

## Effect of Exchange Rate depreciation on export trade in Nigeria 1987 to 2020

**Obaji, Samuel Itumo**

Department of Economics, Ebonyi State  
College of Education Ikwo.

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### Abstract

Owing to the observed negative and positive growth of export trade in Nigeria in view of the exchange rate depreciation, this study investigated the impact of exchange rate depreciation on export trade in Nigeria from 1987 to 2020. The study adopted ex-post facto research design. Multiple regression analysis was used in the study in which autoregressive distributed lag (ARDL) model was the main method of analysis. Data obtained from Central Bank of Nigeria statistical bulletin 2020 on exchange rate, export trade and interest rate were analyzed in the study. The result indicated that exchange rate depreciation exerts positive and significant impact on export trade in Nigeria within the period under review. The ARDL bound test result further established existence of long-run relationship between the variables utilized in the analysis. Based on the research findings the study recommends that government through its agencies should increase the export base of the nation through export diversification policy and should also open up more export processing zone EPZ to add to the existing ones.

**Key word:** Exchange rate depreciation, Export trade, Nigeria.

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Amongst the key macro economic problems facing Nigeria as a country is how to reduce high dependency on imports, over dependency on crude oil and implement export drive growth related policies. With the problem arising from dwindling oil revenue, the country adopted economic diversification (Udeh 2010). Exchange rate is critical macroeconomic variable that are used as a parameter for the determination of international competitiveness which constitutes a measure of the strength of a currency in foreign exchange market (Danladi, Akomolafe, Babalola & Akpan 2015). Exchange rate is believed to have a positive effect on net export flow. Exchange rate is the rate at which two currencies exchange for each other (Kanu & Nwadiubu 2020). The exchange rate depreciation refers to the decrease in the unit of a currency that exchange for another currency.

Countries indulge in international trade as a means of disposing what they produce in excess of their domestic demand and obtaining what they cannot produce enough or even at all from other countries. According to Encyclopedia Britannica, foreign trade deals with the sale and purchase of goods and services across national borders. International or foreign trade is made possible by specialization and by exchange of national currencies. According to (Danladi, Akomolafe, Babalola & Akpan 2015) exchange rate as one of the key ingredient of foreign trade is a critical

macroeconomic tool used as a parameter for the determination of how competitive a national product is in international market. This is mainly true in a situation where the interplay of the forces of demand and supply are freely allowed to take place.

For some years since her independence, successive Nigerian governments has formulated and implemented different exchange rate policies..With the deregulation of the economy as entrenched in the Structural Adjustment Programme of July 1986 to promote trade and economic growth the value of the naira has been depreciating in relation to United State of American dollar. According to Aliyu(2011) appreciation of exchange rate results in increased imports and reduced exportwhile, depreciation would expand export and discourage import. Also, depreciation of exchangerate tends to cause a shift from foreign goods to domestic goods. Hence, it leads to diversion ofincome from importing countries to countries exporting through a shift in terms of trade, and thistends to have impact on the exporting and importing countries' balance of payment andgrowth. Although a number of exchange rate reforms have been carried out by successivegovernments, the extent to which these policies have been effective in promoting export hasremained uncertain. This is because despite government efforts, the growth performance ofNigerian economy has been very slow, demand and supplies aremainly allowed to take place in the foreign exchange market without government interference.

With the adoption of structural adjustment programme (SAP) which utilizes floating exchange rate the exchange rate of naira relative to other currencies has been depreciating. The situation seems to have engendered significant distortions in the economy. For instance, the exchange rate which was \$1.8 to the N1 before SAP has depreciated from N2 to the dollar up to the present N305 to a United state dollar in 2018 (CBN 2019). The situation has greatly affected Nigerian trade with other nations and even domestic trade where increasing interest rate, inflation rate and money supply are the order of the day.

Different policy measures are believed to have different implication under fixed exchange rate when compared to a floating exchange rate rule. In economic literature, it is believed that fiscal policy is relatively ineffective under floating exchange rate rule when compared to fixed exchange rate rule. But on the other hand monetary policy is quite ineffective under fixed exchange rate compared to floating exchange rate. An increase in money supply under floating exchange rate leads to a fall in exchange rate thereby making local currency to depreciate which invariably leads to increased export and decrease in import. Dada and Onyeranti (2012) contend that there is a consensus about the fact that exchange rate depreciation could boost domestic production and stimulate export. It is as well argued that a sound exchange rate policy and appropriate management of exchange rate is a veritable tool for

improving economic performance of any nation.

