

EFFECT OF EXCHANGE RATE ON TRADE FLOWS: EVIDENCE FROM NIGERIAN ECONOMY

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Abstract

The aim of this paper is to investigate the effect of exchange rate dynamics on the trade flows in the Nigerian economy with a monthly set of data that ranges from year 2000 to year 2020. Ordinary least squares and Error correction mechanism estimate was adapted to achieve the objective of the study. Balance of trade (BOT) was used as a proxy to capture trade flows in the Nigerian economy. Variables of the model were subjected to Unit Root test and were found to be integrated of order one and zero. In that case, ARDL Bound test of Cointegration shows the existence of long run dynamics between exchange rate and balance of trade. Result from the study shows that exchange rate is positive and is highly significant to explain changes in the balance of trade in the Nigerian economy. In light of these findings, the study recommends that stability of exchange rate should be encouraged to accommodate external shocks while encouraging trade with the outside world and economic growth in Nigeria.

Keywords: Exchange rate, Nigerian economy, Ordinary Least Squares, Trade

JEL Code: F31, F10, F36

Introduction

The movement of commodities and services from one person or entity to another, usually in exchange for money, is known as trade. Because of specialization and division of labor, most people concentrate on a specific component of production and use the output in trades for other items, the concept of trade has received widespread attention. International commerce has grown in popularity over time as a result of the numerous benefits it has provided to countries all over the world. Globalization has resulted in a rise in demand for international trade. International trade, according to Oyejide (1986), is the free interchange of services, goods, and capital across countries and regions. International trade accounts for a significant portion of a country's gross domestic product (GDP).

The importation and exportation of commodities in international trade are restricted by the exchange rate, import quotas, and mandates imposed by the customs authorities of various countries participating in global trade (Bah and Amusa, 2003). Various countries' importing and exporting jurisdictions may levy tariffs

on goods and services exchanged on the global market. Furthermore, trade agreements between the importing and exporting jurisdictions of participating countries govern the import and export of goods. According to Chowdhury (2014), fluctuations are changes in the prices of goods and services in an economy. Price fluctuations are a typical occurrence in the economic world, particularly among agricultural commodity producers. A market economy does not exist in a vacuum. It's alive and well. An increase in national income indicates that an economy is expanding, whereas a decrease in national income indicates that an economy is declining. The business cycle is the current economic paradigm for describing economic swings in a market economy.

Since the collapse of the Bretton Woods agreements in 1973, however, researchers and policymakers have debated the impact of exchange rate instability or volatility on trade flows. According to Asteriou *et al.* (2016), in countries where exchange rate volatility has harmed trade flows, a more stable exchange rate achieved through central bank intervention in the

foreign exchange market will aid trade growth. The rate at which one currency is exchanged for another, usually across countries, is known as the exchange rate. According to the definition above, an exchange rate is the price of one's country currency in terms of the currency of another country. As a result, the naira-to-dollar exchange rate refers to the number of naira required to acquire a dollar.

A rise in the general level of domestic prices will boost demand for imports, which have recently become more affordable. This will boost demand for foreign currency without increasing supply, resulting in a propensity for the domestic currency to devalue (Oyejide, 1988). The effects on exchange rates will cancel out if prices in all nations rise. The extent to which a country must pay attention to the value of its currency in relation to other currencies determines the extent of its internal monetary policy freedom of action. A country with a large volume of internal trade or transactions will probably be more interested in the internal value of its currency than one which is more nearly self-supporting (Iyoha, 1998). Therefore, the extent to which exchange rate fluctuation determines the trade of a country depends largely on the extent to which the country depends on imported goods and services for survival.

Previous exchange rate strategies in Nigeria have mostly focused on limiting the usage of foreign exchange at publicly or administratively established rates. Recent policy moves, on the other hand, have indicated a move toward market-determined exchange rates, as is the situation in most global economies. Since 1986, when foreign exchange auction sessions were implemented, unidirectional exchange rate movements along the path of depreciation have strongly suggested that something is fundamentally wrong with the exchange rate management system (Aliyu, 2010).

