the effect is not statistically significant. Exchange rate movements also show that naira was devalued between year 2000 and year 2019. Despite devaluation of naira which is expected to discourage imports by making the price of imports higher in local currency. Non-oil importation was seriously on the increase. This is against the objective of naira devaluation. Export diversification should be encouraged to improve revenue from non-oil sector. The study recommends that exchange rate management policy focus on exchange rate stability because of micro and macroeconomic planning implications.*

**Keywords: Exchange rate, Import, Export, Devaluation, Error Correction model.**

### **INTRODUCTION**

International trade has been in existence since the earliest civilization of exchange goods and services among different countries. In recent years international trade has become increasingly important with a larger share of GDP devoted to exports and imports. There is a need to exchange capital goods and services beyond the national level to international level because there is a need for such goods and services across international borders. International trade allows countries to expand their markets and access goods and services that otherwise may not have available domestically. As a result of international trade, the market is more competitive. International trade between different countries is an important factors in raising living standards of living. There is no doubt about the fact that some countries are naturally abundant in raw materials for instance, Nigeria is blessed with crude oil and other natural resources, metals, fish (Iceland), Congo (diamonds) Butter (New Zealand). Without trade, some countries would not benefit from the natural endowments of raw materials. In this essence, a theoretical model for was developed Known as the Heckscher–Ohlin model (H–O model) which states countries should specialize in



producing and exports goods that use abundant local factor endowments. Countries will import those goods, where resources are scarce.

With an increased importance of trade, there have also been growing concerns about the potential negative effects of trade, particularly the unbalanced benefits with some losing out, despite overall net gains. According to Jamali and Anka (2011), Nigeria trade policy must encourage production and distribution of goods and services for domestic and international market to accelerate economic growth and development. According to Yakub, Sani, Obiezue and Aliyu (2019), Nigeria's trade policies focused on import substitution strategy and export led growth strategy. The import substitution strategy was adopted in 1960. It employed tariffs in the form of high import duties and quantitative restrictions as non-tariff barriers for protecting domestic manufacturing industries to boost their production capacity.

Yakub reported that industrialization strategy was adopted to promote the export of domestically produced goods of which the country has a comparative advantage. This will enable the country to boost foreign exchange earnings and diversify its foreign exchange base. Among several measures implemented to ensure the success in promoting non-oil export in Nigeria include the establishment of export processing zones, lower tariff structure, custom and port reforms; and the adoption of the ECOWAS five-band common external tariff.

Exchange of goods and services across borders requires foreign exchange hence the need to determine appropriate exchange rate. Therefore, exchange rate is the price of one currency vis-à-vis another and is the number of units of a currency required to buy another currency. It is a very important price which governments take very active interest in. It performs dual role of maintaining international competitiveness, and serving as nominal anchor for domestic prices. In Nigeria, the exchange rate management is vested in the Central Bank of Nigeria (CBN) and since the introduction of the Structural Adjustment Programme (SAP) in 1986; exchange rate management has been a core macroeconomic policy function. The overriding objective has been to achieve a realistic and stable exchange rate consistent with internal and external balance. (Mordi 2006). According to CBN the main objectives of exchange rate policy in Nigeria are to maintain a favorable external reserves position and ensure external balance, to preserve the value of the domestic currency, and ensure the overall goal of macroeconomic stability.

To achieve the above objectives there is a need for efficient management of exchange rate. A successful exchange rate policy will facilitate the achievement equilibrium in external and internal trade in the economy, and as a result, it prevents undesirable overvalued or undervalued national currencies. However, a currency is suffering from misalignment when its exchange rate departs from its long run equilibrium path. (Essien, Stephen, Uyaabo and Omotosho (2017). Therefore, foreign exchange management policy is a major factor that significantly contributes to Nigeria's economic development. To the Federal government, FOREX is a crucial resource for conducting international transactions, hence the need for it to be judiciously managed.

There has been a continuous debate on the appropriate foreign exchange policy in Nigeria. The debate centred on the degree of fluctuations in the exchange rate in the face of internal and exchange shocks. Ghura and Grennes (1993) identified that Exchange rate misalignment, leading

to misallocation of resources between tradable and non-tradable sectors as one of the obstacles militating against the sustained economic growth. Exchange rate fluctuations reflect unsustainable macroeconomic conditions within an economy, which could eventually expose an economy vulnerable to currency crises.

According to Obadan (2006), several factors have contributed to the naira's dwindling fortunes in all the foreign exchange markets. Some of the factors identified are weak production base, fragile export base and weak non-oil export earnings. Others are instability of earnings from crude oil, upon which the economy depends very heavily, over-reliance on an imperfect market system and unguided trade liberalization policy. Alaba, Adenikinju and Collier (2008) observed that oil exports are paramount to the Nigerian government because of heavy inflows from the exportation of the crude oil out of which the country finances its imports. Oil exports are mainly determined by the level of investment in the oil sector and by the world determined price. Revenue from oil export to a large extent determines the value of Nigeria's import. According to them, trade restrictions in the form of tariffs merely change the imports composition and not serve as a protection of the country from over-dependence on importing goods and services.

