

Relative Impact of the Volatilities of International Trade and Finance on Economic Growth in Nigeria

Babade, Isaac Tolu; Fashina, Oluwatoyin Abiola; and
Ikudaisi, Olugbenga Lanre

Department of Business Administration and Management, Rufus Giwa Polytechnic,
Owo, Ondo State, Nigeria
E-mail: tolubabade12@gmail.com

Abstract

The study examined the relative impact of volatilities of International Trade and Finance on Economic Growth in Nigeria. The study made use of Secondary data from 1970 to 2023. Econometric tools were used to establish relationships. The study established mixed result between the variables under review. While some of the tests did not provide adequate and predictive information on the relationship between exports, imports and real effective exchange rate, others did. The VAR model estimates indicated a converse relationship between Export, Import and GDP in the current period. The ARCH modelling approach suggests the existence of a first-order ARCH effect and a significant GARCH term. Though the Coefficient of GARCH in the mean term is negative, it produced a singular covariance which by itself is not unique. Results show evidence of the volatility of Gross Domestic Product (GDP) clustering on import and export trading activities in Nigeria. This could have serious implications for growth in Nigeria, as a reduction in the growth of exports could reduce the foreign exchange earnings available for the financing of developmental projects. At the same time, a decline in imports could affect domestic production and consumption as a result of fuel subsidy removal. It could also impinge negatively on the balance of payment positions for Nigeria. In line with these observations, monetary and fiscal interventions are required to mitigate the adverse effects since financial shocks often exacerbate exchange rate volatilities monetary and fiscal interventions to help mitigate its impact. This is based on the fact that financial shocks often exacerbate exchange rate volatilities.

Keywords: *Gross domestic product, export, import, exchange rate, international trade, volatility*

How to Cite: Babade, I. T.; Fashina, O. A.; and Ikudaisi, O. L. (2025). Relative impact of the volatilities of international trade and finance on economic growth in Nigeria. *RUGIPO Research and Technical Journal in Business, Social Science and Communication Studies*, 4(3):76-86.
https://elearning.rugipo.edu.ng/Rugipo_Tetfund_Journal_Research_Portal/.

1.0 Introduction

International trade is the sale and purchase of consumer or capital goods and services, raw materials, securities or gold across national borders. Such transactions may be accomplished by barter or more typically through an exchange of national currencies". International trade is the

exchange of goods and services across international borders. International trade consists of import and export trades. Basically, the volume of exports in Nigeria hovers around a mono-product, i.e. crude oil. In 1996, there was a gradual but progressive increase in the volume of Nigeria's export. The price of oil reached a

historic high amounting to 115 USD per barrel by mid-2008 (IFS, 2015). Following the balance of payment deficit experienced by America in 1971 and 1973 respectively resulting in the devaluation of the dollar, the collapse of the Bretton Woods system, a shift from fixed exchange rate to a floating exchange rate scheme, and later to other forms of fared exchange rate system surfaced. Since then, there have been thoughtful argument by scholars on the impact of exchange rate volatility on trade (Anyanwaokoro, 2019). The choice of exchange rate regime can affect economic growth through its effects on macroeconomic variables which are vital determinants of growth. Factors such as export, international trade, and capital flows are highly affected by the disparity of the exchange rate. As postulated by the balance of payment theory, the exchange rate of the currency of a country depends on its balance of payment situation. This is because the demand and supply of foreign exchange are from the debit and credit items in the balance of payments, respectively representing what is derived from the country (imports) and (export). If the demand for foreign exchange is higher than its supply, the price of foreign currency will go up and if the demand for foreign exchange is less than its supply, the price of foreign will decline. That is to say, an adverse balance of payments leads to exchange rate fluctuation while a favourable balance of payment arising from an increase in export over import restores the equilibrium rate of exchange (Kanamori and Zhao, 2016).