Exchange rate depreciation policy as adopted under SAP is expected to enhance export of goods and services for the maintenance of favourable balance of payment without interfering with the need for internal balance and to overall goal of macroeconomic stability. Exchange rate depreciation is also seen to be continuous over the years and it is believed to be driven by some forces that are not quite related to economic fundamentals. On the contrary exchange rate appreciation is believed to lead to increased imports and reduced export (Aliyu 2011).

Nevertheless, despite Nigeria exchange rate reformed that has resulted to continues depreciation of naira and the theoretical assumption thatit contribute to developmental effort of the country, her economy has been characterized by lowmanufacturing capacity utilization, high level of inflation, heavy debt burden, highunemployment rate, high level of income inequality, poverty to mention a few (Uniamikogboand Ewanehi 1998).Also,(Ogunjuyigbe and Laisu (2010) revealed that Nigeria is one of thecountries lagging behind in all the millennium development goals (MDG'S) to which 191 countriesincluding Nigerian signed the treaty at the end of the millennium in 2001. It is worthy to note that most Nigerians rely heavily on foreign goods for sustenance making depreciation of exchange rate to produce doubtful effect on import.

Economic theory asserts that exchange rate depreciation improves export trade for countries as it promote exports through reduced price for other nations (Bahmani-Oskooee& Kara 2003). But Nigeria as a nation embarked on exchange rate devaluation since 1986 and yet has not been able to use the expected gains to correct deficit in her trade balance over the years. Also the country has been recording negative growth in her export trade in most years. For instance, in 2002 the country recorded 6.6% decrease in export growth; in 2012 there is also a recordof 0.64% negative growth in export trade. These facts tend to suggest that Nigerian economy appears to have deviated from the existing theoretical assumption. This problem gave rise to many researchable questions. Some of such questions are; Is there any significant impact of exchange rate depreciation on export? Does exchange rate depreciation have any positive impact on export trade? Is there any significant long-run relationship between export trade and exchange rate depreciation?In the light of these challenges, this study made concerted effort to answer the questions posed by examining the relationship between exchange rate depreciation and Nigeria export trade performance since the adoption of structural Adjustment Programmewith much emphasis on currency devaluation in 1986 with the belief that it started having effect from 1987.

Exchange rate has been defined as the price of one currency in terms of another (Mordi2006). Exchange rate is the price at which one country exchanges its currency for other currencies. The increase or decrease of real exchange rate indicates strength and weakness of currency in relation to foreign currency and it is a standard for illustrating the competitiveness of domestic industries in the world market (Razazadehkarsalari, Haghiri & Behrooznia, 2011). AZeeZ, Kolapo and Ajayi, (2012) noted that when there is deviation of this rate over a period of time from the benchmark or equilibrium, exchange rate is called exchange rate volatility. It also indicates that misalignment of exchange rate has occurred where there is multiplicity of markets that are in parallel with the official market.

Several theories have been put forward by different people in an attempt to explain the relationship between exchange rate depreciation and export and import trade in any economy. Some of these theories as discussed in this research work include; the Purchasing Power Parity, elasticity approach, monetary approach and Balance of payment theory. According to Anoke, Odo & Ogbonna (2016) exchange rate depreciation or devaluation of currency increases the volume of export and reduce import and that both have favourable influence on the balance of trade by lowering trade deficit and increase trade surplus.