Therefore, exchange rate misalignment is a major challenge against internal and external balance regarding exportation and importation of goods and services in Nigeria, hence it must be the focus of the government and avoiding such menace requires that the policy makers have proper understanding of real exchange rate dynamics and an idea of realistic estimates of the equilibrium real exchange rate. Since the exchange rate is an important price that affects all sectors of the economy and all economic agents, it is desirable to monitor the movements in the rates to foster competitiveness and improve supply of exportable. This study's motivation is to examine the effect of exchange rate movements on export and import trade in Nigeria to determine the net effect of international trade. The paper is divided into five parts, the first part is introduction, and second part takes care of literature review, part three focus on methodology, part four deals with results and discussion while the last part deals with policy implication, conclusion and recommendations.

## **LITERATURE REVIEW**

### **Conceptual Literature**

#### ***Export trade***

In economics, an export refers to any good or commodity transported from one country to another in a legitimate fashion, typically for trade use. Depreciation in the value of currency will reduce the overseas price of exports. This should lead to an increase in demand for exports. The higher the price elasticity of demand for exports, the bigger the increase in demand for exports will be.

### ***Import trade***

Import refers to any good or service brought in from one country to another country in a legitimate fashion, typically for trade. It is a good that is brought in from another country to use the people in the imported countries. According to Udeh (2010), one of the biggest challenges Nigeria faces as a nation is how to reduce import dependence. Nigeria's import structure has remained the same over the years with non-oil imports dominating total import. A depreciation will increase the price of imports. This will lead to a decrease in the demand for imports, but the scale of the decrease will depend on the price elasticity of demand for imports. If demand is very inelastic, then imports will change very little. If, on the other hand, demand is very elastic, then imports will change significantly.

### ***Exchange rate***

Exchange rate is the price of one currency vis-à-vis another and is the number of units of a currency required to buy another currency. It is a very important price which governments take very active interest in. It performs dual role of maintaining international competitiveness, and serving as nominal anchor for domestic prices. In Nigeria, the exchange rate management is vested in the Central Bank of Nigeria (CBN) and since the introduction of the Structural Adjustment Programme (SAP) in 1986; exchange rate management has been a core macroeconomic policy function. The overriding objective has been to achieve a realistic and stable exchange rate consistent with internal and external balance. (Mordi 2006).

### ***Exchange rate movements***

Exchange rate movements refer to changes in exchange rates change. It is often described with terms like depreciation, devaluation, appreciation or revaluation. The term appreciation describes an upward movement in a freely floating exchange rate while depreciation refers a downward movement in a floating exchange rate. An appreciation or depreciation in the exchange rate will lead to changes in imports and exports' relative prices. A depreciation will make exports appear relatively cheaper overseas while imports will be more expensive.

### ***Exchange rate policy***

The foreign exchange management policy of an economy serves as one of the major factors contributing to the economic development of such a nation. To the federal government, FOREX is a crucial resource for conducting international transactions; therefore, the government felt once earned should be judiciously managed. 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. A successful exchange rate policy is expected to facilitate external and internal balances in the economy. The exchange rate is said to be in equilibrium.

## **Theoretical Literature**

The economic theory model by Heckscher-Ohlin stipulates that countries must export goods and services that they can produce efficiently and in abundance. Consideration must be given to the sufficient availability of the production factors that are expected for the production of the goods and services. Some countries are endowed with natural resources such as oil for Nigeria, diamonds for Congo, metals for Iceland. These natural raw materials are essential parts of factors of production. Also, there is a need for countries to concentrate on the importation of goods and services that they cannot produce efficiently. According to Blaug (1992), Heckscher-Ohlin model is built on Ricardo's law of comparative advantage. According to the model, international trade as a trade across borders allows trade specialization in those goods where a country has a relatively lower opportunity cost. This theory contrasts to theory of absolute advantage attributed to Adam Smith which focused on labor productivities as determinants of absolute advantage. The major criticism of the theory is the difficulty of using labor only as a factor of production in determining the country's absolute advantage in producing goods more efficiently than other countries.

A new trade theory emphasizes substantial economies of scale and network effects as determinants of international trade patterns. The significance of these economies of scale and network effects outweighs traditional theory of comparative advantage. According to this theory, it is possible that industries in two countries may not have perceptible differences in opportunity cost but, specialization by a country in a particular industry may bring the benefit of economies of scale and other network effects. It is a known fact that Japan and Germany are specialized in production of some brands of cars. These theories are basis for international trade.

## **2.3 Empirical Literature**

### ***Studies with positive effect of exchange rate on international trade***

Oyovwi and Ukavwe (2013) investigated the relationship between exchange rate volatility and international trade in Nigeria using time serial data from 1970-2010. Unit root test was conducted to determine the data's stationarity while co-integration test established long run relationship between these variables. Error correction was used for the estimation of the variables. Resulted indicated that exchange is insignificant in influencing import trade while the result with export is positive and significant. In another study, Nicita (2013) affirmed a positive relationship between exchange rate and international trade using data from 100 countries from 2000 to 2009. In line with economic theory, devaluation of currency can promote exports and restricted imports. The implication is that exchange rate policy on depreciation of currency can be geared towards promoting export and discouragement of imports.