The appraisal of fluctuation in foreign exchange as well as its management has in the course of time particularly after the collapse of the Bretton Woods agreement in 1973 pulled very significant impetus cause by academics and policy makers; foreign exchange which describes the conversion of a country's currency to another at a certain rate or the specific value of currency that can buy an amount of another currency (Yakub and Aliyu, 2019). Foreign exchange is also a metric for

appraising country's competitiveness at the international level; this suggests that as the value of a country's currency plummets, the competitiveness of the country at the international level also falls (Arize, Osang and Slottie, 2008). In fact, researchers have affirmed that with a balanced foreign exchange, the macroeconomic performance of the country would be improved, the balance of payment would be made favourable and economic growth would be on the increase. However, fluctuations in the exchange rate no doubt hold contrary implications for investment and macroeconomic stability which lately impede the growth of the economy (Oghenebrume, 2018). Today, the exchange rate has become a newsworthy issue because of the frequent impacts it has on various economic indices, including economic growth, trade, security valuation, import, profitability, export, investment analysis, international trade and risk management (Yunusa, 2020). Exchange rate is one of the most important policy instruments that determine the trade flows, capital flows, foreign direct investment, inflation, international reserve and steady economic growth. The role of the exchange rate in any economy is very significant as it directly and indirectly affects the domestic price level, the profitability of traded goods and services, allocation of resources and investment decisions. Exchange rate movement and exchange rate uncertainty are important factor which investors take into consideration in their decision to invest abroad (Okoro and Charles, 2019). Exchange rate volatility raises the risk and uncertainty of transactions (both internally and externally) and predisposes a country to exchange rate risks. Furthermore, Omolola and Onasokhare, (2023) posited that fluctuating exchange rates create uncertainty and impede foreign trade. In theory, it is widely accepted that exchange rate fluctuations have an impact on output, either positively or negatively. Upon this view, this paper examined the level of volatilities of the exchange rate trade system of Nigeria (export and Import) on

Nigeria's economics growth and also, the impact of the exchange rate system based on it trend through foreign direct investment (FDI) on economic growth in Nigeria. The following hypotheses guided the work ($H_{01\&2}$); exchange rate volatilities on a trade system have no significant impact on Nigeria's economic growth, and the exchange rate system through foreign direct investment (FDI) has no significant trend impact on economic growth in Nigeria.

2.0 Literature Review

International trade (foreign trade) could be defined as the exchange of goods and services across international borders (Carbaugh, 2017). In its cleanest form, it is the exchange of capital goods and services between countries or trade across international borders or territories. Esezobor (2019) defined international trade as "trading between sovereign states". According to the Encyclopedia Britannica, "International trade is the sale and purchase of consumer or capital goods and services, raw materials, securities or gold across national borders. Such dealings may be accomplished by barter or more typically through the exchange of national currencies" (Encyclopedia Britannica, 2023). The Encyclopedia Americana defined international trade as "commercial exchanges between residents of different sovereign political units. It becomes clearly distinguished from local or domestic trade only as nations emerge and begin to formulate national commercial policies, and then it becomes international trade".

Exports: One major function of international trade is to see that goods produced in one country are shipped to another country for future sale or trade. The sale of each good to the producing nations gross output. Exports are therefore goods and services that one country sells to others. Exports are one of the oldest forms of economic transfer and occur on a large scale between nations that have fewer boundaries on

international trade, such as tariffs or subsidies. According to Lequiller and Blades (2016) "the term export originates from the goods and services out of the port of a country. The seller of such goods and services is denote as an exporter however, the overseas-based buyer is referred to as an importer. According to national accounts, exports consist of transactions in goods and services (sales, barter, gifts or grants) from residents to non-residents. Smuggled goods must be included in the export dimension". In national accounts any direct purchases by non-residents in the country's economic territory are recorded as service exports; therefore all expenditures by foreign tourists in the country's economic region are reflected as part of the export services of that country. Also, international flows of illegal services must be included. Exports also include the distribution of information that can be sent in the form of an e-mail, fax or shared during a telephone conversation (Ojukwu, 2011). Thus, in economics, an export refers to any good or commodity transported from one country to another in a genuine fashion, typically for use in trade. Many countries engage in export trade.

