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Exchange Rate Volatility and Export Trade in Nigeria

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Abstract

The study examined exchange rate volatility export trade in Nigeria from 1994Q1 – 2022Q4. The objectives of the study are to; determine the effect of dollar exchange rate, British Pound exchange rate and Euro exchange rate on Nigeria exports trade. Secondary data was collected from Central Bank of Nigeria statistical bulletin. The techniques adopted include; the unit root test, the Johansen cointegration, vector error correction model (VECM), and Generalized Autoregressive Conditional Heteroskedasticity (GARCH) model to capture the volatility of exchange rates. The GARCH result showed that, volatility exists in exchange rate from 1994Q1 to 2022Q4. The unit root test result showed that, the variables were stationary at first difference. While the co-intregration test showed that, there is long run relationship between the independent and the dependent variables. The VECM results showed that, exchange rate volatility has short run positive effect on export trade. The short run VECM result showed that, the past value of export trade is significant at 5percent. Based on the findings, it was recommended amongst others that, monetary authorities should design effective exchange rate regime to ensure exchange rate stability which has the capacity to improve the export trade position of the country.

Keywords: Autoregressive, Co-Integration, Exchange Rate, Export Trade, Volatility

1. Introduction

The stability of a country`s exchange rate is one of the crucial variables that determines its global competitiveness. This is because, exchange rate assumes an undeniably critical part in the global economy as it specifically influences local value level, profitability of traded goods and services, allocation of resources and investment decision. The majority of developing economies have a negative net debt position, meaning that changes in the exchange rates of their trading partners might impact the actual cost of repaying their debts. An elevated valuation of the dollar or euro, for instance, signifies an increased expense in repaying an external loan that is primarily denominated. But the variability in exchange rate has generated serious discuss amongst public commentators as a result of the essential role plays by exchange rate in the international trade and finance (George-Anokwuru, Obayori & Oriji, 2018) [10].

The debate on exchange rate volatility transcend the collapse of the gold standard in the 1930s to the emergence of the Bretton Wood System of adjustable peg from the 1940s, through the adoption of a flexible exchange rate regime by developing economies in the 1970s and those undergoing structural reforms in the 1980s, as well as in the aftermath of the currency crises in emerging economies in the 1990s (Mordi, 2006). Besides factors such as market opportunity, political risks and the legal environment, business entities take exchange rate into consideration in making investment decisions. The focus has always been on the volatility of exchange rate in the foreign exchange market and its impact on business outcomes. It has been established in the literature that getting the exchange rate right or maintaining relative stability is crucial for both internal and external balance and, hence growth in an economy. Failure to properly manage the exchange rate induces distortions in the consumption and production patterns. Excessive volatility in exchange rate creates uncertainty and risks for economic agents with destabilizing effects on the macro economy.

Meanwhile, the fluctuation of the naira's value against the international currencies in recent years necessitates a comprehensive study of exchange rate volatility and it effect on export trade. This is because of recent, Nigerian economy has been severely impacted by exchange rate volatility and this has hinders the facilitation of trade flows towards the last quarter of the year 2015 till date. Nigeria occupies the 8th position in terms of crude oil exports, and petroleum is the largest portion of Nigeria's foreign exchange revenues. But the continuous decrease in the price of crude oil and the subsequent reduction in the

availability of foreign exchange led to the devaluation of the Nigerian currency, the naira, against the US dollar, due to the heavy reliance of the Nigerian economy on crude oil. Moreover, the decreased supply of foreign exchange (namely the United State of America dollar, British Pound and the European euro) and the rising demand for the international currencies such as dollar, pound, and euro led to the official exchange rate of one dollar, pound and euro respectively reaching 197, 291 and 214 naira in the official market as at December, 2015.