### ***Studies with negative effects of exchange rate on international trade***

Olufayo and Fagite (2014) carried out a study to examine the effect of exchange rate volatility on export considering oil and non-oil sectors. GARCH model results revealed a negative effect of exchange rate on both oil export and non-oil sectors in Nigeria. Although, the study confirmed

volatility of exchange rate but the result was not statistically significant. The implication is that exchange rate volatility did not have significant influence on export trade in Nigeria. Danladi, Akomolafe, Babalola and Akpan (2015) found out that exchange rate volatility negatively affected Nigeria's international trade. The study was conducted by employing annual data from 1980 to 2013. Long-run relationship was also established between exchange rate and international trade in Nigeria. Error Correction model was used as estimation technique. Kanu and Nwadiubu (2020) investigated the impact of exchange rate volatilities on international trade in Nigeria using Secondary data from 1996 to 2018. The Vector autogressive model's estimated results showed an inverse relationship between real exchange rate and export and between exchange rate and import. Specifically, the study found that a unit increase in export leads to 0.9% decrease in real exchange rate and a unit increase in import lead to 0.4% decrease in real exchange rate. The implication is that depreciation in the exchange rate led to increase in exports which will boost earnings generated from export trade in Nigeria.

There are mixed results on the effects of exchange rate volatility on international trade from empirical literatures in different countries and at different time. While some studies found inverse relationship between exchange rate and international trade, some established direct and positive relationship. Some literature found no significant relationship between exchange rate and international trade.

The identified gap in the literature review: some of the studies considered international trade in aggregate, while some focused on export trade. . The only study that used oil and non-oil was restricted the study to export trade. There is a need to conduct further research that will fill the identified gap by incorporating both import and export trade and further analysis of each trade's effect by segregating oil export from non-oil export trade and separating oil import from non-import trade. This will establish the effect of exchange rate movements on each of these variables, which will provide good information for the government to implement appropriate policy towards economic growth and development.

## **METHODOLOGY**

Data collection method and statistical analysis employed by the study to carry out various tests were discussed. These include descriptive statistics, correlation analysis, unit root test, co-integration test, granger causality test and Error Correction model to estimate variable coefficients.

### **Unit Root Test/Stationary Test**

Augmented Dickey Fuller (ADF) will be carried out to test the stationarity of each of the variables used in the study. The essence of this test the presence of unit root in the time series sample.

### **Co-integration Test**

Johansen tests for Co-integration which measures a long-run relationship between the Variables. It is used to detect multiple co-integration vectors. The basic argument of Johansen's procedure is

that the rank of matrix of variables can determine whether or not the two variables are co-integrated. A lack of co-integration suggests that such variables have no long-run relationship

### **Granger Causality Test**

This test would be carried out to show the causal relationship between exchange rate movements and international trade.

### **Error Correction Model**

Vector error- correction model Estimate is to test the significance of the variables. Based on - statistic for testing lag of the individual variable. The error correction model attempts to integrate economic theory useful in characterizing long run equilibrium with observed disequilibrium by building a model that explicitly incorporates behavior that would restore equilibrium. It a one-period lagged value of the residual from a static model. The error correction model is very important because it ensures the reliability of the statistics, making the model suitable, reliable and appropriate for both control and prediction purposes.

### **Source of Data**

Time series annual data for exchange rate, oil export, non-oil export, oil import and non-oil import from 1980 to 2019 were used. The secondary data were sources from Central Bank of Nigeria Statistical Bulletin (CBN) 2019.

### **Model Specification**

$$\text{EXPT (OIL)} = \alpha_0 + \alpha \text{EXR}_{t-1} + \alpha \text{EXR}_{t-2} + \text{et} \dots \dots \dots (1)$$

$$\text{EXPT (NOIL)} = \alpha_0 + \alpha \text{EXR}_{t-1} + \alpha \text{EXR}_{t-2} + \text{et} \dots \dots \dots (2)$$

$$\text{IMPT (OIL)} = \alpha_0 + \alpha \text{EXR}_{t-1} + \alpha \text{EXR}_{t-2} + \text{et} \dots \dots \dots (3)$$

$$\text{IMPT (NOIL)} = \alpha_0 + \alpha \text{EXR}_{t-1} + \alpha \text{EXR}_{t-2} + \text{et} \dots \dots \dots (4)$$

Where

- EXPT (OIL) = Value of Oil-export trade.
- EXPT (NOIL) = Value of Nonoil-export trade
- IMPT (OIL) = Value of Oil-import trade
- IMPT (NOIL) = Value of Nonoil-Import trade

**RESULTS AND DISCUSSION**

Table 1 below gives the descriptive Statistics of the variables in the model. It shows that the mean value for Exchange Rate is N94.25879 while the Standard deviation is N92.86518. The mean value for Oil Import is N862.9718 Billion and the standard deviation is N1151.109 billion Also, the mean value for Non-Oil Import is N2920.914 billion with a standard deviation of N3937.533 billion. However, the mean value for Oil Export and Non-Oil Export is N4843.724 and N348.6403 billion respectively while their respective standard deviation is N5665.523 N618.4665 billion.

