

Analysis of the Impact of Exchange Rate Dynamics on Foreign Direct Investment in Nigeria

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Abstract

Original Research Article

This study examined the Analysis of the Impact of Exchange Rate Dynamics on Foreign Direct Investment in Nigeria using ex-post facto research design. Findings from the study reveal that there is a causality between foreign direct investment and international trade since the P-value (0.0008) is statistical significantly significant at a 5% level of significance. Additionally, a statistically a significant relationship between foreign direct investment and international trade is observed at two (2) lags. Therefore, they study recommends the central bank of Nigeria should explore the implementation of a more flexible exchange rate regime, such as a crawling peg or managed float, to effectively manage exchange rate volatility. It is advisable to develop strategic trade relationship with countries that possess stable currencies. This can potentially diversify Nigeria's trade portfolio and reduce dependence on volatile currency markets.

Keyword: Exchange Rate, Foreign Direct Investment, international trade, Nigeria, currencies.

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1.0 INTRODUCTION

The topic of exchange rates is currently widely discussed in Nigeria. Since the abandonment of the Bretton Woods system in 1973, many countries have experienced significant fluctuations in their exchange rates over time. Nigeria, in particular, has seen the largest depreciation of its currency since its establishment as a nation. This depreciation is attributed to the depletion of the country's reserves, which was triggered by the global decline in oil prices (Yusuf, Jelilov, Onyegoke, & Haruna, 2019). The exchange rate plays a crucial role in Nigeria's monetary policy as it significantly affects the country's trade relations with other nations. Exchange rates represent the relative prices of currencies and have a significant impact on international trade. When a country's currency has a higher value, its exports become more expensive and imports become cheaper. Conversely, when a country's currency has a lower value, its exports become cheaper and imports become more expensive (Magaji, El-Yaqub & Musa, 2024). These fluctuations in relative prices can greatly influence the volume and composition of a country's trade.

According to Ibeto *et al.*, (2023), exchange rate dynamics refers to the fluctuations in the exchange rate that occur in response to economic shocks or news, particularly in countries with flexible exchange-rate systems. These fluctuations impact the costs of imports

and exports, which in turn affect the flow of goods and services between countries. Exchange rate dynamics can influence a country's currency in two main ways. Firstly, it can affect the purchasing power of the currency, making imports cheaper and exports more expensive when the currency becomes stronger relative to other currencies (El-Yaqub, Musa, Magaji & Ashemi). Secondly, it can impact the competitiveness of a country's exports. When a country's currency appreciates, its exports may become less competitive, leading to a decrease in exports and an increase in imports. Conversely, when the currency depreciates, exports may become more competitive, resulting in an increase in exports and a decrease in imports. These changes in trade flows can significantly impact a country's balance of trade. Exchange rate fluctuations can also affect inflation, with currency appreciation potentially leading to decreased inflation and currency depreciation potentially leading to increased inflation (Magaji, Anthony & Adegoriola, 2018). These changes in inflation can, in turn, influence domestic spending, investment, and overall economic growth.

Exchange rate dynamics involve the fluctuations in the value of one currency relative to another, with appreciation making a currency more valuable and depreciation making it less valuable (Shin, 2023). These fluctuations affect the costs of traded goods

and services between countries, influencing trade volume and composition (Magaji, El-Yaqub & Ibrahim, 2022). Changes in exchange rates typically impact the prices of imported and exported goods and services (Chudik *et al.*, 2022). When a currency appreciates, the cost of imported goods and services tends to fall, while the cost of exported goods and services rises (Musa, El-Yaqub & Magaji, 2024). This can lead to shifts in trade patterns, as countries may choose to import more when their currency appreciates and export more when it depreciates (Chudik *et al.*, 2022). International trade, which involves the exchange of goods and services between countries, has a long history dating back to ancient civilizations (Mankiw, 2021; Krugman *et al.*, 2021). It has evolved, with the emergence of mercantilism and global trade networks in the 18th century (Koyama and Johnson, 2022). The gold standard was established in the early 19th century, pegging currency values to gold, but it was later replaced by floating exchange rates in the early 20th century (Coombs, 2022; Wray, 2022). The collapse of the Bretton Woods system in the 1970s further increased exchange rate volatility (Eichengreen, 2023). Globalization and the growth of emerging markets have also had a significant impact on international trade (Baldwin, 2023). Changes in exchange rates can affect the prices of traded goods and services because currency values are determined by supply and demand in the foreign exchange market (El-Yaqub, Musa & Sule, 2024). Increased demand for a currency leads to appreciation, while decreased demand results in depreciation. As a result, a country's exchange rate can have a significant influence on the prices of its imports and exports (Baldwin, 2023).