#### Purchasing-Power-Parity (PPP). Theory

This is the oldest and the simplest classical theory concerning purchasing-power-parity (PPP). It was developed in the 16th century through the writings of scholars from the University of Salamanca in Spain. Its model definition was however credited to Gustav Cassel (1921). The PPP is based on the law of one price, which states that if there are neither transaction costs nor trade barriers for a particular good, then the price of such good would be the same at every location. Thus, the theory predicted that an appreciation in a country's exchange rate will approximate an amount equal to the excess of foreign inflation over domestic inflation. This is anchored on the idea that countries with relatively high rates of inflation will show currency depreciation, while countries with relatively low rates of inflation will experience currency appreciation. In equilibrium, the amount of depreciation (or appreciation) will reflect the inflation differential. The PPP theory was criticized for not considering the impact of international capital movements, and suffers from the choice of an appropriate price index used in price calculations. Building on it, though, the International Fisher Effect (IFE) theory stated that it is not inflation rates differential that matters, but the differences in interest rate. For Fisher, exchange rate changes are directly proportional to the relative differences in long-term interest rates, since the long-term interest rates capture the market's expectation for inflation. Therefore, countries with relatively high long term interest rates (thus high inflation)

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will show currency depreciation, and vice versa. Hence, in equilibrium, the amount of depreciation (or appreciation) will be equal to the long-term interest rate differential (Fisher, 1930).

### **Elasticity approach or theory**

This theory was formulated by Robinson (1947) and Metzler (1948) and was made popular by Kreuger (1983). The approach stated that the adjustment route of trade balance is conceived on the basis of demand elasticity of import and export. The elasticity of demand according to Howitt, Watson & Adams (1980) in this case, is the degree of responsiveness of quantity demanded of goods or services to changes in price. This theory in real sense was originally developed by Bickerdike in 1920 in his model of nominal export and import prices as a function of export and import quantities. Bickerdike contends that changes in the value of foreign currencies relative to trade balance depend on the import and export supply as well as the demand elasticity and initial trade volume. The approach further argued that transaction completed under contract within the period of exchange rate depreciation will have a negative effect on trade balance in the short-run since export and import volume adjust giving rise to elasticity of both. The price of exports of the devaluing country is reduced while the price of imports increases which will likely reduce imports in the long-run.

The elasticity theory argued that exchange rate depreciation effect on import and export depends much on the elasticity of demand and supply for import and export respectively. In line with this Bickerdike 1920 is highly believed to be helpful in providing sufficient condition for improvement in trade balance using exchange rate depreciation. The Marshall-Lerner condition suggests that exchange rate depreciation will have positive effect on balance of trade, the absolute values of the sum of the elasticity of demand for import and export must be greater than unity.

The elasticity approach was criticized by Kim (2020) on the basis that it focuses much on partial equilibrium approach which explains the macroeconomic effects due to changes in price and fluctuations in production arising from currency devaluation.

### **Monetary approach**

The monetary approach as put forward by Harry & Frenkel in early 1970 explained the effect of monetary instrument in trade. It states that a balance of payment deficit is solely a monetary issue caused by excess money supply. Currency devaluation has an important impact on balance of payment through its impact on real money supply. Devaluation increases balance of payment by raising domestic prices and reducing

real money supply. But devaluation could fail if it is followed by further increase in nominal money supply in which the original disequilibrium is re-established. The long-run impact of currency depreciation on trade balance appears to be doubtful. The devaluation of currency makes real value of money supply to fall due to increase in prices of traded goods and services as measured in domestic prices.

### **2.2.8 Balance of payments theory**

This theory states that exchange rate is determined by independent exogenous factors that does not have any relationship with domestic prices and the money supply. The theory was put forward in order to explain the changes in prices arising from the variations (depreciation/appreciations) in the exchange rate as seen during the World War I (WWI). It further stated 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.

A lot has been reviewed in terms of exchange rate activities and its influence on trading activities in different countries and in Nigeria especially since the introduction of structural adjustment programme SAP. In line with this, Mori, Asid, Lily, Mulok and Loganathan (2012) investigated the effects of the exchange rates on economic growth in Malaysia using time series data spanning from 1971 to 2009. The results of ARDL bounds test result suggest that there is long-run relationship existing between both nominal and real exchange rates and economic growth with a significant positive coefficient recorded for real exchange rate and concluded that both exchange rates have a similar causal effect towards economic growth. With such findings they suggested that a systematic exchange rate via monetary policy should be properly developed to promote the stability and sustainability of economic growth in Malaysia.