**Table 1. Descriptive Statistics**

<b>Variable</b>	<b>Obs</b>	<b>Mean</b>	<b>Std. Dev</b>	<b>Min</b>	<b>Max</b>
<b>Exchange Rate</b>	39	94.25879	92.86518	0.61	306.9206
<b>Oil Import</b>	39	862.9718	1151.109	0.05	3686.89
<b>Non-Oil Import</b>	39	2920.914	3937.533	5.07	16914.4
<b>Oil Export</b>	39	4843.724	5665.523	7.2	17282.25
<b>Non-Oil Export</b>	39	348.6403	618.4665	0.2	3207.02

*Source: STATA 14*

**Line Graph**

Figure1-5 below shows is a line graph that shows the pattern of movement for each of Exchange Rate, Oil Import, Non-Oil Import, Oil Export and Non-Oil Export from 1981 – 2019. It can be observed from the graph that Exchange Rate has been on the increase over the years, also, Oil Import increased from 1980 but had a slight reduction from 2011 to 2018 and then begins to increase from 2018 to 2019. We can also observe the same thing with Oil Export. However, Non-Oil Import and Non-Oil export had an increase over the years.





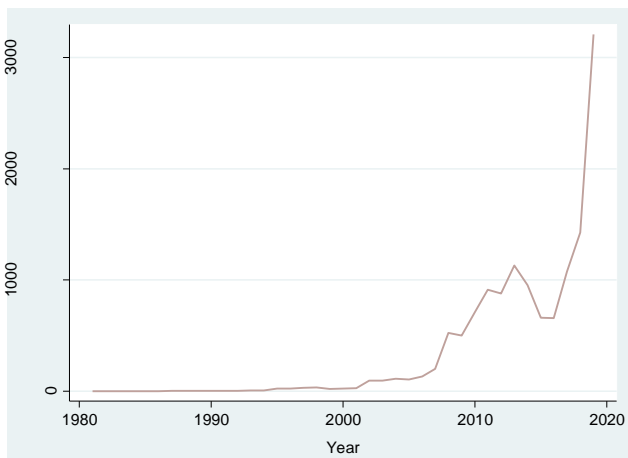
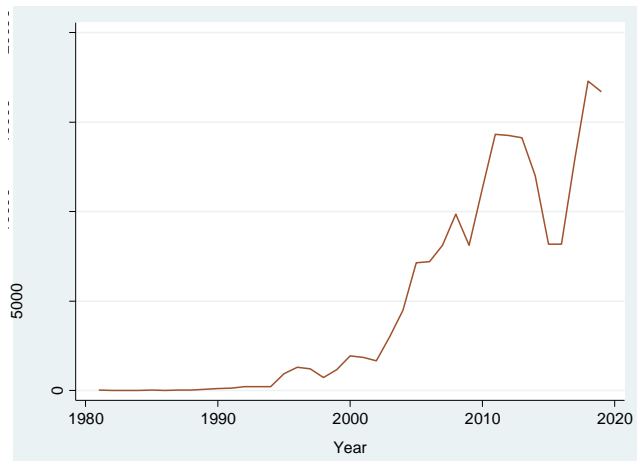
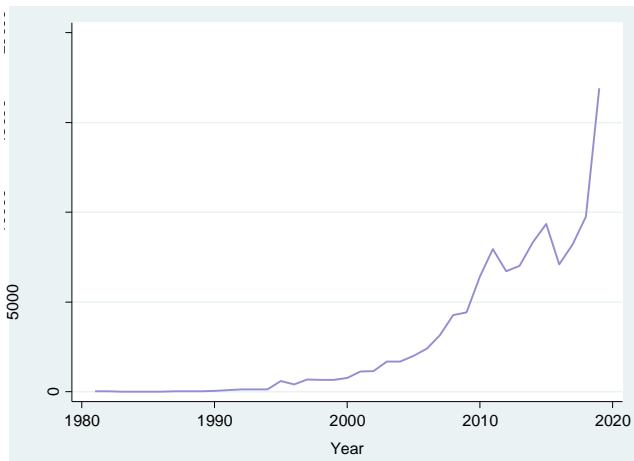
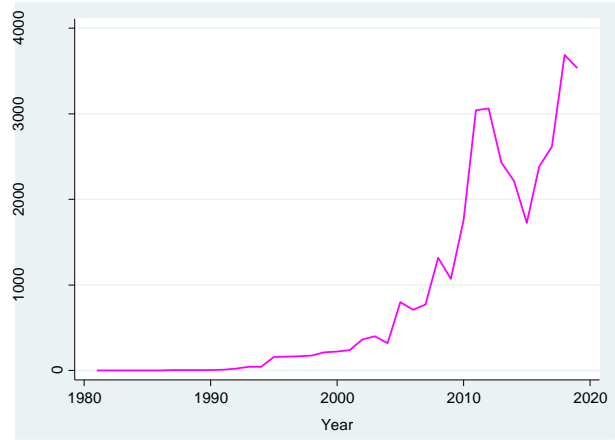
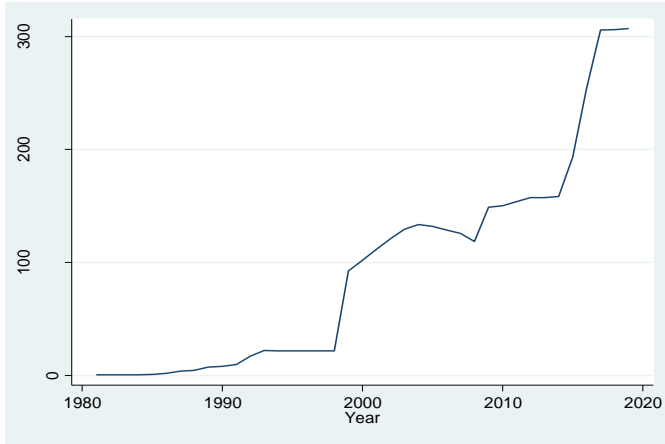