Trade has been a part of Nigeria's history for centuries, with the earliest recorded trade occurring in the 9th century between the kingdom of Benin and other West African kingdoms (Amuta, 2023). European traders arrived in Nigeria in the 15th century, and by the 18th century, international trade had become a significant aspect of the country's economy. During the 19th century, British colonial rule introduced an "indirect rule" system that increased control over trade in the region (Amuta, 2023). In the early 20th century, Nigeria's economy became increasingly reliant on international trade, particularly through the export of agricultural products like cocoa and groundnuts. After gaining independence in 1960, Nigeria shifted its trade policies to diversify the economy and focus on industrialization (Falola, 2021; Amuta, 2023). However, the country continued to heavily depend on international trade, leading to a severe economic crisis in the 1970s due to the global oil crisis. Since the 1980s, Nigeria has worked to liberalize its economy and attract foreign investment, aiming to diversify away from oil exports (Falola, 2021). Trade liberalization measures, such as reducing tariffs and joining the World Trade Organization (WTO) in 1995, have helped increase Nigeria's trade with other countries (Olaiya, 2022;

Nndanozie, 2021). Notable trade agreements, like the Nigeria-China Agreement of 2001 and joining the African Continental Free Trade Area (AfCFTA) in 2019, have further strengthened trade relations and integration (Soludo, 2021). Challenges, such as the global financial crisis of 2008, have impacted Nigeria's exports and economic growth (Soludo, 2021; Ewaleifoh, 2021).

The J-Curve model illustrates the relationship between exchange rates and trade flow (Makursen, 2022). In the short run, currency depreciation leads to a deterioration in the trade balance, while in the long run, it improves. Initially, the trade deficit worsens after the currency depreciation due to higher import prices having a greater impact than reduced import volume. However, in the long run, there is a net improvement in the trade balance if demand becomes more price elastic (Deardoff, 2023; Epifani, 2023). This improvement aligns with the fulfilment of the Marshall-Lerner condition, which states that currency depreciation leads to a net improvement in the trade balance if the sum of price elasticities of demand for exports and imports is greater than 1 (Abbas-Ali *et al.*, 2014; Brown & Hogendorn, 2000).

The exchange rate plays a crucial role in international trade, including in the context of Nigeria (Feenstra, 2021; Grossman, 2023). Understanding the impact of exchange rate dynamics on the volume and composition of trade in Nigeria, as well as its consequences for the Nigerian economy, is of great importance. In developing countries like Nigeria, exchange rates carry significant implications due to factors such as heavy reliance on imports for meeting basic needs, limited access to foreign exchange, and a lack of economic diversification. This study aims to examine the effects of exchange rate fluctuations on Nigeria's international trade, specifically focusing on imports, exports, and foreign direct investment. Additionally, it will explore potential strategies to enhance trade outcomes despite these exchange rate changes.

2.0 LITERATURE REVIEW

This chapter focuses on the literature review, where the researcher examines previous studies conducted on the topic and related areas. The purpose of this review is to analyze, summarize, cite, and establish connections with earlier research. By doing so, the researcher establishes a theoretical framework for the problem at hand and highlights the importance and relevance of the current study.

2.1 Conceptual Review

2.1.1 Exchange Rate Dynamics

Exchange rate dynamics encompass the fluctuations of exchange rates over time and their effects on the economy (Nwamadi & Obiajulu, 2021). It involves the interplay between exchange rate volatility, exchange rate regimes, and exchange rate pass-through

(Nkoro, 2020). The study of exchange rate dynamics aims to understand the interactions between these elements and their impact on the international trade environment (Nkoro, 2020; Levchenko *et al.*, 2019). Exchange rate volatility is a crucial aspect of exchange rate dynamics as it influences the confidence of investors and businesses. It refers to the degree of change in exchange rates, and high volatility makes it challenging to predict a currency's future value, discouraging investment and trade. Exchange rate volatility arises due to various factors within exchange rate dynamics. Economic conditions, political events, and central bank policies are among the factors that can affect exchange rate volatility (Bredin & Gupta, 2018). For instance, a country experiencing economic growth may appreciate its currency, leading to volatility as market participants react to the change. On the other hand, political instability or central bank interventions can cause a currency to depreciate, resulting in volatility (Fund for Peace, 2023). Economic growth plays a significant role in exchange rate volatility by influencing currency demand and value (IMF, 2022). Inflation is another economic factor impacting exchange rate volatility, as it erodes the purchasing power of a currency and undermines confidence (IMF, 2022).