Attah-Obeng, Enu, Osei-Gyimah and Opoku (2013) examined the relationship between GDP growth rate and exchange rate in Ghana from the period 1980 to 2012. The study employed the graphing of the scatter diagram for the two variables which are GDP growth rate and exchange rate. The correlation between GDP growth rate and exchange rate was obtained using the Pearson's Product Moment Correlation Coefficient (PPMC). The ordinary linear regression OLS was used to ascertain the nature of the relationship existing between the variables. The OLS result confirms the theory that undervaluation (high exchange rate) stimulates economic growth in the short run. Therefore, policy makers should device a means of stabilizing monetary and fiscal policies in the long run.



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

Sulaiman and Adnan (2010) investigated the impact of real exchange rate depreciation on balance of trade in Pakistan and found that there is a long run relationship among the variables. Khim-SenLiewetal(2007) conducted a study to be able to ascertain whether exchange rate changes have any significant and direct impact on trade balance between ASEAN-5 countries and Japan for the sample period from 1986 to 1999, the study revealed that the role of exchange rate changes in initiating changes in the trade balances has been overstated. It concluded that trade balance is affected by real money, rather than nominal exchange rate.

In Nigeria, a number of studies have examined the exchange rate behavior. For instance, Yaqub (2010) investigated the effect of exchange rate on output of different economic sectors in Nigeria. The study used the modified IS-LM framework and estimated the behavioural equations. The study adopted ex-post facto design using statistical data on Nigeria from 1970-2007. The results revealed that exchange rate had significant contractionary effects on agricultural and manufacturing sectors while it had expansionary effect on services sector. Based on the findings she therefore concluded that the existing structures in Nigeria could not support the argument that exchange rate depreciation leads to expansion in the basic sectors during the period of study. Opaluwa, Umeh and Ameh (2010) studied the impact of exchange rate fluctuations on the Nigerian manufacturing sector during a twenty (20) year period (1986– 2005). The argument is that fluctuations in exchange rate adversely affect output of the manufacturing sector. This is because Nigerian manufacturing is highly dependent on import of inputs and capital goods. These are paid for in foreign exchange whose rate of exchange is unstable.

Anoke, Odo and Ogbonna (2016) investigated the impact of exchange rate depreciation on trade balance in Nigeria within the period 1986 to 2014. The variables utilized in the study include balance of trade as the explained variable,

exchange rate and foreign direct investment as explanatory variables. The co integration test conducted shows existence of long-run equilibrium relationship amongst the variables. The result further shows that exchange rate depreciation had negative and significant impact on trade balance while foreign direct investment has negative and significant impact on trade balance within the period of the studies. In sum, Anoke, Odo & Ogbonna (2016) result revealed that exchange rate depreciation or devaluation of currency increases the volume of export and reduce import and that both have favourable influence on the balance of trade by lowering trade deficit and increase trade surplus. Based on the findings the study argued that depreciation does not improve trade balance in the short-run.

Olumuyiwa and Olusola (2020) investigated the asymmetric effect of exchange rate changes on cross border trade in Nigeria from 1973 to 2015 using non-linear autoregressive distributed lag (NARDL) model. The variables utilized in analysis include export divided by import from cross border trading partner, exchange rate depreciation and appreciation based on exchange rate regimes, real domestic income and that of the trading partner. The result revealed that exchange rate appreciation had a negative and significant effect on cross-border trade in Nigerian economy within the period studied. The study therefore, argued that real effective exchange rate had asymmetric effect on cross-border trade in Nigeria. This means that exchange rate appreciation and depreciation of the same magnitude have no equal effect on cross-border trade in Nigeria.

**METHODOLOGY**

The study adopted Ex post-facto design because the analysis is based on time series data of activities that have already taken place which the research has no power to change. The theoretical foundations of this study were based on Elasticity approach which was developed by Robinson (1947) and Metzler (1948). The theory states that nominal export and import prices are a function of their supply as well as their demand elasticity and initial trade volume. It argued that exchange depreciation effect on import and export depends on their elasticity. The model however, expressed export as a function of exchange rate while domestic inflation rate is added as a control variable. In mathematical form it is stated as;

$$EXP = f(EXR, INTR) \dots\dots\dots 1$$

Transformed into econometric form as;

$$EXP = F(EXR, INTR, \epsilon_t) \dots\dots\dots 2$$

Where; EXP is the exports: EXR is the exchange rate: INTR is the domestic interest rate added as a control variable and  $\epsilon_t$  is the white noise.