Figure 1-5: Showing the Line graph of the Variables

Table 2. Below shows the Pairwise Correlation which explains the strength and direction of relationship among the variables. The Correlation between Exchange Rate and Oil Import, between Exchange Rate and Non-Oil Import, between Exchange Rate and Oil Export and between

Exchange Rate and Non-Oil Export are 0.8761, 0.8818, 0.8782 and 0.7878 respectively these show strong positive relationships among these variables.

**Table 2. Correlation**

	<b>Exchange Rate</b>	<b>Oil Import</b>	<b>Non-Oil Import</b>	<b>Oil Export</b>	<b>Non-Oil Export</b>
<b>Exchange Rate</b>	1.000				
<b>Oil Import</b>	0.8761	1.000			
<b>Non-Oil Import</b>	0.8818	0.9408	1.000		
<b>Oil Export</b>	0.8782	0.9640	0.9163	1.000	
<b>Non-Oil Export</b>	0.7878	0.8747	0.9496	0.8402	1.000

*Source: STATA 14*

### Lag Selection-order criteria

Table 3 below reveals that the lag of order 3 is sufficient for the model based on Schwarz Bayesian information criterion (SBIC), Final predictor error (FPE), Akaike information criterion (AIC) and Hannan-Quinn information criterion (HQIC), also Sequential modified LR tested statistics (LR) selected lag of order 3.

**Table 3. Selection-Order Criteria**

Sample 1984-2019

Number of obs 36

<b>Lag</b>	<b>LL</b>	<b>LR</b>	<b>df</b>	<b>p</b>	<b>FPE</b>	<b>AIC</b>	<b>HQIC</b>	<b>SBIC</b>
0	-1354.82				4.4e+26	75.5457	75.6224	75.7656
1	-1189.67	330.31	25	0.000	1.9e+23	67.7592	68.2198	69.0788
2	-1142.44	94.443	25	0.000	5.9e+22	66.5247	67.3691	68.9439
3	-1090.04	104.8*	25	0.000	1.6e+22*	65.0025*	66.2307*	68.5214*

*Source: STATA 14*

### Stationarity Test

Table 4 below shows the Augmented Dickey Fuller (ADF) test at level used to test each of the variables' stationarity with a constant and no trend. It is shown that the p-value for Oil Imports, Non-Oil Import, Oil Exports, Non-Oil Exports and Exchange rates were 0.9804, 0.991, 0.9755, 1.000 and 0.9971 respectively. The values are greater than critical value of 0.05; we cannot reject  $H_0$ , then, the series have unit roots and non-stationary. Nonstationary data produces spurious result hence stationarity is tested using Augmented Dickey Fuller (ADF) test at first difference. The p-value for Oil Imports and Oil Exports were 0.0006 and 0.0001 respectively, and they are less than the critical value of 0.05, therefore we reject  $H_0$ , showing that Oil Imports and Oil Exports are stationary at first difference. However, Non-Oil Imports, Non-Oil Exports and Exchange Rate were not stationary at first because their P-value is greater than the critical value of 0.05. Exchange



Rate, Non-Oil Imports, Non-Oil Exports were therefore tested at second difference and they are seen to be stationary as their respective P-Value is less than 0.05

**Table 4. Augmented Dickey Fuller (ADF)**

<b>Variables</b>	<b>At level</b>	<b>At first difference</b>	<b>At Second difference</b>
Oil Imports	0.9804	0.0006	-
Non- Oil Imports	0.9991	0.8083	0.0118
Oil Exports	0.9755	0.0001	-
Non-Oil Exports	1.000	0.6206	0.0163
Exchange rates	0.9971	0.0678	0.0004

*Source: STATA 14*

**\*Probability values only reported\***

### Tests for Co-integration

Table 5 shows the Johansen tests for Co-integration which measures a long-term relationship between the Variables. The Trace statistics 129.4786, 67.7665 and 34.0456 for rank 0, 1 and 2 respectively are greater than their respective critical values. This leads us to reject the null hypothesis which states that there is no co-integration and accept the alternative hypothesis, which states co-integration. This concludes that there is co-integration among the variables. Since it is established that co-integration existed among the variables, then the Vector Error Correction Model (VECM) is appropriate to estimate the model parameters.

**Table 5. Johansen tests for Co-integration**

<b>Trend: Constant</b>	<b>Number of obs</b>	<b>36</b>
	<b>Lags</b>	<b>3</b>
<b>Sample 1984-2019</b>		

<b>rank</b>	<b>Parms</b>	<b>LL</b>	<b>Eigenvalue</b>	<b>Trace statistics</b>	<b>Critical value</b>
<b>0</b>	55	-1154.7841		129.4786	68.52
<b>1</b>	64	-1123.9281	0.81990	67.7665	47.21
<b>2</b>	71	-1107.0676	0.60808	34.0456	29.68
<b>3</b>	76	-1095.3694	0.47790	10.6491*	15.41
<b>4</b>	79	-1091.0203	0.21464	1.9510	3.76
<b>5</b>	80	-1090.0448	0.05275		

*Source: STATA 14*

### Granger Causality Test

Table 6 below shows that there is unidirectional causality between exchange rate and oil export in Nigeria. Exchange rate granger cause oil export. This result implies that there is causality effect of exchange rate on oil export. This is understandable because Nigeria derives bulk of foreign exchange earnings on the exportation of crude oil.