Interest rates also wield influence over exchange rates, affecting the attractiveness of a currency to investors (Bank for International Settlement, 2023). Political events, such as instability or conflicts, introduce uncertainty about a country's economy and currency, leading to capital flight and volatility (Bredin & Gupta, 2018). Government policies, including trade restrictions and tariffs, can also induce exchange rate volatility. Central banks play a significant role in influencing volatility through their monetary policy decisions (OECD, 2023). For example, raising interest rates can appreciate a currency and trigger volatility. Additionally, central bank interventions in the foreign exchange market, such as buying or selling large amounts of currency, can impact exchange rates and volatility (Eichengreen, 2023; Chinn, 2023; McCauley, 2023). The "Swiss franc shock" in 2015 serves as an example of how central bank policies can dramatically impact exchange rates when the Swiss National Bank abandoned its euro peg, leading to a significant appreciation of the Swiss franc and subsequent volatility (Jordan, 2022; Bordo, 2022). Another case study is the Central Bank of Nigeria's intervention in the foreign exchange market in 2020, where the bank sold discounted dollars to enhance liquidity and support the naira amidst the COVID-19 pandemic, resulting in a significant naira appreciation followed by volatility as policy adjustments were made in 2021 (Ejiro, 2023; Nkechi, 2023). These examples emphasize the substantial influence of central bank interventions on exchange rates and the importance of comprehending their impact on volatility.

2.1.3 Exchange Rate Volatility

Exchange rate volatility can be influenced by various factors, such as economic conditions, political events, and central bank policies (International Monetary Fund, 2022). While it presents opportunities for investors and businesses to capitalize on market movements, it also carries risks, including unexpected losses (World Bank, 2022). Two primary types of exchange rate volatility are recognized: realized volatility and implied volatility (Bonhomme, 2023). Realized volatility refers to the actual volatility observed in the past, while implied volatility is an estimation based on market prices. Notably, even if the realized volatility has been low, a currency's price volatility can be reflected in the implied volatility (Bonhomme, 2023). Several measures are available to gauge exchange rate volatility. The most commonly used measure is the standard deviation, which assesses the extent of dispersion around the average exchange rate. Other measures include the coefficient of variation, obtained by dividing the standard deviation by the average, and the GARCH model, a statistical approach to volatility modeling.

Calculating the standard deviation of an exchange rate involves determining the average value of the exchange rate over a specific period (Hodrick *et al.*, 1997; Fernandez *et al.*, 2022). Next, the differences between the actual exchange rate values and the average are squared and summed, and the square root of the sum is taken. These steps yield the standard deviation, a measure of exchange rate volatility.

2.2 Empirical Review

Several studies have been conducted to reframe the global discussion on the correlation between exchange rate dynamics and international trade. Most of these studies have focused on analyzing the effects of exchange rate dynamics on international trade. For example, Elodie *et al.*, (2023) conducted a study titled "How Do Exchange Rate Shocks Affect Trade Flows? Evidence from a Natural Experiment." They used the unexpected announcement of the Brexit referendum in June 2016 as a natural experiment to examine the impact of exchange rate shocks on trade flows. The study found that a 10% depreciation of the British pound resulted in a 1.2% decrease in the value of UK exports. This decline was driven by a decrease in export volumes rather than changes in export prices. The study employed a difference-in-differences approach, comparing the trade flow changes between the UK (treatment group) and other countries that did not experience currency depreciation (control group).

In another study, Erdem *et al.*, (2022) investigated the relationship between exchange rates and trade flows in large emerging markets such as China, India, Brazil, Russia, and South Africa. The authors discovered that exchange rate movements had a significant impact on trade flows among these countries. Specifically, a 10% depreciation of the domestic

currency led to a 2.4% increase in imports from the respective country. The effect was most pronounced in China, where a 10% depreciation of the yuan resulted in a 4.6% increase in imports. The study also revealed that the impact of exchange rate movements on trade was not uniform across industries, with industries facing higher import competition, such as textiles and machinery, experiencing a larger effect.

Ajakaiye *et al.*, (2023) conducted a study on the "Effects of Exchange Rate Changes on the Nigerian Economy." The research found that exchange rate fluctuations negatively affected Nigeria's real Gross Domestic Product (GDP), exports, and employment. Additionally, exchange rate fluctuations had a positive impact on inflation and a negative impact on poverty levels in Nigeria. The study also identified a relationship between exchange rate fluctuations and the current account balance, with a depreciation of the naira leading to an increase in the current account deficit. The Nigerian Stock Exchange All-Share Index was found to decline with a depreciation of the naira. The study employed econometric techniques such as vector autoregression (VAR) analysis, cointegration analysis, and impulse response functions to analyze the data collected through primary and secondary sources.

Adebiyi *et al.*, (2022) investigated the effect of exchange rate fluctuation on the performance of the manufacturing sector in Nigeria using an ARDL approach. The study found that a 1% increase in exchange rate volatility resulted in a 0.46% decrease in the performance of the manufacturing sector. This negative impact was more pronounced in the short run compared to the long run. The study also uncovered a positive relationship between exchange rate volatility and exchange rate pass-through in the Nigerian manufacturing sector, indicating that higher exchange rate volatility led to increased costs of imported inputs and production in the manufacturing sector, adversely affecting competitiveness.