In linear function, it is specified as thus;



$$EXP = \beta_0 + \beta_1 EXR + \beta_2 INFR + \epsilon_t \dots\dots\dots 3$$

In log function, it is stated as;

$$LEXP = \beta_0 + \beta_1 LEXR + \beta_2 LNTR + \epsilon_t \dots\dots\dots 4$$

Where; LEXP is the explained variable; while LEXR, LNTR are the explanatory variables and  $\epsilon_t$  is the white noise,  $\beta_0$  is the constant term, L is the log function and  $\beta_1, \beta_2$  are the coefficients of the regression equation. The model is built to represent the relationship between exchange rate depreciation and export trade in Nigeria. The log function were utilized since the data are not in the same measurement as well will be used to determine the elasticity of the coefficients of the variable. Log functions are estimated to achieve normal distribution among the time series data utilized for the research. The LNTR is not logged as it already in rate.

The Cusum of square and Cusum of residuals stability test are used to ascertain the stability and constancy status of the parameters and error terms in the regression model (Pesaran & Pesaran 1997). The Cusum stability test deals with the stability of the parameters, while the Cusum of square stability tests the stability in the error terms. The result as presented using figure 1 & 2 shows that the green lines are

**Table1. ADF Unit root Test Result**

Level	First Difference						
	Variable	ADF Statistic	5% CV	ADF	5% CV	Remark	Rank
	LEXP	-2.411320	-2.954021	-4.972100	-2.957110	Stationary	1 (1)
	LEXR	-2.516969	-2.954021	-6.085334	-2.957110	Stationary	1 (1)
	LNTR	-3.157770	-2.954021	-	-	Stationary	1 (0)

Source: Authors Computation from E-View 9.0

The result on table 1, the Augmented Dickey-Fuller unit root test shows that two of the variables log of export and log of exchange rate are stationary at first difference while interest rate LNTR is integrated at level. Therefore, it implies that the variables portray a mixed order of intergradations necessitating the use of Auto-regressive Distributed Lag model as presented below.

**Table 2; Unrestricted ARDL Test Result.**

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
LEXP01(-1)	1.005620	0.189045	5.319484	0.0001
LEXP01(-2)	-0.384212	0.180571	-2.127766	0.0483
LEXR	1.238648	0.223002	5.554415	0.0000
LEXR(-1)	-0.898058	0.331332	-2.710443	0.0148
LEXR(-2)	0.221135	0.254694	0.868237	0.3974
LEXR(-3)	-0.342515	0.267481	-1.280521	0.2176
LEXR(-4)	0.546952	0.217170	2.518549	0.0221
INTR	0.008176	0.024400	0.335099	0.7417
INTR(-1)	-0.015466	0.025858	-0.598120	0.5576
INTR(-2)	-0.020819	0.024021	-0.866706	0.3982
INTR(-3)	-0.034174	0.022879	-1.493703	0.1536
INTR(-4)	-0.064255	0.027869	-2.305600	0.0340
C	0.535365	0.360784	1.483893	0.1561

R<sup>2</sup> 0.985447 AdjR2 0.975174  
 F-Statistic 95.92821 Prob(F-statistic) 0.0000. DW 2.072141

**Source; Authors compilation from E-view 9.0**

The ARDL model estimated result between export trade and exchange rate depreciation in Nigeria revealed that at lag zero and lag one exchange rate has a positive and significant impact on export trade in Nigeria while interest rate has negative and insignificant impact on export trade at lag one. The claims are based on their coefficient and the P-values of the corresponding variables. The result revealed that the value of R<sup>2</sup> is 0.985447, which implies that 99% of the variation in export trade is explained by the explanatory variables. Similarly, the result indicates that F-statistic value is 95.92821 and its Prob(F-statistic) is 0.000000 indicating that the model is a good fit. The Durbin-Watson value of 2.072141 indicates absence of first autocorrelation in the model.