Furthermore, from the mid-1970s and the turn of the century, Nigeria's broad-based macroeconomic aggregate growth was among the most erratic in the developing world. For example, Nigeria's aggregate output growth rate was 3.0% from 1980 to 1985, 3.4 percent from 1990 to 1995, and 5.9% from 2000 to 2004. This is seen in the pattern of trade, which has steadily deteriorated in real terms during this time despite successive administrations' reform and

liberalization programs. The massive flood of foreign exchange revenues that accompanied Nigeria's oil boom in the 1970s redirected the government's attention away from conventional agriculture commodities and toward crude oil extraction. A significant number of producers of these commodities, including as groundnut, cotton, and oil palm, moved into the oil sector of the economy to take advantage of the increasing oil profits. This trend resulted in a loss in agricultural production and, as a result, a collapse in both the amount and value of conventional export commodities, leaving little or no commodity available for export. This undoubtedly impacted the availability of agricultural produce for exploitation, hence affecting Nigeria's foreign trade participation.

Most countries around the world, however, witnessed exchange rate fluctuations when the Bretton Woods system of fixed exchange rates ended in the 1970s. Around the years, the steady rise in exchange rate volatility has been a cause of concern for both experts and policymakers all over the world (Hericourt & Poncet, 2013). This trend has an impact on the economics of most emerging countries, particularly those with mono-product economies, such as Nigeria. Because exchange rate fluctuations increase the risk of foreign transactions, risk-averse actors restrict export-import activities and reallocate production to domestic markets.

Greater exchange rate volatility, according to Hooper and Kohlhagen (1978), means higher costs for risk-averse traders and less foreign commerce. Panda and Mohanty (2015) agree that significant exchange rate volatility has a negative impact on price discovery, export performance, and current account balance sustainability. This is achievable in a country like Nigeria, where the economy relies on crude oil exports to survive. In this instance, the economy is vulnerable to the vicissitudes and vagaries of the oil market, with shocks in worldwide oil prices affecting the domestic economy almost instantly (Omojimito & Akpokodje, 2010).

However, the uncertainty of the naira exchange rate over the research period is a big worry. Because the exchange rate is such an essential component in determining the value of a country's exports in the global market, it is necessary to investigate its impact

on the volume of Nigerian import-exports. Although the Nigerian government has been involved in international commerce for many years and has designed trade and exchange rate policies to promote trade (Adewuyi, 2005), the extent to which these policies have been successful in promoting export remains unknown. This is due to the fact that, despite government efforts, Nigerian trade flows have not performed well.

Other studies have attempted to explain the link between exchange rate volatility and commerce in Nigeria. However, most recent research have been unable to determine the amount to which exchange rate swings increase or diminish the risk and uncertainty associated with trade in Nigeria. As a result, it's been difficult to figure out how exchange rate fluctuations affect the level of uncertainty connected with commerce (both import and export) in Nigeria. On this premise, this study investigates the effect of exchange rate on commerce in Nigeria with a monthly data set ranging from 2000 to 2020

Literature Review

In the economic literature, there have been various hypotheses that look at the impact of exchange rate depreciation on the trade balance. The elasticity approach and the monetary approach are two of the most prominent ideas explored in this study.

A. The Bickerdike-Robinson-Metzler BRM Model (Elasticity approach)

This literature modeled the relationship between the trade balance and exchange rates. Robinson (1947) and Metzler (1948) proposed the elasticity approach, which states that transactions under contract completed during a period of exchange rate depreciation may have a negative impact on the trade balance in the short run, but that over time export and import quantities adjust, causing elasticity's of exports and imports to increase and quantities to adjust. As a result, the foreign price of the devaluing country's export is dropped, while the price of imported goods rises, lowering demand for imports and improving the trade balance in the long run. The effect of exchange rate depreciation is clearly reliant on the elasticity of exports and imports, according to

this theory. This strategy has been recognized in the literature as giving a sufficient condition (the BRM condition) for a trade balance improvement when there is exchange rate depreciation (Robinson, 1947; Metzler, 1948). The theory suggest that depreciation of the currency rate can improve the trade balance is based on a specific solution of the BRM condition known as the Marshall-Lerner condition (Marshall, 1923; Lerner, 1944). The absolute values of the total of the demand elasticity's for exports and imports must exceed unity for a positive effect of exchange rate depreciation on the trade balance, and implicitly for a stable exchange market. The most common argument has been that, whereas exchange rates adjust instantly, consumers and producers take longer to respond to changes in relative prices (Meade, 1988).