**Table 6 Granger Causality Wald tests - Sample 1980-2019**

Null hypotheses	Obs	Chi2	Prob
Exchange rate does not Granger cause Oil Export	36	8.4654	0.037
Oil export does not Granger cause Exchange rate		6.6354	0.084
Exchange rate does not Granger cause Nonoil export	36	5.7075	0.127
Non-oil export does not Granger cause Exchange rate		1.4522	0.693
Exchange rate does not Granger cause Oil import	36	5.3993	0.145
Oil import does not Granger cause Exchange rate		1.4559	0.692
Exchange rate does not Granger cause Non-Oil import	36	5.3983	0.145
Non-Oil import does not Granger cause Exchange rate		7.5790	0.056

**Source STATA 14**

### **Vector error-correction model Estimate**

Vector error- correction model Estimate is to test the significance of the variables. Based on - statistic for testing lag of the individual variable, the result reveals that some of the coefficients are not significantly different from zero. Exchange Rate has a positive but insignificant effect on Oil Imports at first lag but has a positive and significant effect. It also has a positive and insignificant effect on Non-Oil imports at first lag but positively and significantly at the second lag difference. Also, it is observed that Exchange Rate has a positive and significant effect on Oil Export at first lag and Positive but insignificant effect at second lag. Exchange Rate has positive but insignificant effect on Non-Oil Export at first lag and Positive but significant effect at second lag.

Testing the joint significance of the lags of the variables on each variable using the chi-test, the result shows that all the variables' joint coefficients were significant. The (Prob>chi2) values for all the variables in Table 6 are seen to be 0.0000 which is less than the level of significant 0.05. Thus, we reject H0 and conclude that variables in the model have a significant impact on each of the variables' future values.

R-square for Oil Import in Table 7 is 0.6412, implies that the last period's values of Oil Import and Exchange Rate explains 64 per cent of the variation in the current Oil Imports value. The R-square value for Non-Oil Import is 0.8072, this shows that past values of Exchange Rate explained about 81 per cent of the variation in current value of Non-Oil Import. Table 7 also shows the R-square value of Oil Export which is 0.7219, indicating that the previous period's value of the model's variables accounts for 72 per cent of current value of Oil Export. The R-square value of Non-Oil Export which is 0.6791, indicates that the previous period's value of the model's variables accounts for 68 percent of the current value of Non-Oil Export. The R-square value of



Exchange Rate which is 0.6325, indicates that the previous period's value of the model's variables accounts for 63 percent of the current value of Exchange Rate. The above results show good fitness of the model given the amount of variations taken care of by each of the system's models.

Sample: 1984 – 2019		Number of obs =	36
		AIC	= 65.996
Log likelihood	= -1123.928	HQIC	= 66.97856
Det(Sigma_ml)	= 9.02e+20	SBIC	= 68.81115

**Table 7. Vector error-correction model summary**

Equation	Parms	RMSE	R-sq	chi2	P>chi2
D_OilImport	12	276.578	0.6412	42.89311	0.0000
D_NonoilImport	12	769.162	0.8072	100.5035	0.0000
D_OilExport	12	1077.23	0.7219	62.2895	0.0000
D_NonOilExport	12	227.063	0.6791	50.77815	0.0000
D_ExchR	12	14.6687	0.6325	41.313	0.0000

**Table 8. Vector error-correction model**

	Coef.	Std.Err.	Z	P> z	95% Conf. Interval	
<b>D OilImport</b>						
	<b>ExchR</b>					
<b>LD.</b>	1.704686	3.839638	0.44	0.657	-5.820865, 9.230238	
<b>L2D.</b>	0.3122056	3.525266	0.09	0.031	-6.597188 7.2216	
<b>Cons</b>	-40.14465	65.92655	-0.61	0.003	-169.3583 89.06901	
<b>D.NonoilImport</b>						
	<b>ExchR</b>					
<b>LD.</b>	9.481196	10.67802	0.89	0.375	-11.44734 30.40973	
<b>L2D.</b>	25.95323	9.803754	2.65	0.008	6.738228 45.16824	
<b>Cons</b>	-43.88093	183.3415	-0.24	0.011	-403.2237 315.4619	
<b>D.OilExport</b>						
	<b>ExchR</b>					
<b>LD.</b>	7.853201	14.95487	0.53	0.043	-21.45782 37.16422	
<b>L2D.</b>	-6.890901	13.73044	-0.50	0.616	-33.80207 20.02026	
<b>Cons</b>	15.30128	256.7751	0.06	0.952	-487.9686 518.5712	