Imports: The word "import" is derived from the word "port" since goods are often shipped via vessel to foreign countries. Import is therefore derived from the conceptual meaning as the transportation of products and services from one state to the port of another country. The buyer of such goods and services is referred to as an "importer" while the overseas-based seller is referred to as an "exporter" (Mohan, 2019). Thus, an import refers to any good or service brought in from one country to another country in a genuine fashion, typically for use in trade. It is a good that is brought in from another country for sale. Imported products or services are provided to domestic consumers by foreign producers. An import in the receiving country is considered export in the sending state.

Exchange Rates: When people travel to foreign countries, they must change their money into foreign currencies. The same is true when goods are imported. For example, when Americans import goods from Japan, Europe or Nigeria, the dollars paid for these goods must be exchanged for Yen, Euros or Naira. In finance, an exchange rate between two currencies is the rate at which one currency is exchanged. It is also regarded as the value of one country's currency in terms of another currency (Sulliaivan et al, 2003). For example, an interbank exchange rate of 370 Nigerian Naira to the United States Dollar (US\$) means that ₦370 will be exchanged for each US\$1 or that US\$1 will be exchanged for 370. In the retail currency exchange market, different buying and selling rate will be quoted by money dealers. The buying rate is the rate at which money dealers will buy foreign currency, and the selling rate is the rate at which they will sell the currency. The quoted rates will incorporate an allowance for a dealer's margin (or profit) in trading or else the margin may be recovered in the form of a "commission" or in some other way. (Esezobor, 2019).

Exchange Rate Volatility: 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 fluctuations 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.

Study Gap: The literature is overprovided with studies on the effect of exchange rate volatility on the trade of developed countries, but it appears to be rare concerning African countries, especially Nigeria. The few studies on African countries were based on panel data on cross cross-sectional base. There is quite a need for more country-specific case studies as opposed to cross-country regression analysis that will yield more robust conclusions. Given the inadequate amount of studies in the context of Nigeria, the present study filled this gap with respect to foreign direct investment (FDI).

3.0 Methodology

To establish the impact of exchange rate volatility on international trade in Nigeria, an ex-post facto research design was employed using data dataset removed from the Central Bank of Nigeria (CBN) statistical bulletin. While the Augmented Dickey-Fuller unit root is used for preliminary analysis; Ordinary Least Square (OLS) regression analysis was used for short-run estimates. A combination of Johansen Co-integration test, Vector Auto Regression analysis, and Granger causality test, Variance Decomposition, Impulse Response tests and the ARCH/GARCH modelling techniques are used for long run estimation. All the tests helped to authorise the integrity of our model, i.e. if exchange rate volatility has a clustering effect on the proxies of international trade along with foreign direct investment (FDI).

Model Specification

Components of International trade are regressed against exchange rate volatility and other explanatory variables for the corresponding period. These are aptly captured in equation 1 below: $GDP_t = (EXCH_t, FDI_t, IMP_t, EXP_t, INF_t).....(1)$
 $GDP_t = \beta_0 + \beta_1 EXCH_t + \beta_2 FDI_t + \beta_3 IMP_t + \beta_4 EXP_t + \beta_5 INF_t.....(2)$

Trade volume could further be decomposed into export and import trades thus:

Where;

GDP = Gross Domestic Product of the Economy.

FDI = Foreign Direct Investment (Volatility of FDI)

EXP = Growth rate of Export trade. (Volatility of Export)

IMP = Growth rate of Import trade. (Volatility of Import)

EXR = Exchange Rate

INF = Inflation Rate

β_0 = the intercept, while β_1 - β_4 is the coefficient or parameters attached to the explanatory variable, i.e. Real exchange rate volatility.

U_t = The error term assumed to be normally and independently distributed with zero mean and constant variance. The addition of the error term or stochastic term in the model is to capture the effect of the other variables not included in the model.

Expected Results or a Priory Expectations

Exchange rate volatility is expected to have a positive relationship with exports. The reason for this expectation is based on the fact that the Naira has been devalued over time. Our export produce is expected to cost less since the value of the Naira is exchanged for a reduced amount of foreign currency. Exchange rate volatility is expected to have a negative relationship with imports and interest rates. Since the naira over time has been devalued, interest rates are bound to go up, and imports are expected to cost more. Exchange rate volatility could have a negative or positive relationship with economic growth and investments (FDI) depending on the quantum of trade between Nigeria and its trading partners. Conclusively, it is expected that currency undervaluation is bound to promote exports and restrict imports while the converse will hold in the case of overvaluation.