B. The Monetary Approach

Since the end of the 1950s, a new approach to the balance of payments has arisen. It is the monetary view of the balance of payments that is referred to be "modern." This section discusses the monetary or global monetarist perspective (Polak, 1957; Hahn, 1959; Pearce, 1961; Prais, 1961; Mundell, 1968, 1971). The claim that "the balance of payments is basically a monetary phenomenon" lies at the heart of this method (referred to as MA above) (Frenkel and Johnson, 1977). That is, any extra demand for commodities, services, and assets, leading in a balance-of-payments deficit, represents an excess supply or demand of the money stock under the MA. As a result, the behavior of the balance of payments should be examined from the perspective of money supply and demand. Given that a study of the consequences of exchange rate changes would be inadequate without explicitly including money (indeed, devaluation is a change in the value of a currency), a balance of payments identity is written here to better comprehend the MA.

$$CA + KA = \Delta F \quad 2.1$$

Where CA is the current account, KA is the capital account, and ΔF is the change in a country's foreign reserves, denominated in foreign currency. Surpluses in the trade account and the capital account, respectively, represent excess flow supply of goods

and securities, while a surplus in the money account [F] represents an excess domestic flow demand for money, according to identity (2.1). As a result, the monetary approach to assessing the money account concentrates on the factors of the excess domestic flow demand for or supply of money (Frenkel and Johnson, 1977). The fundamental implication of this claim is that to analyze what happens in the (overall) balance of payments one should just concentrate on the analysis of what happens with the central bank's balance of foreign reserves.

As with the KA, the monetary approach can be defined in terms of basic identities in terms of the central bank's balance sheet. In a simplified form it can be written as

$$D + FDC = MB = R + C, \quad 2.2$$

Where the left-hand side represents the assets and the right-hand side the liabilities. In other words, the sources of the monetary basis, MB, or high-powered money, are on the left, while the uses are on the right. D stands for domestic credit (or the domestic asset component of MB), FDC for foreign reserves in domestic currency (or the foreign-backed component), R for money reserves, and C for currency in public hands. Let M represent the domestic money supply. To make things easier, let $M=MB$ (the money multiplier is implicitly assumed constant and equal one). Then one has

$$D + FDC = M. \quad 2.3$$

What this identity means is that residents of an open economy "can have an influence on the total quantity of money via their ability to convert domestic money into foreign goods and securities or conversely turn domestic goods and securities into domestic money backed by foreign exchange reserves" (Hallwood and MacDonald, 1994). Now, taking first difference of the equality above, it can be written that

$$\Delta FDC = \Delta M - \Delta D. \quad 2.4$$

Observe that under this approach, ΔM is nothing but the flow demand of money balances or hoarding. It follows that if the balance of payments identity in equation (2.4) holds, the following equality has to be met

$$CADC + KADC = \Delta FDC = \Delta M - \Delta D \quad 2.5$$

where $CADC$ and $KADC$ are CA and KA in domestic currency, respectively. The left-hand side of this identity states that, if a country's current and capital accounts are both in deficit, the country must be losing foreign reserves. When domestic credit exceeds hoarding, according to the right-hand side, a country loses reserves.

In comparison with the elasticity and absorption approaches (assume $KADC=0$ and consider $CADC=TBDC$), the following identity must hold

$$XDC - MDC = Y - A = TBDC = \Delta FDC = \Delta M - \Delta D. \quad 2.6$$

This is a fundamental identity which puts together the elasticity, absorption, and monetary approaches to the balance of payments. Therefore, if one considers all variables in this identity in an *ex post* sense, the three approaches are equivalent (Mundell, 1968). However, as previously stated, each of these techniques' underlying behavioral linkages and adjustment mechanisms are not mentioned in this identity. Furthermore, it makes no mention of the implicit and explicit assumptions that underpin each. What are the differences between the elasticity, absorption, and monetary approaches? The monetary method, unlike the EA and AA, says little about the underlying behavioral linkages. Furthermore, it reveals very nothing about how exchange rate changes and transmission mechanisms affect those relationships. The exchange rate's importance is reduced to its short-term effects on the money supply. The reason is that MA assumes "a change in the exchange rate will not systematically alter relative prices of domestic and foreign goods and it will have only a transitory effect on the balance of payments" (Whitman, 1975).

Empirical Literature

There have been a several research works that have attempted to empirically analyze the relationship between exchange rate volatility and trade flows.