**Table 3; ARDL Bound Test Result**

Test Statistic	Value	K
F-statistic	5.942335	2
Critical Value Bounds		
Significance	I0 Bound	I1 Bound
10%	3.17	4.14
5%	3.79	4.85
2.5%	4.41	5.52
1%	5.15	6.36

**Source; Author's computation from E-view 9.0 version.**

The ARDL bound test result reveals that there is long-run relationship among the variables under study. The claim is supported by the F-statistic value 5.942335, which is greater than 4.85 the 5% chosen critical value upper bound. Hence, the study concludes that long-run relation exists amongst the variables under investigation.

**Table 4; ARDL Short-run Form Result**

Cointegrating Form

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LEXP01(-1))	0.384212	0.180571	2.127766	0.0483
D(LEXR)	1.238648	0.223002	5.554415	0.0000
D(LEXR(-1))	-0.221135	0.254694	-0.868237	0.3974
D(LEXR(-2))	0.342515	0.267481	1.280521	0.2176
D(LEXR(-3))	-0.546952	0.217170	-2.518549	0.0221
D(INTR)	0.008176	0.024400	0.335099	0.7417
D(INTR(-1))	0.020819	0.024021	0.866706	0.3982
D(INTR(-2))	0.034174	0.022879	1.493703	0.1536
D(INTR(-3))	0.064255	0.027869	2.305600	0.0340
ECM(-1)	-0.378592	0.093779	-4.037062	0.0009

Cointeq = LEXP01 - (2.0237\*LEXR -0.3342\*INTR + 1.4141 ) + 0.6430\*LPDI + 1.4993 )

**Source; Authors compilation from E-view 9.0**

From the estimated result, it is observed that the coefficient of LEXR lag zero in the short-run is 1.238648 and t-statistic is 5.554415 and P-value 0.0000 indicating that it has significant contribution to export growth as soon as it is introduced. At lag one the coefficient is -0.221135, the t-statistic is -0.868237 and the p-value is 0.3974. It implies that it has negative and insignificant impact on export after a year interval. The result is an indication that a 1% change in depreciation leads to 1.238648 change in export but at lag one it leads to -0.221135% change in export. The ECM value -0.378592, t-statistic -4.037062 and its P-value 0.0009 indicates that the speed of adjustment from short-run deviation to long-run equilibrium relation is 38% annually. That is the disequilibrium between the short-run and long-run is corrected 38% annually. Also it is observed from result that the ECM estimated value is negative, fractional and statistically significant showing that the required conditions as deserved by econometric techniques are fulfilled.

**Table 5; Long Run Coefficients**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LEXR	2.023714	0.276002	7.332257	0.0000
INTR	-0.334231	0.122767	-2.722480	0.0145
C	1.414094	0.873363	1.619137	0.1238

**Source; Compiled from Eview 9.0**

The estimated long-run result indicates that the coefficient is 2.023714, the t-statistic is 7.332257 and the P-value is 0.0000. This implies that LEXR has significant impact on export LEXP in the long-run. It is an indication that a 1% change in LEXR will lead to 2.023714% change in export in the long-run all things being equal.

**Table 6; Ramsey Reset Test Result**

	Value	Df	Probability
t-statistic	0.407485	16	0.6891
F-statistic	0.166044	(1, 16)	0.6891

F-test summary:

	Sum of Sq.	Df	Mean Squares
Test SSR	0.010237	1	0.010237
Restricted SSR	0.996650	17	0.058626
Unrestricted SSR	0.986413	16	0.061651

**Source Authors computation from E-view 9.0**

**Source Authors computation from E-view 9.0**

The result obtained from the estimation shows that the model is stable. The claim is supported by the coefficient of the t-statistic, F-statistic and the P-value of the RESET test. The result equally indicates that the coefficient are; t-statistic (0.407485), F-statistic (0.166044) and the P-value (0.6891). The result confirms the earlier claim that model is stable.