To address the unstable financial condition of the nation, the Central Bank of Nigeria (CBN) implemented monetary measures that imposed specific limitations on foreign exchange (FX). The restrictions compelled firms to turn to the street market in order to get foreign exchange, resulting in a significant fluctuation in the exchange rate. Bureau De Change operators attribute the significant depreciation of the naira against the three key international currencies (Dollar, Pound and Euro) to a further decrease in the volume of Dollar, Pound and Euro sales by the Central Bank of Nigeria. The volatility in the exchange rate in Nigeria's foreign exchange market is having a negative impact on businesses in Nigeria. In January of 2017, the Nigerian currency, the naira, experienced a decrease in value versus the international currencies such as US dollar, British Pound and European Euro with an exchange rate of N306.00, N413.65 and N366.86 per $1, £1 and €1 respectively in the informal market. Nevertheless, as at December 2023, the average official exchange rate of naira to dollar, pound and Euro is N460.702, N790.44 and N686.12. But the alarming situation is that as at August 2024, exchange rate of the three aforementioned currencies are over a thousand naira. The abysmal fluctuation/volatility of the naira to the international currencies has been a worrisome problem over the year as a result of the fact that, the Nigerian economy imports more goods and services that the ones she exports. Thus, in accordance with the current body of research, a somewhat unexplored subject is whether alterations in exchange rate regimes or policies that are linked to a change in the magnitude of fluctuations result in a decline in export flows. Thus, the specific objectives are to; determine the effects of naira exchange rate volatility in the terms of US Dollar, British Pound and Europe Euro on Nigerian exports from 1994Q1 to 2022Q4.

2. Literature Review

2.1 Exchange Rate Volatility

According to Kanu and Nwadiubu (2020), exchange rate volatility refers to the tendency for foreign currencies to appreciate or depreciate, thus affecting the profitability of foreign exchange trades. Volatility is the measurement of the amount that these rate change and the frequency of such changes. There are many instances of exchange rate volatility, including business dealings between parties in two different countries and international investments. Volatility in such circumstances is difficult to avoid. Exchange rate volatility explains a fluctuation in the economy's exchange rate. In Nigeria, there has been a persistent fluctuation in the exchange rate. The major factors contributing to the exchange rate fluctuation include interest rate, inflation, the balance of payment, government intervention etc (Kanu & Nwadiubu, 2020).

Currency rate management in Nigeria dates back to 1960, when the country gained formal independence, despite the fact that the Central Bank of Nigeria (CBN) and the Federal Ministry of Finance (FMF) had been established two years before. Exchange rate management in Nigeria is often discussed in two parts: the pre-Structural Adjustment period 1960-1985 and post-Structural Adjustment period 1986-today (Agbaeze, Alamba & Ejelonu, 2023) [1]. Exchange rate between two countries' currencies is associated with cross border movement of capital. Change in the exchange rate, depreciation or appreciation of a currency, have significant effect on trade flows and profound implications for overall economic growth (Shehu & Youtang, 2012) [15]. Domestic currency depreciation leads to improvement in exports, and engenders positive trade balance.

According to Agbaeze, Alamba and Ejelonu (2023) [1] increase or decrease in 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. When there is deviation of this rate over a period of time from the benchmark, then there is exchange rate volatility. It also indicates that misalignment of exchange rate has occurred where there is multiplicity of markets parallel with the official market. Currency instability could only exist during flexible exchange rate regime where cross-country exchange rate is determined by the forces of demand and supply.

The visual depiction of the inherent volatility in the country's exchange rate from 1981 to 2022 gives us pertinent information on the volatility of the exchange rate in the economy during this time, which could be explained by the economy's dependence on imports, a lack of domestic production, and inefficient exchange rate management during the investigation period. From 1981 to 1991, which was the era of the country's structural adjustment programme, exchange rate management in the economy was strict through the adoption of exchange rate pegging, when the naira was pegged against the US dollar during this period, resulting in the naira's relative stability. From 1991 until 2022. The country had an increasing trend in exchange movement, which might be attributed to political concerns, mono-product economic activities, and government reliance on oil revenue (Ejelonu & Okafor, 2022) [8].

2.2 Exchange Rate Volatility and Exports

Yunusa (2020) [12] examined the effect of exchange rate volatility on Nigerian crude oil export to its trading partners (UK, USA, Italy, France, Spain, Canada and Brazil) using monthly data from the first month in 2006 (M01) to the last month in 2019 (M12). The volatility of the exchange rate was estimated using GARCH and the effect of exchange rate volatility on crude oil export was estimated using ARDL. The GARCH result shows that the exchange rates of the trading partners are volatile. The ARDL result shows that the volatility of the exchange rate of Nigeria's trading partners is statistically significant for all the trading partners but with different magnitudes which means the volatility of exchange rate between Nigeria and its trading partners is very imperative in determining the volume of crude oil exportation made by Nigeria to its trading partner. The real exchange rate of the trading partners is statistically significant for all the trading partners while the income of Nigeria's trading partners is statistically significant for 4 out of the 7 countries.