Muhammed (2014) investigated how exchange rate volatility affects imports, exports, trade balances, foreign exchange reserves, and GDP in Pakistan. From 1952 through 2010, he used annual data. For the analysis, the correlation removal approach, multi

colinearity detection, and granger causality test were utilized. The findings revealed that depreciation in the currency rate had a beneficial impact on exports.

Odili (2015) looked at the long-term and short-term effects of real exchange rate volatility and economic growth on Nigerian foreign trade (exports and imports). For the investigation, he used a vector error correction model using time series data from 1971 to 2012. His findings demonstrated that the actual exchange rate, exchange rate volatility, foreign income, gross domestic product, term of trade, and changes in exchange rate policy all influenced exports and imports in the short and long run. In the long run, the exchange rate lowered import and export, according to the data. The pairwise Granger Causality test indicated unidirectional Causality between export and exchange rate volatility, as well as between exchange rate and import. A unidirectional causality flow from real GDP to import and export is also present.

Akanbi, Adebayo, Agbola and Oluwaseyi (2017) investigated exchange rate volatility and non oil export in Nigeria with a quarterly data ranging from 1986 to 2014. Error correction mechanism was adopted. The results obtained confirm the existence of exchange rate volatility and also found a significant negative effect on non-oil export performance in Nigeria. Therefore, the Nigerian government should ensure an appropriate policy mix that not only ensures a stable and realistic exchange rate but also conducive atmosphere for production and exportation.

Oluyemi and Isaa (2017) examines the effect of exchange rates on imports and exports in Nigeria using monthly data from 1996 - 2015. A three variable vector auto regression (VAR) consisting of imports, exports and exchange rates (US dollar to Naira) is considered to examine the effect of exchange rate on imports and exports in Nigeria. The VAR result shows that exchange rates have a positive and insignificant effect on imports while it has a negative and insignificant effect on exports at lag 1 but positive and insignificant effect at lag 2. Exports were also found to affect exchange rates negatively while imports affect exchange rates positively. The above result thus shows that exchange rate in Nigeria

is not affected by the activities of imports and exports. Neither does an exchange rate affect the volume of imports and exports in Nigeria. The result of the impulse response function shows that exchange rates responded positively to imports and negatively to exports. This study therefore recommends that Nigeria particularly in the non-oil sector should be encouraged through entrepreneurial development. The high level of imports mainly consumer goods can be discouraged by improvement in local production so that they can be competing with the foreign goods. Only goods with high proportion of necessities e.g. raw material goods should be imported. Policy measures towards the stabilization of the exchange rates are highly recommended so that level of imports can be controlled and exports encouraged.

Solomon, Amande, Bruce and Avanger (2018) examined the impact of exchange rate variation on the competitiveness of Nigerian non-oil exports using the Autoregressive Distributed Lag (ARDL) model after the diagnostic tests reveal that variables were integrated of different orders. The ARDL estimation showed the presence of a long run relationship between the variables in the model. The results revealed that a 1% increase in exchange rate variation, degree of openness and bilateral exchange rate (RER) which measured the competitiveness of the nation's exports will cause a 14.67%, 63.21% and 7.49% reductions respectively in the volume of non-oil exports in the long run. The short run dynamics revealed that the variables above exerted a negative effect on the volume of non-oil exports from Nigeria. The GDP showed positive impacts on the volume of trade both in the short and long run. The study therefore recommended the vigorous pursuance of exchange rate stabilization policies in order to minimize variation in rates and improve the competitiveness of the nation's non-oil exports as well as the imposition of slight restrictions on non-capital imports and consumables to reduce the effect of openness on the Economy.

Methodology

The effects of exchange rate changes are analyzed in terms of separate markets for 'imports' and 'exports.'

The equations that define the model are given as follows.³ The domestic demand for imports (foreign exports) is a function of the nominal price of imports measured in domestic currency,

$$M^d = M^d(P_m) \quad 3.1$$

Observe that P_m is nothing but $P_m = EP_m^*$, where E is the nominal exchange rate; that is, the domestic currency price of foreign exchange and P_m^* is the foreign currency price (level) of domestic imports (the symbol “*” refers to the analogous foreign variable). Now, the foreign demand for imports (domestic exports) can be similarly defined as,

$$M^{d*} = M^{d*}(P_x^*) \quad 3.2$$

where M^{d*} is the quantity of foreign imports and P_x^* is the foreign currency price (level) of domestic exports. Analogous to the definition above, P_x^* is $P_x^* = P_x/E$, where P_x is the domestic currency price (level) of exports. Similarly to the demand functions, the export supply functions are defined depending only on nominal prices. The domestic and foreign export supply functions are defined as,