**D.NonOilExport**

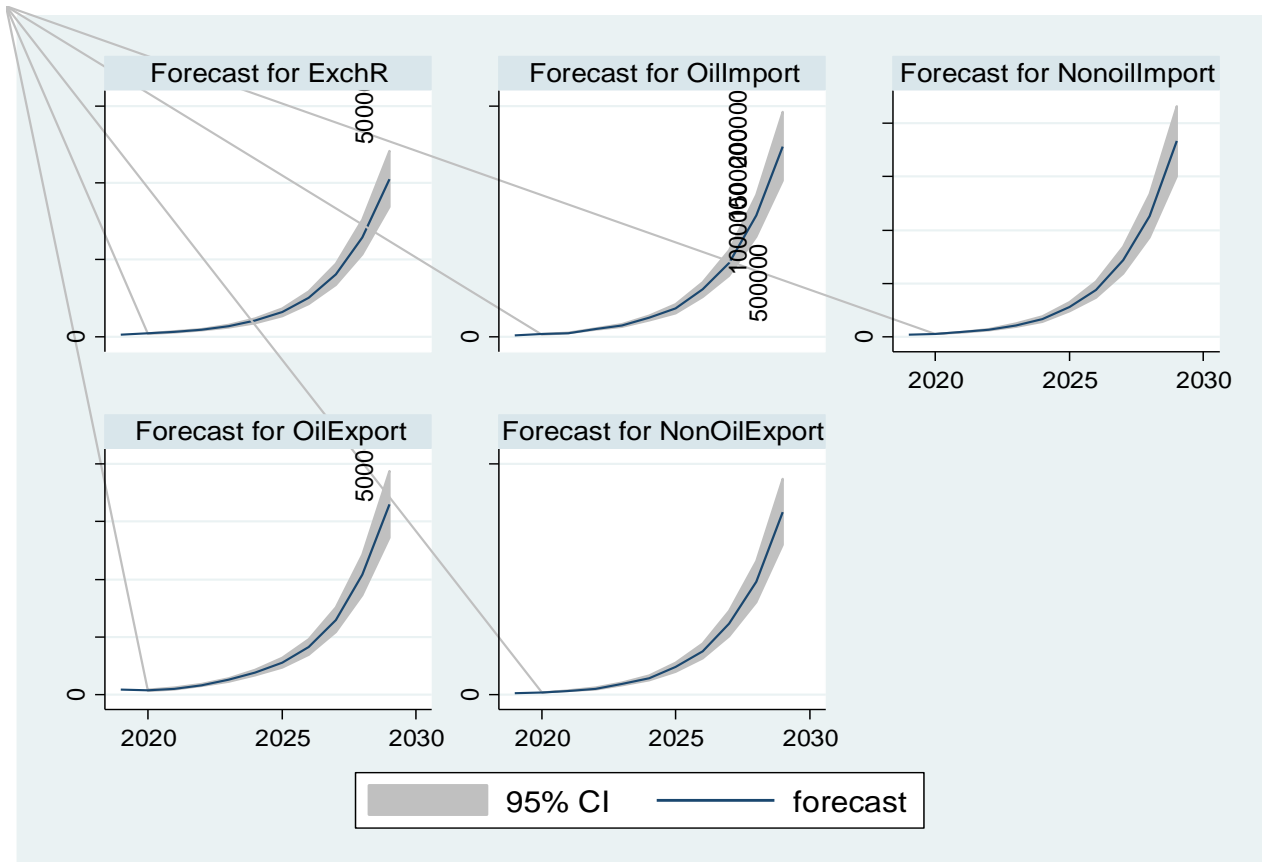
**ExchR**

<b>LD.</b>	1.153077	3.15224	0.37	0.715	-5.025201	7.331354
<b>L2D.</b>	5.657359	2.894149	1.95	0.041	-.0150691	11.32979
<b>Cons</b>	-66.97366	54.12394	-1.24	0.216	-173.0546	39.10731

*Source: STATA 14*

**Forecast**

The figure below shows the Forecast for Exchange Rate, Oil Import, Non-Oil Import, Oil Export and Non- Oil Export for the next ten years (2020-2030). The graph reveals based on the VECM model at a 95% confidence interval that there will be an increase in Exchange Rate, Oil Imports, Non-Oil Imports, Oil Exports and Non-Oil Exports for the next ten years.



**5. Policy Implication, Conclusion and Recommendations**

The outcome of the analysis and hypothesis tested shows a direct and significant relationship between foreign exchange rate and oil export in Nigeria. Exchange rate has positive impact on oil export in Nigeria. Exchange rate has been on increase since 1981, this implies continuous depreciation of naira. Changes in exchange rate movements have a powerful effect on imports and



exports of the countries concerned through the relative prices of goods. Devaluation/depreciation is a measure to increase foreign exchange receipts by encouraging exports. Devaluation makes the exports cheaper in foreign currency and hence attractive to foreign buyers. Thus, there was increase in oil exports in Nigeria. Oil exports increased from N1920.90 Billion in year 2000 to N16, 702.73 Billion in year 2019 that is 769.5% increase. While nonoil export increased from N24.82 Billion in year 2000 to N3, 207.20 Billion in year 2019.