Arise (2018) [5] applied the Johansen's co-integration procedure and ECM to detect a negative effect of real

exchange rate volatility on export. Quarterly data spanning from 1973 to 1996 on thirteen Less Developed Countries (LDCs) were used in the analysis. The result revealed that an increase in REER resulted in a significant negative effect on export demand in each of the thirteen (13) countries in both short and long-run.

Genc and Artar (2014) [9] examined the effect of exchange rates on exports and imports of emerging countries from of 1985 to 2012 using from the World Bank data base. It was discovered that, there is co- integrated relationship between effective exchange rates and exports-imports of emerging countries in the long run. Olufayo and Fagite (2014) [14] investigated the impacts of exchange rate instability on the export of both oil and non-oil areas. The paper utilized the econometrics strategy for GARCH in measuring instability of conversion scale and apparently disconnected relapse technique (SUR) in assessing the coefficient of the two framework condition. Curve and GARCH comes about recommended that the swapping scale is unpredictable, while SUR display demonstrates that conversion standard has negative impact on the two divisions, however factually not noteworthy.

Akinlo and Adejumo (2014) [2] investigated the impact of exchange rate volatility on non-oil exports in Nigeria and found that exchange rate volatility has positive and significant effects on non-oil exports in the long run while the short run impact of the exchange rate volatility is statistically insignificant. The policy implication is that the exchange rate volatility is only effective in the long run but not in the short run in the Nigerian economy.

Benson and Victor (2012) [6] concluded that depreciation of exchange rate orchestrated an increment in imports and reduction in exports in Nigeria. On the other hands, reverse is the case for depreciation of currency. Therefore, the researcher argued that in the long run there would be a shift of attention from imported commodity to items locally produced as result of exchange rate depreciation. The aftermath effect of this would be a drastic diversion of income from abroad to domestic economy through a shift in terms of trade. Eventually, a significant impact on the economic growth in exporting and importing countries will be felt concurrently in the long run.

Aliyu, (2009) [3] estimated the nexus between real exchange rate and manufacturing exports in Nigeria and the Republic of Benin. It was discovered from the study that the major obstacle to the process of economy recovery in both countries is overvaluation of exchange rates. The author recommended among others that currency devaluation, implementation of appropriate policy measures and the domestic prices of tradable products should be adjusted in way to restore exchange rate equilibrium and boost the economy performance of the countries.

Aliyu (2008) [4] assess the impact of exchange rate volatility on nonoil export flows in Nigeria. Empirical results showed presence of unit root at level, however, the null hypothesis of non-stationarity was rejected at first difference. Co-integration results revealed that a stable long run equilibrium relationship exists between nonoil exports and the fundamental variables. Using quarterly observations for twenty years, vector cointegration estimate revealed that the naira exchange rate volatility decreased nonoil exports by 3.65% while the same estimate for the US dollar volatility increased export of nonoil in Nigeria by 5.2% in the year 2003. The paper recommends measures that would promote greater openness of the economy and exchange rate stability in the economy.

Ogun (2006) [13] studied on the impacts of real exchange rate on growth of non-oil export in Nigeria highlighted the effects of real exchange rate misalignment and volatility on the growth of non-oil exports. He employed the standard trade theory model of determinants of export growth and two different measures of real exchange misalignment, one of which entails deviation of the purchasing power parity (PPP), and the other which is model based estimation of equilibrium real exchange rate (ERER). He observed that irrespective of the alternative measures of misalignment employed, both real exchange misalignment and volatility adversely affected growth of Nigerian non-oil exports.

Umaru, Sa'idu and Musa (2013) [16] investigated the impact of exchange rate volatility on export in Nigeria using Granger causality test; and ARCH and GARCH techniques. The causality test revealed that there is causation between export and exchange rate in the country, but the causation flows from exchange rate to export. Thus, exchange rate causes export. Furthermore, ARCH and GARCH results suggested that the exchange rate is volatile nevertheless export is found to be non-volatile. The study further showed that exchange rate is impacting positively on export, as shown by the regression results. The elasticity results revealed that, the demand for Nigerian products in the World market is fairly elastic.