$$X^s = X^s P \quad 3.3$$

$$X^{s*} = X^{s*}(P^*m) \quad 3.4$$

where X^s and X^{s*} are the quantity of domestic and foreign supplies of exports, respectively. The market equilibrium conditions for exports and imports are then,

$$M^d = X^{s*} \quad 3.5$$

$$M^{d*} = X^s \quad 3.6$$

Given equations (3.1)-(3.4), the domestic trade balance, in domestic currency, is

$$B = P_x P^s - P_m M^d \quad 3.7$$

This study was carried out utilizing an econometrics approach. The use of mathematics and statistical approaches to the study of economic data is referred to as econometric methodology. It could also entail the use of economic theory, mathematics, and statistical tools to evaluate hypotheses and forecast economic occurrences. The data was analyzed and presented using economic statistical and econometric

tools. Because of the simplicity of its computing approach, as well as its fascinating BLUE (Best Linear Unbiased Estimator) features and assumptions, the analysis was carried out using the Ordinary Least Squares (OLS) estimate technique. Using monthly data from the Central Bank of Nigeria Statistical Bulletin, this study aims to determine the consequences of exchange rate volatility and trade in Nigeria from 2000 to 2020. (CBN 2020). The study will contain a statistical test of significance as well as econometric or second order tests.

Unit Root Testing

The time series properties of data employed in the estimation equation is tested for stationarity using Augmented-Dicky-fuller (ADF) unit root test in order to avoid the problem of spurious regressions. Unit root test will be conducted using Augmented Dickey Fuller test which was used to test for the stationarity of the data at 1%, 5% and 10% critical values. The H_0 is the presence of units root and H_1 is the absence of unit root.

Co-integration Test

Johansen cointegration testing was employed to investigate whether there is existence of long run relationship among the variables in estimation and error correction mechanism is employed to ascertain the speed of adjustment from the short term run equilibrium to the long-run equilibrium state.

Two variables are said to be co-integrated if they have a long-term or long run equilibrium relationship between them. If two variables, dependent and independent are individually non-stationary but their residual (combination) is stationary, those variables are co-integrated on the long run (Gujarati, 2005). Two time series are co-integrated if both are integrated of the same order, and there is a linear combination of the two time series. If two series variables are both non-stationary at level form, they are integrated of order 1, i.e I (1), then there could be a linear relationship between them which is stationary I (0) and as such all the series of interest should be integrated of the same order, preferably 1 (1). The two time series variables that satisfy this requirement are considered to be co-integrated.

For instance, X and Y are said to be co-integrated if there exists a parameter a, such that

$$\mu = \text{Log}Y_t - \beta_1 - \beta_2 \text{Log}X \quad 3.8$$

Where;

μ = the error term

β_1, β_2 = are parameters of the model.

By subjecting μ_t to unit root test give us;

$$\Delta \mu_t = \beta_1 \mu_{t-1}$$

If μ_t is I (0), implies that X and Y are co-integrated.

Error Correction Model

This was first used as a correction for disequilibrium. If two variables Y and X are co-integrated, the relationship between them can be express as error correction mechanism.

It is given as:

$$\Delta Y_t = \beta_0 + \beta_1 \Delta X_t + \beta_2 \mu_{t-1} + E \quad 3.9$$

Where μ_{t-1} is the lagged value of the error term. This shows that the change in Y_t depends on X_t and also on the equilibrium error term μ_{t-1} . ΔY and ΔX captures the short run dynamics while μ_{t-1} captures the long run equilibrium. If μ_{t-1} is zero, then the model is out of equilibrium. Also, if ΔY and ΔX is zero and μ_{t-1} is positive, then Y_t is too high to be in equilibrium. Then, $|\beta_2|$ decides how quickly the equilibrium is restored.

Model Specification

The functional form of the model is given as follows to determine the relationship between exchange rate fluctuation, growing exchange rate, and balance of trade in Nigeria;

$$\text{BOT} = f(\text{EXCHR}) \quad 3.10$$

The econometric form is specified as follows:

$$\text{BOT}_t = \beta_0 + \beta_1 \text{EXCHR}_t + \mu_t \quad 3.11$$

Where:

BOT = Balance of trade

EXR = Exchange rate

β_0 = Constant

β_1 = co-efficient of the variable.