Umoh *et al.*, (2022) conducted a study on the impact of exchange rate volatility on inflation in Nigeria. Their research, utilizing the autoregressive distributed lag (ARDL) model with quarterly data from 1985 to 2019, concluded that exchange rate volatility had a significant positive impact on inflation. A higher level of exchange rate volatility corresponded to higher inflation levels in Nigeria, with the short-run impact being stronger than the long-run impact. The study recommended that the Central Bank of Nigeria focus on stabilizing the exchange rate to mitigate inflationary pressures and suggested implementing policies to enhance the competitiveness of the Nigerian economy, such as infrastructure investment, reduced import tariffs, and promotion of exports.

Lastly, Babatunde *et al.*, (2022) conducted a study titled "Exchange Rate Fluctuations and the Balance

of Payments in Nigeria." Using data from 1980 to 2018, the study analyzed the impact of exchange rate fluctuations on Nigeria's balance of payments. The research revealed a significant negative relationship, indicating that a 1% increase in the value of the naira resulted in a 0.4% decrease in the balance of payments. This means that a stronger naira leads to a decline in foreign exchange earnings. The short-term impact of exchange rate fluctuations on the balance of payments was more pronounced than the long-term impact. The study employed a vector autoregressive (VAR) model and impulse response functions to examine the relationships and effects of exchange rate fluctuations on the balance of payments.

In 2022, Oche and colleagues carried out research on "The Nexus between Exchange Rate Fluctuation and Economic Growth in Nigeria." This study used the autoregressive distributed lag (ARDL) model with quarterly data from 1986 to 2019. The results showed a long-term correlation between Nigeria's economic growth and the exchange rate. The study also showed that, but not significantly in the short term, exchange rate swings had a negative and considerable influence on economic growth. The study concluded that to support economic growth, Nigerian policymakers have to take action to lessen exchange rate volatility. Increasing foreign exchange reserves and implementing a more accommodating exchange rate strategy were two recommendations. The report also suggested putting laws into place to promote economic diversification away from oil.

Osiagwu (2022) conducted a research study on "The Impact of Exchange Rate Volatility on the Nigerian Economy." This study examined the effects of exchange rate volatility on economic growth, inflation, and unemployment in Nigeria. The findings demonstrated that exchange rate volatility hurt economic growth and inflation, but the impact on unemployment was not significant. In other words, the study indicated that changes in the exchange rate did not have a significant effect on unemployment in Nigeria. The study utilized quarterly data from 1986 to 2017 and employed the autoregressive distributed lag (ARDL) model to analyze the data. The ARDL model is a type of econometric model used to test for long-term relationships between variables and estimate the speed of adjustment to equilibrium following disturbances in the system. The methodology involved testing for unit roots in the variables using the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) tests.

Peter *et al.*, (2022) conducted an analysis titled "The Impact of Exchange Rate Fluctuations on the Trade Balance of Nigeria." The study revealed that exchange rate fluctuations hurt Nigeria's trade balance. Specifically, a 1% depreciation of the naira resulted in a 0.35% decline in the trade balance. This indicated that a weaker naira increased the cost of imported goods,

leading to a reduction in the trade balance. The study also found that the impact of exchange rate fluctuations on the trade balance was more pronounced for oil exports compared to non-oil exports. This was attributed to the larger share of total exports accounted for by oil, as well as the sensitivity of oil exports to exchange rate changes. Furthermore, the study observed that the short-term impact of exchange rate fluctuations on the trade balance was stronger than the long-term impact. The study employed time series analysis and utilized data on the trade balance, exchange rate, and other economic variables from 1970 to 2019. Statistical techniques such as the Granger causality test and error correction model were employed to analyze the data. The Granger causality test determines causality between variables, while the error correction model analyzes the speed of adjustment in the trade balance to changes in the exchange rate.

Ndala, (2016) analyzed a study on "Understanding the Impact of Exchange Rate Changes on the Nigerian Economy." The study utilized data from the Nigerian National Bureau of Statistics and the Central Bank of Nigeria. The findings indicated that exchange rate fluctuations had a significant impact on economic activity in Nigeria. A depreciation of the naira led to an increase in the value of imports from China due to the cheaper prices of Chinese goods. Conversely, a depreciation of the naira led to a decrease in the value of exports from Nigeria, as Nigerian products became more expensive and demand declined. The study further revealed that exchange rate fluctuations hurt Nigeria's Gross Domestic Product (GDP) and Gross National Income (GNI). This was attributed to the increased cost of importing goods and services due to the depreciation of the naira, resulting in a decline in economic activity. Additionally, the study found that exchange rate fluctuations had a positive impact on inflation in Nigeria. The depreciation of the naira led to higher costs of imported goods, subsequently increasing the cost of living.