3. Methodology

This study utilized quarterly time series data on the selected variables, covering the study period 1994 to 2022. Quarterly data were collected from secondary sources, which include Statistical Bulletin and Annual Report and Statement of Accounts of the Central Bank of Nigeria as well as the annual abstracts of statistics (various issues) published by the National Bureau of Statistics (NBS). The techniques adopted include; the unit root test, to ascertain the stationarity of the variables; the Johansen cointegration test to ascertain the long run equilibrium relationship amongst the variables; vector error correction model (VECM) to determine the short run relationship between the dependent and independent variables; and Generalized Autoregressive Conditional Heteroskedasticity (GARCH) model to capture the volatility of exchange rates.

Model Specification

The model is proposed with intention to applying vector auto regressive VECM and GARCH methodological framework by modifying the one proposed by adopts the view of Danladi, Akomolafe, Babalola and Akpan (2015) [7] in terms of scope and method of analysis. But the current model modified this model by examining exchange rate in US dollar, British Pound and Euro as the independent variables and export trade as dependent variable. All these was done to attain a more robust result. Therefore, the vector auto regressive model to analyse the dynamic interaction between the independent and dependent variables are accordingly specified based on the structural model below:

$$EXPT = f(USD, PSD, Euro) \quad (1)$$

$$LnEXPT = C_0 + C_1LnUSD + C_2LnPSD + C_3LnEuro + u \quad (2)$$

Where; EXPT= Export, USD= Naira-Dollar Exchange Rate, PSD= Naira-Pound Starlings Exchange Rate, Euro= Naira-Euro Exchange Rate, c_0 = Constant/Intercept parameters, c_1-c_3= Slope parameters, U=Error Term, Ln = Logarithm to Base 10

Model Specification Based on VAR

$$\Delta \text{Ln}EXPT_t = \alpha_1 + \sum_{i=1}^{p} \beta_{31} \Delta \text{Ln}EXPT_{t-1} + \beta_{32} \Delta \text{Ln}USD_t + \sum_{i=1}^{p} \beta_{32} \Delta USD_{t-1} + \beta_{33} \text{Ln}\Delta PSD_t + \sum_{i=1}^{p} \beta_{33} \Delta \text{Ln}PSD_{t-1} + \beta_{34} \Delta \text{Ln}Euro_t + \sum_{i=1}^{p} \beta_{34} \Delta \text{Ln}Euro_{t-1} + \varepsilon_{1t}$$

4. Results and Discussion

4.1 Descriptive Statistics for Underlying Series

The descriptive statistics which was considered under measure of central tendency, measure of dispersion and measure of symmetry are used to determine the nature of the variables under consideration.

Table 1: Descriptive Statistics for Underlying Series

	EURO	EXPT	PSD	USD
Mean	212.4514	2729731.	266.6559	179.6662
Median	183.5100	8606.300	242.3400	137.0000
Maximum	481.1200	27251572	528.0500	423.7500
Minimum	46.14000	206.1000	97.18000	21.89000
Std. Dev.	126.5559	7103927.	125.8116	108.9904
Skewness	0.836297	2.411626	0.836502	0.987319
Kurtosis	2.548785	7.346781	2.550343	2.649433
Jarque-Bera	14.50563	203.7649	14.50547	19.44010
Probability	0.000708	0.000000	0.000708	0.000060
Sum	24644.36	3.17E+08	30932.08	20841.28
Sum Sq. Dev.	1841885.	5.80E+15	1820285.	1366073.
Observations	116	116	116	116