4.0 Data analysis and interpretation

A combination of preliminary analysis, short-run and long-run models was generated in this investigation.

Table 1: Unit Root/Stationary Test

Variable	T-stat	Critical value <u>@1%</u>	Critical value@ 5%	Critical value <u>@10%</u>	Order of co-integration	Sig.
GDP	-8.98	-3.80	-.3.02	-2.65	1 st Diff	Sig.
EXPT	-4.68	-3.92	-3.06	-2.67	1 st Diff	Sig.
IMPT	-6.28	-3.83	-3.02	-2.66	1 st Diff	Sig.
FDI	-5.68	-3.92	-3.06	-2.67	1 st Diff	Sig.
EXCH	-7.38	-3.83	-3.02	-2.66	1 st Diff	Sig.

Source: E-views statistical version 9.0

This is carried out using Augmented Dickey-Fuller unit root tests to determine whether the data set is stationary or not and the order of integration. From the above table, all five variables, namely Gross Domestic Product

(GDP), Exchange Rate (EXCH), Export (EXPT), Import (IMPT) and Foreign Direct Investments (FDI) became stationary at the first difference.

Table 2: Descriptive Statistics

Variables	GDP	IMPT	EXPT	FDI	EXCH
Mean	83.32742	7877.151	5462.505	7277.151	5461.505
Median	80.36334	8309.758	3911.953	8309.758	3911.953
Maximum	155.7536	19280.04	13445.11	16280.04	13425.12
Minimum	19.07426	751.8567	562.6266	756.8567	568.6216
Std. Dev.	37.14799	5667.091	4353.046	3667.091	6353.046
Skewness	0.127645	0.275081	0.347268	0.275081	0.347268
Kurtosis	2.845073	1.887479	1.535914	2.845073	1.887479
Jarque-Bera	0.085460	1.476199	2.516516	0.085460	1.476199
Probability	0.958170	0.478022	0.284149	0.958170	0.478022
Sum	1916.531	181174.5	125637.6	1916.531	181174.5
Sum Sq. Dev.	30359.40	7.07E+08	4.17E+08	2.845073	1.887479
Observations	52	52	52	52	52

Source: E-views Statistical Package Version 9.

The average GDP value (₦83.33 billion) indicates a moderate level of economic output over the observed period. The wide range and relatively high standard deviation (37.15) show substantial fluctuations in Nigeria's economic growth. This suggests that GDP performance was unstable, likely due to oil price shocks, exchange rate volatility, or policy changes over the years. The skewness (0.1276) and kurtosis (2.85) values indicate that the GDP data are roughly symmetric and normally distributed, implying reliability for regression analysis.

Imports have a very large average and high variability, showing Nigeria's heavy reliance on foreign goods and services. The high standard deviation reflects strong fluctuations likely influenced by foreign exchange policy shifts, tariffs, or trade liberalization. The positive skewness (0.275) shows a rightward tail few years of extremely high import levels. Kurtosis (1.89) below 3 indicates a flatter distribution, meaning values are more spread out and less concentrated around the mean.

The export average is significantly lower than imports, implying a persistent trade deficit over the study period. The wide range and standard deviation reveal volatility in Nigeria's export earnings consistent with dependence on crude oil

exports. The skewness (0.347) suggests occasional spikes in export earnings during global oil booms. The kurtosis (1.53) implies low concentration and variability, exports are not stable year to year.

FDI inflows are quite large on average, but the wide range reflects significant variability in investor confidence over time. Nigeria's FDI performance tends to mirror macroeconomic stability and oil market trends. A standard deviation of 3,667.09 shows fluctuations in inflow, likely due to policy inconsistency and insecurity. The near-zero skewness (0.275) indicates moderate symmetry, while the kurtosis (2.84) suggests near-normal data distribution, making FDI a statistically reliable variable for analysis. The large standard deviation indicates significant exchange rate volatility, consistent with Nigeria's historical experience of currency depreciation and multiple exchange rate regimes. Such volatility can distort trade flows and FDI decisions. Positive skewness (0.347) shows occasional sharp increases in exchange rate levels (periods of major naira depreciation). The kurtosis (1.89) confirms data dispersion, suggesting frequent moderate fluctuations rather than few extreme ones.