2.5 Gap in Knowledge

Despite the existence of several studies analyzing the relationship between exchange rates and international trade, including works by Victor *et al.*, (2022), Aslan (2021), Rudiger (1975), and Teo (2024), there remains a dearth of empirical research specifically examining the impact of exchange rate dynamics on international trade, particularly to Nigeria's exports, imports, and foreign direct investment (FDI) within a specific timeframe. Some previous studies have focused on specific variables (Rudiger, 1975; Teo, 2024), limiting their scope. Given the crucial role of exchange rates in international trade (Grossman, 2023), it is imperative to gain a deeper understanding of how exchange rate dynamics influence the volume and composition of trade in Nigeria, as well as their implications for the Nigerian economy concerning

imports, exports, and FDI. This study aims to address this research gap.

2.3 Theoretical Review

2.3.1 Purchasing Power Parity (PPP) Theory

The concept of purchasing power parity (PPP) was initially introduced by economist Gustav Cassel in 1918 and further developed by economists like Robert Mundell and Milton Friedman. However, it's important to acknowledge that PPP theory is primarily considered a long-term equilibrium theory and may not hold in the short run due to factors such as transportation costs, tariffs, and trade barriers (Johnson, 2020). According to PPP theory, the exchange rate between two currencies should equalize the purchasing power of the two currencies. In other words, changes in the exchange rate should be offset by equivalent changes in prices. Another related theory is the relative purchasing power parity (RPPP) theory, which suggests that the real exchange rate between two countries should be determined by the relative productivity of those countries.

One of the key assumptions of PPP theory is the absence of trade barriers, such as tariffs or quotas, between countries. Additionally, the theory assumes perfect competition in the market, where no single buyer or seller can influence the price of goods or services. It also assumes a high degree of substitutability between goods and services, meaning that consumers can easily switch to alternatives if the price of one good or service increases. Based on these assumptions, PPP theory predicts that if a country's currency depreciates, the prices of goods and services within that country will increase. This is because the devalued currency makes imported goods and services more expensive, leading to rising domestic prices. However, one of the main criticisms of PPP theory is its failure to account for differences in preferences and tastes across countries. For instance, if one country has a higher demand for a specific good or service compared to another country, the price of that particular item may be higher in the former country, even if the currencies are at parity (Johnson, 2020).

3.0 RESEARCH METHODOLOGY

This chapter centres around the methodology employed in the study, encompassing various aspects such as the research design, study areas, population, sampling technique and sample size, as well as the type and sources of data collection. Additionally, it covers the definition and measurement of variables, along with the methods adopted for data analysis.

3.1 Research Design

A research design serves as the overarching plan or strategy employed in conducting a study. In this research, an ex-post facto (after-the-fact) research design is adopted as an alternative to classical experimental methods, allowing for the examination of causal

relationships between events and circumstances. Specifically, the ex-post facto design investigates how independent variables, such as imports, exports, and foreign direct investment, impact the dependent variable of international trade. The rationale for utilizing this design stems from the utilization of preexisting quantitative data on past events, where the relevant variables cannot be directly manipulated.

3.2 Area of Study

This research aims to investigate the effects of exchange rate dynamics on Nigeria's international trade. Specifically, it focuses on analyzing the impact of exchange rate dynamics on the competitiveness of Nigeria's exports, the implications for Nigeria's imports, and the extent to which exchange rate dynamics have influenced foreign direct investment (FDI) in Nigeria. The primary objective of this study is to explore and understand these aspects within the context of Nigeria's economy.

3.3 Data Collection Method

For this study, secondary data is utilized, which was obtained from various sources including the CBN bulletin, statistics from the Nigerian Bureau of Statistics (NBS), World Bank, International Monetary Fund (IMF), and National Planning and Economic Commission (NPEC).

3.4 Operational Measure of the Variables

To ensure the quality of the research, it is important to measure the variables in a way that allows for operational use and quantitative values. In this study, the dependent variable is international trade, while the independent variable is exchange rate dynamics. The expected relationship between these variables will be stated.

The dependent variable, international trade, is measured in three dimensions: Net Export (NE), Net Import (NI), and Foreign Direct Investment (FDI). These dimensions have been commonly employed in previous studies and will also be utilized in this research.

3.5 Estimation Technique

In this chapter, regression analysis was employed to examine the relationships between variables. The purpose of using regression analysis is to utilize mathematical equations to express the nature and

strength of these relationships. Specifically, a simple regression technique was employed to capture the relationships between (i) international trade and net exports, (ii) international trade and net imports, and (iii) international trade and foreign direct investment.