Source: Researcher's Computation from E- view 10

The analysis of the descriptive statistics of the series was presented on Table 1. The results indicated that approximate mean of the dependent variable, export is N2729731, while the corresponding standard deviation is N7103927. Based on the analysis, all the standard deviation of the dependent variable is higher than its mean. Thus, it was concluded that, EXPT is not normally distributed. On the other hand, the results indicated that the independent variable US dollar exchange rate (UDS) has an approximate mean of N180; while the corresponding standard deviation is N109. Also, the independent variable British Pound exchange rate (PSD) has an approximate mean of N267; while the corresponding standard deviation is N126. In like manner, the independent variable European Euro exchange rate (Euro) has an approximate mean of N212; while the corresponding standard deviation is N127. Based on the analysis, all the standard deviation of the three independent variables are lower than their respective means, meaning that, they do not converge around their respective mean. Thus, it was concluded that, USD, PSD and Euro are normally distributed. The Skewness test result showed positive values for export trade. Moreover, based on the analysis of the kurtosis; the three independent variables (USD, PSD and Euro) are platykurtic relative to normal, since the approximate values for kurtosis were less than 3. This suggested that the variables have short and thin tails, and their central peaks are lower and broader. Nevertheless, the dependent variable (EXPT) is leptokurtic relative to normal, since the approximate values for kurtosis were greater than 3. This indicated a flatter than normal distribution and the variables has large tail. That is, the central peak is higher and sharper. However, the probability of Jarque-Bera statistics suggested that the null hypotheses of no normal distribution for all the variables was accepted. Therefore, it was concluded from the statistical properties of the time series were largely not normally distributed, which may have resulted from the problem of unit root. This necessitated the stability test via ADF unit root test.

4.2 Generalized Autoregressive conditionally Heteroscedastic (GARCH) Result

The data analysis begins by testing as well as extracting exchange rate volatility using the Generalized Autoregressive conditionally heteroscedastic (GARCH) model.

Table 2: GARCH (1,1) Result for the Export Model

Variable	Coefficient	Std. Error	z-Statistic	Prob.
Ln(USD)	1.724112	0.044790	38.49347	0.0000
Ln(PSD)	-3.963237	0.193600	-20.47129	0.0000
Ln(EURO)	4.265942	0.183591	23.23618	0.0000
Variance Equation				
C	0.033825	0.005326	6.350985	0.0000
RESID(-1)^2	1.462531	0.236058	6.195639	0.0000
GARCH(-1)	-0.110383	0.024304	-4.541716	0.0000
R-squared	0.565201	Durbin-Watson stat		2.116165
Adjusted R-squared	0.557506	Akaike info criterion		2.243897

Source: Researcher's Computation from E- view 10

From Table 2, the variance equation showed the presence of GARCH effect since all the GARCH parameter is significant and in the mean equation, the GARCH parameter is also significant as depicted by the probability value of 0.0000 which is lower than 0.05 (5percent level of significance). This showed that, volatility exists in exchange rate from 1994Q1 to 2022Q4. From the variance equations above, exchange rate volatility was extracted.

4.3 Stationarity Test Results

This unit root test conducted via the Augmented Dickey Fuller (ADF) established the order of integration or stationarity of the variables. The ADF test was conducted based on constant and time trend; at level and first difference at 5 percent critical values. The stationarity status of the data series are presented in Table 3.

Table 3: Results of ADF Unit Root Test for the Estimated Model

Variables	Unit Root Test @ Level		Unit Root Test @ First difference		Order of integration
	ADF Statistics	5%Critical Value	ADF Statistics	5% Critical Value	
EXPT	0.152048	-2.886959	-10.70897	-2.886959	1(1)
USD	0.410284	-2.886959	-11.29058	-2.886959	1(1)
PSD	0.321206	-2.886959	-11.24594	-2.886959	1(1)
Euro	-0.009164	-2.886959	-11.15440	-2.886959	1(1)

Source: Researcher's Computation from E- view 10

The result of the unit root test in Table 3 showed that none of the variables was stationary at level as a result of the fact that, the ADF statistic value is less than the critical value at 5percent. However, the non-stationary variables were differenced once and became stationary at first differences; 1(1). Given that all the variables were integrated of order one, the study conducted the Johansen co-integration test to determine the long run relationship amongst the variables.

4.4 Lag Selection Criteria

Lag selection is required to ascertain the mode at which each of the model will give a robust result. Thus, in the estimation of the VAR models, the selection of the lag length for each of the models was automatically determined based on the Akaike information criterion (AIC). Thus, the model with the lowest order of lag out the possible models as depicted on each of the VAR result was selected. See the table below.