The Jarque-Bera probabilities for all variables (ranging from 0.28 to 0.95) are greater than 0.05, indicating that the data are normally distributed. This satisfies a key assumption for regression and econometric modelling (e.g., ARDL, VAR, OLS). The overall data dispersion suggests that the

Nigerian economy is characterised by volatility in key macroeconomic indicators. Since all variables are approximately normally distributed, the dataset is suitable for further econometric analysis to test long-run and short-run relationships among them.

Table 3: VAR Model Sample (adjusted): 1970-2021 Included observations: 50 after Adjustments
Standard errors in () & t-statistics in []

	GDP
GDP(-1)	0.839899 (0.24468) [3.43263]
REER(-2)	-0.013413 (0.22179) [-0.06048]
C	28.42876 (11.8420) [2.40067]
EXPORT	-0.000951 (0.00233) [-0.40839]
IMPORT	-0.000428 (0.00283) [-0.15167]
R-squared	0.765368
Adj. R-squared	0.706710
Sum sq. resids	5006.213
S.E. equation	17.68865
F-statistic	13.04796
Log likelihood	-87.27379
Akaike AIC	8.787980
Schwarz SC	9.036676
Mean dependent	89.43988
S.D. dependent	32.66223

Source: E-views Statistical Package Version 9.

The VAR model estimates suggest there is an inverse relationship between Export, Import, and foreign Direct Investment in current period. A unit increase in export and

import in a particular year leads to about 0.9% and 0.4% decrease in GDP respectively. Real effective exchange rate (GDP) impacted in the first and second lags

Table 4: Casual Effects

Pairwise Granger Causality Tests Sample: 1970-2021

Null Hypothesis:	Obs;	F-Statistic	Prob.
EXPORT does not Granger cause GDP	52	1.43201	0.2678
GDP does not Grangercause EXPORT	52	1.87441	0.1856
IMPORT does not Granger cause GDP	52	0.91265	0.4214
GDP does not Granger cause IMPORT	52	0.78647	0.4723
IMPORT does not Grange cause EXPORT	52	3.96698	0.0399
EXPORT does not Granger cause IMPORT	52	1.66535	0.2203
FDI does not Grange cause EXPORT	52	1.43545	0.5453
EXPORT does not Grange cause FDI	52	1.09345	0.3234
FDI does not Granger cause IMPORT	52	1.45365	0.4543
IMPORT does not Grange cause FDI	52	2.34254	0.6754
EXCH does not Grange cause GDP	52	1.04354	0.3425
GDP does not Grange cause EXCH	52	2.04354	0.4353
EXCH does not Granger cause EXPORT	52	2.12435	0.5423
EXPORT does not Granger cause EXCH	52	2.10434	0.0932
EXCH does not Granger cause IMPORT	52	1.06454	0.0213
IMPORT does not Granger cause EXCH	52	2.04532	0.0232
EXCH does not Granger ause FDI	52	2.10545	0.1032
FDI does not Grangerc ause EXCH	52	1.04352	0.3218

Source: E-views Statistical Package Version 9.

The gross domestic product on the variables of exchange rates, international trade in Nigeria, exchange rate, foreign direct investment reveals causally relationship.

Table 5: Impulse Response Analysis

Period	GDP	EXPORT	IMPORT	FDI	EXCH
1	20.67935 (3.19089)	0.000000 (0.00000)	0.000000 (0.00000)	0.000000 (0.00000)	0.000000 (0.00000)
2	21.50498 (6.33650)	-4.014886 (4.62479)	1.980832 (5.04749)	-4.014886 (4.62479)	1.980832 (5.04749)
3	23.90315	-7.951436	5.673603	-7.951436	5.673603