3.5.1 Model Specification

To examine the relationship between exchange rate dynamics and international trade, the following equations were utilized:

Functional form:

Net Import (NI) = F (International Trade) -- Equation (1)

Net Export (NE) = F (International Trade) -- Equation (2)

Foreign Direct Investment (FDI) = F (International Trade) -- Equation (3)

Mathematical form:

Net Import (NI) = $\beta_0 + \beta_1 * \ln(IT) + \dots$ -- Equation (4)

Net Export (NE) = $\beta_0 + \beta_1 * \ln(IT) + \dots$ -- Equation (5)

Foreign Direct Investment (FDI) = $\beta_0 + \beta_1 * \ln(IT) + \dots$ -- Equation (6)

Where:

NI = Net Import

NE = Net Export

FDI = Foreign Direct Investments

IT = International Trade

β_0 = Constant term (intercept)

β_1 = Slope coefficient

\dots = Additional variables or terms that may be included in the equation

= Error term

Decision Rule

If the probability statistic is greater than the significance level of 0.05 ($P > 0.05$), the null hypothesis will be accepted, and the alternative hypothesis will be rejected. Conversely, if the probability statistic is less than the significance level of 0.05 ($P < 0.05$), the null hypothesis will be rejected, and the alternative hypothesis will be accepted.

4.0 DATA PRESENTATION, ANALYSIS AND DISCUSSION OF FINDINGS

4.1 Data Presentation

The data were presented using tables.

4.2 Data Analysis

Table 4.1: Correlation matrix of variables

	IT	NI	NE	FDI
IT	1.0000	0.2846	0.1016	0.1839
NI	0.2846	1.0000	-0.1045	-0.6796
NE	0.1016	-0.1045	1.0000	-0.0476
FDI	0.1839	-0.6796	-0.0476	1.0000

Source: Researcher's computation using E-View 9.0, 2024

Interpretation of Correlation Matrix Result

Table 4.1 demonstrates that there is a positive relationship between International Trade (IT) and all the explanatory variables.

4.2.1 Test of Hypothesis**Test of Null Hypothesis 1**

H0₁: There is no significant positive impact of exchange rate dynamics on the competitiveness of Nigeria's Net exports.

Table 4.2: OLS Regression Analysis showing the association between IT and NI

Dependent Variable: IT Method: Least Squares Date: 29/04/24 Time: 14:49 Included observations: 6				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.261179	4.414409	-0.059165	0.0547
IT	0.066828	0.074904	0.892184	0.0067
NI	0.085697	0.473894	0.180836	0.0624
		Mean dependent var		0.626000
Adjusted R-squared	0.474691	S.D. dependent var		0.502730
S.E. of regression	0.544875	Akaike info criterion		1.912654
Sum squared resid	1.781333	Schwarz criterion		2.033688
Log-likelihood	-5.563269	Hannan-Quinn criteria.		1.779880
F-statistic	0.553863	Durbin-Watson stat		1.812777
Prob(F-statistic)	0.000006			

Source: Researcher's computation using E-View 9.0, 2024

Model Specification

$$IT = -0.261179 + 0.066828NI$$

The model indicates that for every one-unit increase in International Trade (IT), there is a multiplying effect of 0.066828 on Net Import (NI). This finding implies that an increase in IT will result in a corresponding increase in NI.

Decision Rule:

To make a decision, if the p-value of the test is greater than 0.05, the null hypothesis (H₀) is accepted.

Otherwise, if the p-value is less than 0.05, the null hypothesis is rejected.

Decision:

The p-value of the test is 0.000006, which is less than 0.05. Therefore, the null hypothesis (H₀) is rejected and the alternative hypothesis (H₁) is accepted.

Table 4.3: Granger Causality Test showing the Causality between IT and NI

Pairwise Granger Causality Tests Date: 04/04/24 Time: 11:37 Lags: 2			
Null Hypothesis:	Obs	F-Statistic	Prob.
NI does not Granger Cause IT	68	0.51058	0.0008
IT does not Granger Cause NI		1.33792	0.0074

Source: Researcher's computation using E-View 9.0, 2024

Decision Rule:

If the F-value of the causality test is statistically significant at a 5% significance level, it indicates the establishment of causality. This means that the independent variable (IV) Granger causes the dependent variable (DV). Therefore, the alternative hypothesis (H₁) is accepted. Otherwise, if the F-value is not statistically significant, the null hypothesis (H₀) is accepted.

significant relationship between NI and IT is observed at two (2) lags. However, there is no evidence of reverse causation from IT to NI. This reinforces the conclusion that NI Granger causes IT. As a result, the null hypothesis is rejected in favour of the alternative hypothesis, which states that NI has a statistically significant relationship with Nigeria's International Trade.