Lag Selection Criteria Export Model

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-3541.483	NA	3.68e+22	63.31220	63.40929	63.35159
1	-3053.837	931.7525*	8.10e+18*	54.88994*	55.37539*	55.08690*
2	-3050.405	6.311717	1.02e+19	55.11438	55.98818	55.46891
3	-3044.969	9.610400	1.23e+19	55.30302	56.56518	55.81512
4	-3034.456	17.83508	1.36e+19	55.40100	57.05151	56.07066

Source: Researcher's Computation from E- view 10

From the lag selection criteria result in Table 4, it can be seen that most of the criterions selected a lag of one as the optimal lag length. Based on this, all subsequent analyses were carried out using the optimal lag length of one. This was the right lag that helps avoid specification error.

4.5 Long Run Estimate-Johansen Co-integration Test Results

After establishing the order of integration (i.e. all the series are I(1)), the Johansen co-integration test was applied on the series to examine whether or not co-integration exist among the variables. Two variables are said to be co-integrated if they have a long-term or long run equilibrium/relationship between them. For the purpose of this study, Johansen co-integration test was conducted. Johansen Co-integration Test is a statistical method used to determine the existence and number of co-integration relationships among multiple time series data. Co-integration occurs when a group of non-stationary time series variables, which individually exhibit random walks, move together over time such that a linear combination of them is stationary. This indicates a long-run equilibrium relationship among the variables. The results of the co-integration for the estimated models are presented in Table 4 below:

Table 4: Johansen Co-integration Test Result for Export (EXPT) Model

No. of CE(s)	Eigen Value	Trace Statistic	0.05 Crit. value	Prob.**
None *	0.233301	47.94916	47.85613	0.0490
At most 1	0.086450	17.92945	29.79707	0.5713
At most 2	0.064296	7.712255	15.49471	0.4967
At most 3	0.001793	0.202757	3.841466	0.6525

Source: Researcher's Computation from E- view 10

The result of the Johansen co-integration test for the estimated export (EXPT) model as presented on Table 4 indicated that, there exists one (1) co-integrating equations in the trace statistic test. This implies that, both the dependent and independent variables are co-integrated (i.e they adjust to short run dynamics and long run equilibrium). In other words, there is existence of a long-run equilibrium relationship among export trade (EXPT), US dollar exchange rate (UDS), British Pound exchange rate (PSD) and European Euro exchange rate (Euro) at 5% significance level. Since the series are co-integrated, then, the export model is estimated using the VECM approach.

4.6 Sort Run Vector Error Correction Model Results

In order to determine the short-run behaviour of the variables for the estimated model, the error correction model (ECM) is examined.

Table 5: Vector Error Correction Model Estimates for Export Model

Variable	D(Ln(EXPT)	D(Ln(USD)	D(Ln(PSD)	D(Ln(EURO)
ECM (-1)	0.044300	0.007600	0.000294	0.000123
	(0.00923)	(0.00172)	(0.00084)	(0.00096)
D(Ln(EXPT(-1)	-0.023183	-0.004736	-0.003294	-0.004444
	(0.01872)	(0.09838)	(0.00897)	(0.01022)
D(Ln(USD(-1)	0.005752	0.049367	0.002298	0.001346
	(0.63374)	(0.11797)	(0.05757)	(0.06561)
D(Ln(PSD(-1)	0.099310	0.026628	0.014306	0.019070
	(1.84694)	(0.34380)	(0.16777)	(0.19120)
D(Ln(EURO(-1)	0.347130	-0.039933	0.048373	0.066389
	(1.50081)	(0.27937)	(0.13633)	(0.15537)
Adj. R-squared	0.563726	0.117580	-0.038784	-0.037432
F-statistic	0.053194	4.011378	0.156215	0.184569

Source: Researcher's Computation from E- view 10

The estimated VECM result on Table 5, showed that he coefficient of the ECM(-1) appeared with the correct sign (negative) and significant at 5percent level of significant. This implies that, the past disequilibrium or equilibrium value will adjust to long run equilibrium at a speed of about 4.43percent. Similarly, the adjusted R-Squared value of about 56percent showed that the estimated export trade model is good fit. Thus, the variation in the export trade explained by exchange rate volatility in terms of the US dollar, British Pound and European Euro is 56%.

In the interim, in order to validate the short run estimated VECM model, it is expected that, the past value of the dependent variable (EXPT) be significant. Therefore, based on the result on the table above, the coefficient of the past value of EXPT is significant at 5percent. This implies that, the past value of EXPT has feedback effect on its self, which is a robustness test and desirable condition to validate the genuity of the estimated equation.