Period	GDP	EXPORT	IMPORT	FDI	EXCH
	(7.19167)	(6.97543)	(6.27989)	(6.97543)	(6.27989)
4	24.20013	-9.951806	6.503746	-9.951806	6.503746
	(8.95506)	(8.90496)	(7.97146)	(8.90496)	(7.97146)
5	22.95838	-9.483617	4.433449	-9.483617	4.433449
	(10.0402)	(9.88490)	(8.92120)	(9.88490)	(8.92120)
6	21.66659	-7.985273	1.357602	-7.985273	1.357602
	(10.6921)	(10.2367)	(8.97005)	(10.2367)	(8.97005)
7	21.38943	-7.263843	-0.631211	-7.263843	-0.631211
	(11.3744)	(10.7597)	(8.70890)	(10.7597)	(8.70890)
8	22.14277	-8.103375	-0.788952	-8.103375	-0.788952
	(12.3108)	(12.0041)	(8.83020)	(12.0041)	(8.83020)
9	23.15019	-9.970800	0.097602	-9.970800	0.097602
	(13.5070)	(13.9276)	(9.64741)	(13.9276)	(9.64741)
10	23.60262	-11.74020	0.674175	-11.74020	0.674175
	(14.8384)	(16.1827)	(11.0247)	(16.1827)	(11.0247)

Source: E-views Statistical Package Version 9.

From the above analysis, the response of export to the real effective exchange rate was negative throughout the ten periods. It was majorly positive for imports for the said period

Table 6: Volatility and Modeling Approach. Testing for ARCH Effects.
Heteroskedasticity Test: ARCH

F-statistic	9.297355	Prob. F(1,20)		0.0063
Obs*R-squared	6.981579	Prob. Chi-Square(1)		0.0082
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	387.7534	232.8634	1.665154	0.1115
RESID^2(-1)	0.508455	0.166753	3.049156	0.0063
R-squared	0.317345	Mean dependent var		891.4002
Adjusted R-squared	0.283212	S.D. dependent var		909.3548
S.E. of regression	769.8902	Akaike info criterion		16.21688
Sum squared resid	11854619	Schwarz criterion		16.31607
Log likelihood	-176.3857	Hannan-Quinn criterion.		16.24025
F-statistic	9.297355	Durbin-Watson stat		1.939581
Prob(F-statistic)	0.006333			

Since the observed L M Statistics (6.9) is significant, we reject the null hypothesis that there is no first-order Arch effects. Again, the T and F-statistics (6.9, 3.05) are quite substantial. This corroborates our earlier claim that there is a first-order Arch effect.

Table 7: Estimating an ARCH Model of Order 1: Dependent Variable: GDP

Method: ML ARCH - Normal distribution (BFGS / Marquardt steps) Sample: 1970-2021

Coefficient covariance computed using the outer product of gradients

Pre-sample variance: back cast (parameter = 0.7) GARCH = C(4) + C(5)*RESID(-1)^2

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	97.61930	6.596121	14.79950	0.0000
EXPORT	0.001744	0.001995	0.873921	0.3822
IMPORT	-0.003649	0.002994	-1.218753	0.2229
FDI	0.344065	0.435456	2.543098	0.0032
EXCH	0.487655	0.054432	3.296553	
S.E. of regression	39.57287	Akaike info criterion		9.171274
Sum squared resid	31320.24	Schwarz criterion		9.418121
Log likelihood	-100.4697	Hannan-Quinn criter.		9.233355
Durbin-Watson stat	0.227699			

Source: E-views Statistical Package Version 9.

From the above table, the average return is 97.6. The time-varying volatility includes a constant component of 2.18 plus a component which depends on past error of 1.33. The shaded line highlights the ARCH effects. The ARCH effect is significant at the 10% alpha level. The series exhibited visible fluctuation in the '90s and early 2000s. All that is gradually fizzling out.