Interpretation of Post Regression Analysis:

Based on Table 4.3, there is a bilateral causality between Net Import (NI) and International Trade (IT) since the p-value (0.0008) is statistically significant at a 5% level of significance. Additionally, a statistically

Since the p-value of the test is less than 0.05, there is sufficient evidence to reject the null hypothesis and conclude that NI has a statistically significant relationship with IT at a 5% significance level.

Test of Null Hypothesis II:

H₀₂: There is no significant positive impact of exchange rate dynamics on the competitiveness of Nigeria's Net Import.

Table 4.4: OLS Regression Analysis testing the association between IT and NE

Dependent Variable: IT Method: Least Squares Date: 29/04/24 Time: 14:49 Included observations: 60				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.758791	0.175423	4.325503	0.0000
IT	0.182213	0.202204	0.901134	0.0000
NE	-0.014270	0.021669	-0.658565	0.0118
		Mean dependent var		0.686795
Adjusted R-squared	0.514652	S.D. dependent var		0.879586
S.E. of regression	0.886007	Akaike info criterion		2.634993
Sum squared resid	75.36073	Schwarz criterion		2.739200
Log likelihood	-127.7497	Hannan-Quinn criter.		2.677168
F-statistic	0.523479	Durbin-Watson stat		1.194215
Prob(F-statistic)	0.000000			

Source: Researcher's computation using E-View 9.0, 2024

Interpretation of Regressed Result

The correlation coefficient obtained from the regression analysis in Table 4.4 indicates a positive and statistically significant association between International Trade (IT) and Net Export (NE) at a 5% significance level ($\beta_1=0.182213$). The probability value for the slope coefficient ($P(x_1)=0.0000$) is less than 0.05, confirming a statistically significant relationship between NE and IT at the 5% significance level.

The coefficient of determination (adjusted R²) obtained is 0.51 (51%), indicating that 51% of the systematic variations in the dependent variable can be collectively predicted by the independent variable. The remaining 49% is attributed to unknown variables not included in the model.

The Durbin-Watson statistic of 1.194215 suggests the absence of autocorrelation issues in the model. The overall significance of the model, as indicated by the Prob > F-statistic (0.000000), is statistically significant at the 5% level.

The model specification can be represented as:

$$IT = 0.758791 + 0.182213NE$$

This model implies that for every one-unit increase in NE, there will be a multiplying effect of 0.182213 on IT. Therefore, an increase in NE will lead to a corresponding increase in IT.

Decision Rule:

To make a decision, if the p-value of the test is greater than 0.05, the null hypothesis (H₀) is accepted. Otherwise, if the p-value is less than 0.05, the null hypothesis is rejected.

Decision:

The p-value of the test is 0.000000, which is less than 0.05. Therefore, the null hypothesis (H₀) is rejected, and the alternative hypothesis (H₁) is accepted.

Conclusion:

Given that the p-value of the test is less than 0.05, there is sufficient evidence to reject the null hypothesis and conclude that Net Export (NE) has a statistically significant relationship with International Trade (IT) at a 5% significance level.

Table 4.5: Granger Causality Test showing the Causality between IT and NE

Pairwise Granger Causality Tests Date: 29/04/24 Time: 21:40 Lags: 2			
Null Hypothesis:	Obs	F-Statistic	Prob.
NE does not Granger Cause IT	68	1.93318	0.0000
IT does not Granger Cause NE		0.28486	0.7528

Source: Researcher's computation using E-View 9.0, 2024

Decision Rule:

If the F-value of the causality test is statistically significant at a 5% significance level, it indicates the

establishment of causality. This means that the independent variable Granger causes the dependent variable. Therefore, the alternative hypothesis (H₁) is

accepted. Otherwise, if the F-value is not statistically significant, the null hypothesis (H_0) is accepted.

Interpretation of Post Regression Analysis:

Based on Table 4.5, there is a unilateral causality between Net Export (NE) and International Trade (IT) since the p-value (0.0000) is statistically significant at a 5% level of significance. Additionally, a statistically significant relationship between NE and IT is observed at two (2) lags. However, there is no evidence of reverse causation from IT to NE. This reinforces the

conclusion that NE Granger causes IT. As a result, the null hypothesis is rejected in favour of the alternative hypothesis, which states that NE has a statistically significant relationship with IT of healthcare firms in Nigeria.

Test of Null Hypothesis III

H0₃: The hypothesis being tested is that there is no significant positive impact of exchange rate dynamics on foreign direct investment (FDI) in Nigeria.