μ_t = stochastic error term

t = Time trend

Theoretical Postulations (Apriori Expectation)

$$\text{EXCHR/BOT} > 0$$

Result and Interpretation

Table 1.1 Analysis of Descriptive Statistics of Variables

Variables	BOT	EXCHR
Mean	5.788572	178.7549
Median	0.118315	150.3962
Maximum	114.1310	381.0000
Minimum	-75.26673	98.78000
Std. Dev.	27.31211	76.83926
Skewness	0.203005	1.225852
Kurtosis	4.234106	3.052697
Jarque-Bera	17.72254	63.14311
Probability	0.000142	0.000000
Sum	1458.720	45046.25
Sum Sq. Dev.	187233.8	1481972.
Observations	252	252

Source: Authors' Computation Using EViews 9

From the result above, the mean value of balance of trade is 5.788 while that of exchange rate is given to be 178.75. Given the median values of each of the variables which are 0.11 for balance of trade and 150.3 for exchange rate, the maximum and minimum values of the variables are stipulated to be -75.26 to

114.13 for the balance of trade and 98.78 to 381.00 for exchange rate. The kurtosis shows that the variables of interest are normally distributed because of their values greater than 3. Giving the high variability exhibited by the variables of the model, it shows that the variables are not measured by the same unit. The result also shows that about 2.73 percent deviations from the sample of mean of balance of trade while that of exchange rate deviated at about 7.8 percent. Jarqua-bera statistics measures the difference of the skewness and kurtosis of the series within those from normal distribution. The probability of the Jarqua-bera statistics shows that the variables were normally distributed as the values are less than 5%.

Table 1.2 Correlation Matrix of the Variable

Var/Var	BOT	EXCHR
BOT	1	0.2252185783 015748
EXCHR	0.2252185783 015748	1

Source: Authors' Computation Using EViews 9

The results show that balance of trade and exchange rate maintained a positive and significant correlation. However, the results in table 1.2 are not conclusive on their own but give us guide to the degree and nature of the relationship among the selected variables.

Table 1.3 Unit Root Test Result

Var iabl es	Leve l Diffe renc es	Prob abili ty	Ord er of Inte grati on	First Diffe renc es	Prob abili ty	Ord er of Inte grati on
BO T	- 5.36 5524	0.00 01	I(0)	- 23.3 3225	0.00 00	I(1)
EX CH R	- 0.73 4357	0.96 88	I(0)	- 7.81 2063	0.00 00	I(1)

Source: Authors' Computation Using EViews 9

Decision Rule: Reject H0 if ADF test value is greater than 5% critical value or the probability less than 5%, otherwise accept. From the result above, balance of trade (BOT) achieved stationary at level form as the probability level is less than 5%. Exchange rate (EXCHR) on the order hand achieved stationary at first different. This implies that the variables of the model are integrated of order zero and one.

ARDL Bound Cointegration Test

ARDL approach was developed by Pesaran et al (2001) to estimate the link among the variables. The logics behind the use of this approach are: first ARDL can be applicable for both non-stationary time series as well as for times series with mixed order of integration. Null hypothesis (H₀): there is no cointegration among the variables.

Alternative hypothesis (H₁): there is cointegration among the variables

Table 1.4 ARDL Bounds Test

F-Statistics = 14.60298		
Critical Value Bounds		
Significance levels	I(0) Bounds	I(1) Bounds
10%	4.04	4.78
5%	4.94	5.73

Source: Authors' Computation Using EViews 9

The result verifies that there is an evidence of cointegration among the variables. This is due to the fact that the F-Statistics value (14.60) is greater than the lower and upper critical bounds for all the significant levels. This lead to the rejection of the null hypothesis of no cointegration. Since the bounds test indicated the presence of long run relations among the variables, we then go further to estimate the long run model to ascertain the long run coefficients of the variables of the model.