**Table 7; Breusch-Godfrey Serial correlation LM Test Result**

F-statistic	0.767561	Prob. F(2,15)	0.4815
Obs*R-squared	2.785202	Prob. Chi-Square(2)	0.2484

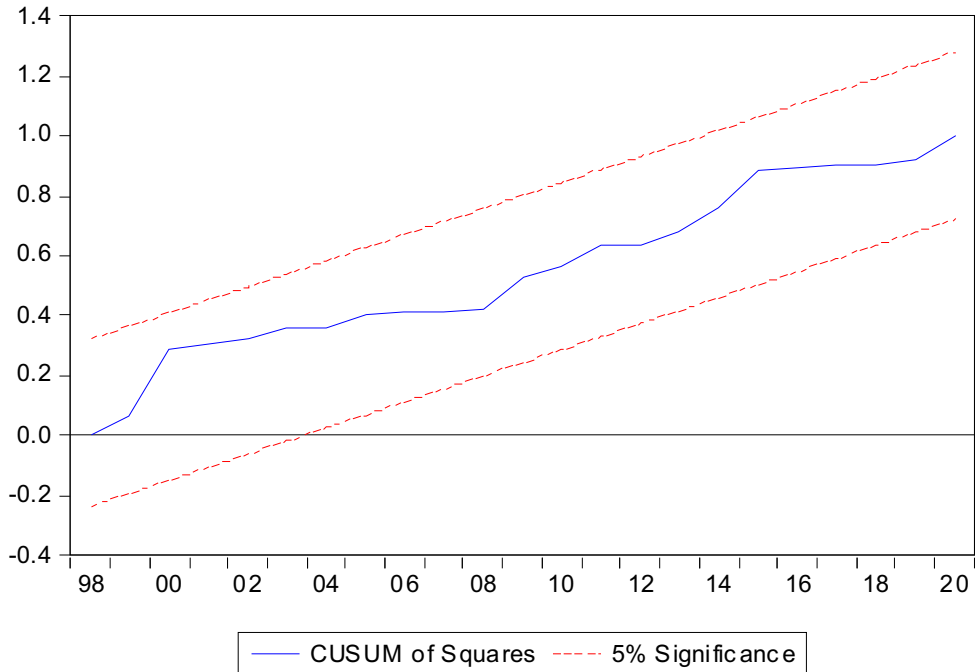
**Source; Authors computation from E-view 9.0**

This test is an estimate of the residuals on the original explained variables and lagged residuals up to order P. The E-view in this test reports two test statistic from the estimation result. The first one is F-statistic where omitted variable is tested for a joint significance of all the lagged residuals which implies that the omitted variables are the residuals and not the explanatory variables. It indicates that the exact finite sample distribution of F-statistic under the null hypothesis  $H_0$  is still unknown. It is presented for the sake of comparison. The second t-statistic is the Obs\*  $R^2$  statistic that represents the Breuch-Godfrey LM test statistic. The LM statistic is estimated for the number of observation multiplied by the  $R^2$  from the regression. Generally, the LM test is asymptotically distributed as the  $X^2(P)$ . In this case, the test would reject the null hypothesis which states that there is no serial correlation in favour of the alternative hypothesis if the observed value of Obs\*  $R^2$  statistic, the prob-Chi-square (2) is statistically significant at 0.05% level of significance; otherwise the null hypothesis will be accepted.