Regarding importation of oil and non-oil. On the one hand oil import moved from N220.82 Billion from year 2000 to N3, 534.52 in year 2019 which translates to 1,500.63%. On the other hand, non-oil imports moved from N764.20 Billion to N16, 914.40 Billion by implication 2,113.34% (See Appendix). This shows the extent of Nigerians dependence on non-oil importation. The study established long run relationships among the variables used in the study. Exchange rate movements also show that naira was devalued between year 2000 and year 2019. The official exchange rate was N102.1052 in year 2000 and N306.9206 in year 2019. Naira was devalued by 200%. Despite devaluation of naira which is expected to discourage imports by making the price of imports higher in local currency. Non-oil importation was seriously on the increase. This is against the objective of naira devaluation. One will be tempted to say that all oil export revenues were incurred on non-oil import in 2019. This is evident from the figure of oil revenue of N16, 702.73 Billion in 2019 against the figure of N16, 914.40 Billion for non-oil import in the same year. It is expected that more income should come from oil revenue. Due to the global crisis in the oil sector and the attendance dwindling revenue from oil, the expectation could not be materialized. This is due to instability of earnings from crude oil, upon which the economy depends very heavily. The figure of N16, 702.73 billion as income from oil export against N3, 207.20 billion from non-oil export in 2019 is clear indication of fragile export base and weak non-oil export earnings.

This study concluded that exchange rate movements have positive and significant effect on oil export in Nigeria. It has a positive but insignificant effect on non-oil export, oil import, and non-oil imports in the same direction. Also, it established that there is long-run relationships among the variables. This study is in line with Oyovwi and Ukavwe (2013) and Nicita (2013) who affirmed a positive relationship between exchange rate and international trade.

The study therefore recommends the following to The Federal Government of Nigeria:

- That there should be more foreign capital inflow for the development of economy through foreign direct investment.
- That export diversification should be encouraged to improve revenue from non-oil sector.
- That exchange rate management policy should focus on exchange rate stability given the implications of instability for micro and macroeconomic planning.
- That the CBN should continue to occasionally intervene in the foreign exchange market to maintain stability and projections, production and inflation costs, foreign investment flows, and standard of living.

Exchange rate is important as a major price that affects all sectors of the economy and all economic agents, it is thus desirable to monitor the movements in the rates to foster competitiveness and improve the supply of exportable.

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**Appendix**

YEAR	N/\$	N Billion		N Billion	
	EXCR	Oil IMPT	Non-Oil IMPT	OIL EXPT	Non-Oil EXPT
1981	0.6100	0.12	12.72	10.68	0.34
1982	0.6729	0.23	10.55	8.00	0.20
1983	0.7241	0.17	8.73	7.20	0.30
1984	0.7649	0.28	6.90	8.84	0.25
1985	0.8938	0.05	7.01	11.22	0.50
1986	2.0206	0.91	5.07	8.37	0.55
1987	4.0179	3.17	14.69	28.21	2.15
1988	4.5367	3.80	17.64	28.44	2.76
1989	7.3916	4.67	26.19	55.02	2.95
1990	8.0378	6.07	39.64	106.63	3.26
1991	9.9095	7.77	81.72	116.86	4.68
1992	17.2984	19.56	123.59	201.38	4.23
1993	22.0511	41.14	124.49	213.78	4.99
1994	21.8861	42.35	120.44	200.71	5.35
1995	21.8861	155.83	599.30	927.57	23.10
1996	21.8861	162.18	400.45	1,286.22	23.33
1997	21.8861	166.90	678.81	1,212.50	29.16
1998	21.8861	175.85	661.56	717.79	34.07
1999	92.6934	211.66	650.85	1,169.48	19.49
2000	102.1052	220.82	764.20	1,920.90	24.82



<b>2001</b>	111.9433	237.11	1,121.07	1,839.95	28.01	
<b>2002</b>	120.9702	361.71	1,150.99	1,649.45	94.73	
<b>2003</b>	129.3565	398.92	1,681.31	2,993.11	94.78	
<b>2004</b>	133.5004	318.11	1,668.93	4,489.47	113.31	
<b>2005</b>	132.1470	797.30	2,003.56	7,140.58	105.96	
<b>2006</b>	128.6516	710.68	2,397.84	7,191.09	133.59	
<b>2007</b>	125.8331	768.23	3,143.73	8,110.50	199.26	
<b>2008</b>	118.5669	1,315.53	4,277.65	9,861.83	525.86	
<b>2009</b>	148.8802	1,068.74	4,411.91	8,105.46	500.86	
<b>2010</b>	150.2980	1,757.14	6,406.83	11,300.52	710.95	
<b>2011</b>	153.8616	3,043.60	7,952.27	14,323.15	913.51	
<b>2012</b>	157.4994	3,064.26	6,702.30	14,259.99	879.34	
<b>2013</b>	157.3112	2,429.38	7,010.05	14,131.84	1,130.17	
<b>2014</b>	158.5526	2,215.17	8,323.75	12,006.97	955.06	
<b>2015</b>	193.2792	1,725.22	9,350.84	8,184.48	660.68	
<b>2016</b>	253.4923	2,384.41	7,095.95	8,178.82	656.79	
<b>2017</b>	305.7901	2,615.45	8,189.39	12,913.24	1,074.90	
<b>2018</b>	306.0802	3,686.89	9,758.34	17,282.25	1,425.71	
<b>2019</b>	306.9206	3,534.52	16,914.40	16,702.73	3,207.02	

Source: CBN Statistical Bulletin 2019