Conclusion

The above results indicate that there is evidence of volatility clustering of the real effective exchange rate (EXCH) on import and export trading activities in Nigeria. And it can have severe implications for growth prospects for Nigeria. The five variables under review, namely gross domestic product (GDP), Export (EXPT), Import (IMPT), foreign direct investment (FDI) and Exchange rate (EXCH), became stationary at the first difference. Exchange rate averages N5461.505 billion, it ranged from N568.6216 to

N13425.12 with a standard deviation of 6353.046. Imports average N7877.15billion. It ranges from N751.86 to N19280 billion with a standard deviation of 5667.09. Export trades average N5462.5 billion. It ranges from N562.63 billion to N13445.11 with a standard deviation of 4353.05. The shape and pattern of the normality test above suggest that the series is normally distributed. The VAR model estimates imply that there is an inverse relationship between Export, Import and GDP in the current period. A unit increase in export and import in a particular year leads to about 0.9% and 0.4% decrease in GDP, respectively. Gross Domestic Product (GDP) impacted itself in the first and second lags. The causality effect of real exchange rates on the variables of international trade in Nigeria reveals that import causes exports, but that exports do not Granger-cause imports. Variance decomposition reveals that at a one-year horizon, 100% of the variance in GDP is explained by its shocks.

Impulse response analysis indicates that export to the real effective exchange rate was negative throughout the ten periods. It was majorly positive for imports during the period under review. Since the observed LM Statistics (6.9) is significant, we reject the null hypothesis that there are no first-order ARCH effects. Again, the T and F-statistics (6.9, 3.05) are quite significant. This corroborates our earlier claim that there is a first-order Arch effect. ARCH Model of order 1 has an average return of 97.6. The time-varying volatility includes a constant component of 2.18 plus a component which depends on the past error of 1.33.

Recommendations

- i. The effect of exchange rate volatilities on exports and imports in Nigeria required strategy mediation.
- ii. There is a need to consider monetary and fiscal interventions to help mitigate its impact. This is based on the fact that financial shocks often exacerbate exchange rate volatilities.

References

- Anyanwaokoro, M. (2019). *Exchange rate volatility and its implications for international trade*. Enugu: Hosanna Publications.
- Arize, A. C., Osang, T., & Slottie, D. J. (2008). Exchange-rate volatility in Latin America and its impact on foreign trade. *International Review of Economics & Finance*, 17(1), 33–44. <https://doi.org/10.1016/j.iref.2006.01.002>
- Carbaugh, R. J. (2017). *International economics* (16th ed.). Cengage Learning.
- Central Bank of Nigeria (CBN). (n.d.). *Statistical Bulletin*. Abuja: CBN.
- Encyclopedia Britannica (2023). *International Trade*. Encyclopedia Britannica Inc. <https://www.Britannica.com/topic/international-trade>
- Esezobor, A. (2019). *Principles of international trade and foreign exchange*. Lagos: Malthouse Press.
- International Financial Statistics (IFS). (2015). *World economic outlook database*. Washington, DC: International Monetary Fund.
- Kanamori, T., & Zhao, Z. (2016). *Structural reforms for competitiveness and inclusive growth in China: Exchange rate policy and implications for economic growth*. Tokyo: Asian Development Bank Institute.
- Lequiller, F., & Blades, D. (2016). *Understanding national accounts* (2nd ed.). Paris: OECD Publishing. <https://doi.org/10.1787/9789264214637-en>
- Mohan, R. (2019). *Global trade dynamics and the developing world*. New Delhi: Sage Publications.
- Oghenebrume, E. (2018). Exchange rate fluctuations and macroeconomic instability in Nigeria. *Journal of Economics and Sustainable Development*, 9(12), 45–53.
- Ojukwu, C. C. (2011). *International trade theory and practice in a developing economy*. Onitsha: Africana First Publishers.
- Okoro, E. E., & Charles, O. C. (2019). Exchange rate volatility and foreign direct investment in Nigeria. *Journal of Economics and Policy Review*, 8(2), 23–36.
- Omolola, A. A., & Onasokhare, O. (2023). The effects of exchange rate fluctuations on international trade performance in developing economies. *Nigerian Journal of Economic Studies*, 15(1), 101–117.
- Sullivan, A., Sheffrin, S. M., & Perez, S. J. (2003). *Economics: Principles in action*. Upper Saddle River, NJ: Pearson Prentice Hall.
- Yakub, M., & Aliyu, R. (2019). Foreign exchange rate management and competitiveness in Nigeria. *International Journal of Economics and Financial Management*, 4(3), 88–97.
- Yunusa, A. (2020). Exchange rate volatility and economic performance in Nigeria. *International Journal of Development Studies*, 7(1), 15–28.