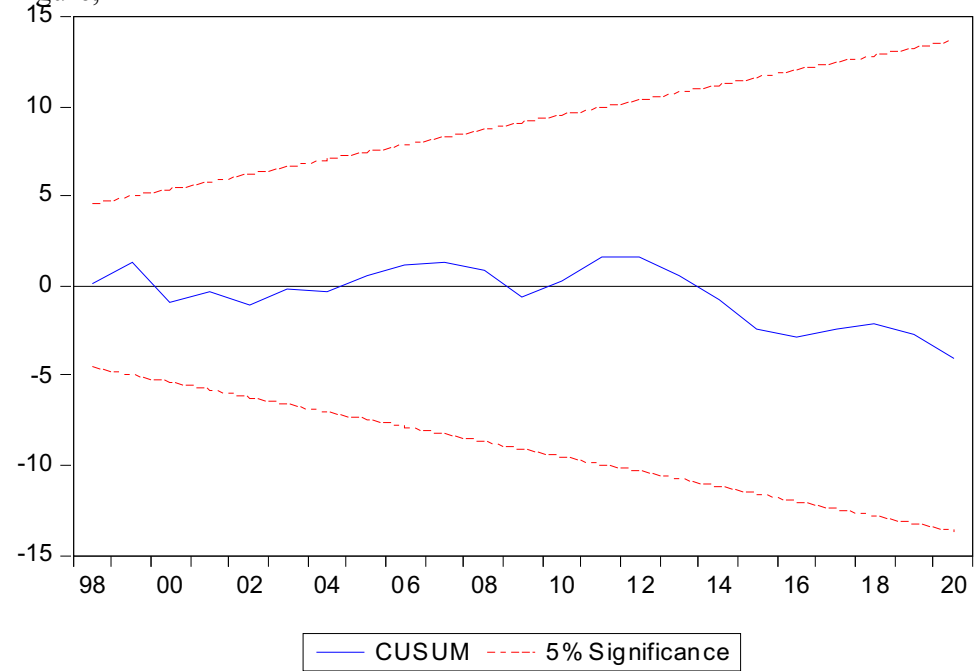
From the estimated result as presented using table 7 it is observed that the F-statistic value is 0.767561 the Pv is 0.4815 the value of the Obs\*  $R^2$  is 2.785202 and the value of the Prob Chi-square(1) is 0.2484. Since both the P-value are higher than the chosen critical value 0.05% the researcher accepts the null hypothesis of no evidence of serial correlation in the model which implies that autocorrelation does not exist in the model.

CUSUM TEST

Figure;1



Figure; 2



Source; Obtained from e-view 9.0 by the author



in between the upper and lower critical bound for both graphs. Therefore, the study rejects the null hypothesis of no stability in the parameters and error terms and concludes that there evidence of stability in the parameters and error terms in the model.

### **Summary, Recommendation and Conclusion**

This research endeavour investigated the effect of exchange rate depreciation on export trade in Nigeria from 1987 to 2020 using autoregressive distributed lag (ARDL) model. The result revealed that exchange rate depreciation exerts a significant positive impact on export trade in both the short-run and long-run. In the short run a 1% changes in exchange leads to 0.37% changes in export trade and in the long-run a 1% change in exchange rate leads to a 0.45% change in export trade. This present research work provides a leeway for further research to understand the impact of exchange rate depreciation on import as it will help in recommending for higher level of devaluation or otherwise.

Having established that exchange rate depreciation exerts positive impact on export trade in Nigeria within the period under review the researcher recommends that government agencies should formulate and implement policies that would diversify our export base to avoid over reliance on crude oil export. This will help the country to efficiently tap the inherent benefits that are derivable from exchange rate depreciation. Also government should create or establish more export processing zone to support the existing ones. In conclusion if all the recommendations made as they are based on the research findings are utilized, it will go a long way in helping the nation to abundantly benefit from the exchange rate depreciation.

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**Appendix 1; Data used in the Analysis.**

YEAR	EXP	EXR	INTR
1987	30.36	4.19	0.87
1988	31.19	5.35	3.67
1989	57.97	7.65	5.77
1990	109.89	9	5.52
1991	121.54	9.75	5.3
1992	205.61	19.66	6.72
1993	218.77	22.63	8.4
1994	206.06	21.89	7.39
1995	950.66	84.58	6.7
1996	1309.54	79.6	6.78
1997	1241.66	74.63	10.63
1998	751.86	84.37	8.05
1999	1188.97	92.53	7.48
2000	1945.72	109.55	9.58
2001	1867.95	113.45	8.18
2002	1744.18	126.9	8.1
2003	3087.89	137	6.5
2004	4602.78	132.85	5.48
2005	7246.53	129	7.42
2006	7324.68	127	7.14
2007	8309.76	116.8	6.65
2008	10387.69	131.25	3.27
2009	8606.32	148.1	2.02
2010	12011.48	148.81	11.06
2011	15236.67	156.7	10.33
2012	15139.33	155.76	8.39
2013	15262.01	155.74	8.78
2014	12962.03	156.98	7.21
2015	8845.16	192.3	7.7
2016	8835.61	253.49	9.37
2017	13988.14	305.95	16.5
2018	18707.96	306.71	12.09
2019	19909.75	307	11.4
2020	13737.08	381	12.6

Source; CBN Statistical Bulletin 2020