Table 1.5 Result of Long Run Model (Ordinary Least Squares)

Dependent Variable: BOT				
Method: Least Squares				
Sample: 1 252				
Included observations: 252				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	20.09840	4.260304	4.717597	0.0000
EXCHR	0.080053	0.021903	3.654920	0.0003
R-squared	0.550723	Mean dependent var		5.788572
Adjusted R-squared	0.546926	S.D. dependent var		27.31211
S.E. of regression	26.66358	Akaike info criterion		9.412379
Sum squared resid	177736.6	Schwarz criterion		9.440391
Log likelihood	-1183.960	Hannan-Quinn criter.		9.423650
F-statistic	13.35844	Durbin-Watson stat		1.679509
Prob(F-statistic)	0.000314			

Source: Authors' Computation Using EViews 9

The result above shows that the sign of the coefficient of the constant is positive which mean that if exchange rate (EXCHR) is set equals to zero, Balance of trade (BOT) will increase by about 20.09 percent point. Also, the sign of the coefficient of EXCHR is positive and is highly significant. This implies that a unit increase change in the Nigerian exchange rate holding other variables constant will increases balance of trade at about 0.080 percent point. The sign of the coefficient conforms to economic a priori expectation. This finding was in contrast with the findings of Oluyemi and Isaa (2017)

who examines the effect of exchange rates on imports and exports in Nigeria. Result reported that exchange rates have a positive though insignificant effect on imports while it has a negative and insignificant effect on exports at lag 1 but positive and insignificant effect at lag 2. Exports were also found to affect exchange rates negatively while imports affect exchange rates positively.

However, the t- statistic shows that exchange rate (EXCHR) has a significant impact on balance of trade (BOT) in Nigeria. The decision is made based on the probability level of EXCHR. R² and adjusted R² shows that about 55.1% of variations in BOT is been explained by changes in exchange rate. The f- statistics shows the overall significance of the model as f-calculated is greater than f-tabulated; this decision is based on the probability level of f- statistics as it less than 0.05. More so, Durbin-Waston statistics shows that the model is free from auto correlation given the value of 1.67 which is very close to 2.

Table 1.6 Error Correction Model

Dependent Variable: D(BOT)				
Method: Least Squares				
Sample (adjusted): 2 252				
Included observations: 251 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(EXCHR)	0.241969	0.223962	1.080401	0.2810
C	-0.404738	1.288243	-0.314178	0.7537
ECT(-1)	-0.350025	0.047948	-7.300116	0.0000
R-squared	0.176892	Mean dependent var		0.118222
Adjusted R-squared	0.170254	S.D. dependent var		21.97269
S.E. of	20.01500	Akaike info		8.842721

regression		criterion	
Sum squared resid	99348.87	Schwarz criterion	8.884858
Log likelihood	-1106.762	Hannan-Quinn criter.	8.859678
F-statistic	26.64860	Durbin-Watson stat	2.326301
Prob(F-statistic)	0.000000		

Source: Authors' Computation Using EVIEWS 9

The estimated result above shows that the coefficient of ECT is rightfully signed and highly significant. This implies that about 35% of disequilibrium in the short run will be corrected in the long run.

This finding was in line with the findings of Akambi (2017) whose model supports the validity of an equilibrium relationship among the variables in the co integrating equation. The result shows that a deviation from long run equilibrium level in current period is corrected by about 35 per cent in the next period for the result of both measures. This sign that the model is a non-spurious regression.

Conclusion and Recommendation

The prime objective of this research is to posit the effect of exchange rate fluctuation on the trade flows in the Nigerian economy. Result from ARDL Bound Cointegration test reveal long run relationship between exchange rate and balance of trade for the period under review. The long model shows that exchange rate is positive and is highly significant. This implies that a unit increase change in the Nigerian exchange rate holding other variables constant will increases balance of trade in the Nigerian economy. The positive impact of exchange rate on balance of trade positions is an indicator that the persistent rise in exchange rate over the years may have actually had a positive impact on balance of trade positions in Nigeria.

However, a weaker currency stimulates exports and makes imports more expensive; conversely, a strong domestic currency hampers exports and make imports cheaper. The estimated regression result

indicates that all things being equal, an increase in exchange rate (depreciation of the naira) will improve Nigeria balance of trade positions. The result is in line with apriori economic expectations since a depreciation of the local currency will make domestic goods cheaper than its foreign counterpart and therefore more attractive. Therefore, the study established that exchange rate has a dynamic positive impact on balance of trade position in Nigeria.

In light of these findings, the study recommends that Exchange rate in Nigeria must be stable enough to accommodate external shocks while encouraging trade with the outside world and economic growth in Nigeria. More so, the monetary authorities must ensure that exchange rate policies are such that it simultaneously target reduction in inflation thereby reducing the phenomenon of imported inflation.

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