Based on the coefficient of the independent variable, lag one value of exchange rate in term of US Dollar (USD) has positive sign but insignificant impact on export trade at 5percent significant level. This implies that, the variable USD has positive feedback on export trade (EXPT) in Nigeria during the period of study. Thus, exchange rate in terms of the US dollar has the tendency to sustained positive export trade in Nigeria during the period of study.

The lag one value of exchange rate in term of British pound sterling (PSD) has positive sign but insignificant impact at 5percent significant level. This implies that, although PSD has positive relationship with EXPT, the variable PSD do not have endogenous impact on export trade (EXPT) in Nigeria during the period of study. Thus, exchange rate in

terms of British pound sterling does not have significant positive impact on export trade in Nigeria during the period of study.

Moreover, the coefficient of lag one value of exchange rate in term of Euro has positive sign but insignificant impact at 5percent significant level. This implies that, the variable Euro exchange rate has positive feedback on export trade (EXPT) in Nigeria during the period of study. Thus, Euro exchange rate has positive tendency to sustained export trade in Nigeria during the period of study.

4.7 Second Order Test Result

Table 6: Stability Test Result- Ramsey Test for the Estimated Model

Test Stat.	Value	Df	P-Value	Critical Value
F-Statistic	1.908296	(107)	0.1700	0.05

Source: Researcher's Computation from E- view 10

Ramsey reset test was carried out by regressing the forecast value of the dependent variable on the independent variables and then testing the joint significance of the coefficients on the independent variable. If these are significant, the linear model is wrongly specified. Therefore, the null hypothesis is given as; **H=0;** it therefore, means that, the powers of the fitted values has no relationship to explain the dependent variable, meaning that the model has no omitted variables. The alternative hypothesis is that, the model is suffering from an omitted variable problem.

Given the result of the Ramsey test on the table above, the estimated model was correctly specified since the null hypothesis of the estimated model is accepted at 5percent level of significance. Specifically, in the export model, the f-value of 1.9082 and the corresponding probability value of 0.1700 is greater than the critical value at 5%, therefore, the null (HO) hypothesis which states that, the powers of the fitted value has no relationship is accepted.

5. Conclusion and Recommendations

The study examined exchange rate volatility and export trade in Nigeria from 1994Q1 – 2022Q4. The specific objectives of the study are to; determine the effects of naira exchange rate volatility in the terms of US Dollar, British Pound and Europe Euro on Nigerian exports; In order to achieve the stated objectives, data was collected from secondary sources, which include Statistical Bulletin and Annual Report and Statement of Accounts of the Central Bank of Nigeria as well as the annual abstracts of statistics (various issues) published by the National Bureau of Statistics (NBS). The techniques adopted include; the unit root test to test the stationarity of the time series and followed by the test for cointegration to check whether or not the underlying variables have long run relationship. The Johansen test approach to cointegration is the approach considered for determining if long run relationship exists between the dependent and independent variables. But the main technique of analysis is the vector error correction model (VECM). Similarly, GARCH (1, 1) (Generalized Autoregressive Conditional Heteroskedasticity) model was also used to capture the volatility of exchange rates. The error correction model was used to explain the direct estimate of speed at which a dependent variable returns to equilibrium after a change in an independent variables. Based on the estimation techniques, it was reported that; the coefficient of the past value of export is significant at 5percent, meaning that, the past value of export trade has feedback effect on its self, which indicates the robustness test and desirable condition to validate the genuity of the estimated model. Also, the short run result, illustrated by vector error correction model (VECM) showed that, the lag one value of exchange rate in term of US Dollar (USD), pound sterling and Euro all have positive sign but insignificant impact on export trade.

Based on the overall analysis, it can be concluded that, exchange rate volatility to a great extent, has positive effect on export trade. Therefore, it was recommended that, effective and efficient exchange rate policy and appropriate exchange rate are crucial for enhancing the economic performance of the Nigerian economy in term of export trade. This is because instability of exchange rate destabilizes import and export and this in turn affects the economy negatively. The policy implication of the study hinged on the need to import less of finished goods and encourage domestic production of value addition commodities that has foreign exchange earning effects.

6. References

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