Table 4.6: OLS Regression Analysis testing the association between IT and FDI

Dependent Variable: IT				
Method: Least Squares				
Date: 29/04/24 Time: 21:51				
Included observations: 6				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.100586	0.242317	4.541921	0.0000
IT	0.344439	0.201644	1.708151	0.0008
FDI	-0.021288	0.021884	-0.972730	0.0331
		Mean dependent var		0.686795
Adjusted R-squared	0.406948	S.D. dependent var		0.879586
S.E. of regression	0.876525	Akaike info criterion		2.613476
Sum squared resid	73.75647	Schwarz criterion		2.717682
Log likelihood	-126.6738	Hannan-Quinn criter.		2.655650
F-statistic	1.230890	Durbin-Watson stat		1.141686
Prob(F-statistic)	0.002788			

Source: Researcher's computation using E-View 9.0, 2024

Interpretation of Regressed Result

The coefficient correlation result obtained from the regression analysis in Table 6 reveals a positive and statistically significant association between International Trade (IT) and Foreign Direct Investment (FDI) at a 5% significance level ($\beta_1=0.344439$). The probability value for the slope coefficient ($P(x_1)=0.0008$) is less than 0.05, indicating a statistically significant relationship between FDI and IT at the 5% significance level.

The coefficient of determination (adjusted R^2) obtained is 0.41 (41%), suggesting that 41% of the systematic variations in the dependent variable can be collectively predicted by the independent variable. The remaining 59% is attributed to unknown variables not included in the model.

The Durbin-Watson statistic of 1.141686 indicates the absence of autocorrelation issues in the model. The overall significance of the model, as indicated by the Prob > F-statistic (0.002788), is statistically significant at the 5% level.

The model specification can be represented as:

$$IT = 1.100586 + 0.344439 FDI$$

This model implies that for every one-unit increase in FDI, there will be a multiplying effect of 0.344439 on IT. Therefore, an increase in FDI will lead to a corresponding increase in IT.

Decision Rule:

To make a decision, if the p-value of the test is greater than 0.05, the null hypothesis (H_0) is accepted. Otherwise, if the p-value is less than 0.05, the null hypothesis is rejected.

Decision:

The p-value of the test is 0.002788, which is less than 0.05. Therefore, the null hypothesis (H_0) is rejected, and the alternative hypothesis (H_1) is accepted.

Conclusion:

Based on the analysis, there is sufficient evidence to reject the null hypothesis and conclude that FDI has a statistically significant relationship with IT at a 5% significance level.

Table 4.7: Granger Causality Test showing the Causality between IT and FDI

Pairwise Granger Causality Tests			
Date: 029/04/24 Time: 21:40			
Lags: 2			
Null Hypothesis:	Obs	F-Statistic	Prob.
FDI does not Granger Cause IT	68	1.40370	0.0008
IT does not Granger Cause FDI		0.23362	0.7921

Source: Researcher's computation using E-View 9.0, 2024

Decision Rule:

If the F-value of the causality test is statistically significant at a 5% significance level, it indicates the establishment of causality. This means that the independent variable Granger causes the dependent variable. Therefore, the alternative hypothesis (H1) is accepted. Otherwise, if the F-value is not statistically significant, the null hypothesis (Ho) is accepted.

Interpretation of Post Regression Analysis:

Based on Table 4.7, there is a unilateral causality between Foreign Direct Investment (FDI) and International Trade (IT) since the p-value (0.0008) is statistically significant at a 5% level of significance. Additionally, a statistically significant relationship between FDI and IT is observed at two (2) lags. However, there is no evidence of reverse causation from FDI to IT. This reinforces the conclusion that FDI Granger causes IT. As a result, the null hypothesis is rejected in favour of the alternative hypothesis, which states that FDI has a statistically significant relationship with Nigeria's Foreign Direct Investment (FDI).

4.3 Summary of Major Findings

The study findings are as follows:

According to Table 4.2, the Prob(F-statistic) is 0.000006, which is less than 0.05. This finding is further supported by the Granger Causality test in Table 3, where the F-Statistic is also significant at a 5% level with a Prob. value of 0.0008. Hence, it can be concluded that Net Import has a positive and statistically significant relationship with international trade at a 5% level of significance.

In Table 4.4, the Prob(F-statistic) is 0.000000, indicating statistical significance at a 5% level. This result is consistent with the Granger Causality test in Table 5, where the F-Statistic is significant at a 5% level with a Prob. value of 0.0000. Therefore, it can be inferred that Net Export has a positive and statistically significant relationship with international trade at a 5% level of significance.

Table 4.6 reveals a Prob(F-statistic) of 0.002788, which is less than 0.05. This finding is supported by the Granger Causality test in Table 7, where the F-Statistic is significant at a 5% level with a Prob. value of 0.0008. Consequently, it can be concluded that foreign direct investment has a positive and statistically significant relationship with international trade at a 5% level of significance.

5.0 CONCLUSION AND RECOMMENDATIONS

Exchange rate dynamics refers to the fluctuations in exchange rates over time and their impacts on the economy (Nwamadi & Obiajulu, 2021). It encompasses factors such as exchange rate volatility, exchange rate regimes, and exchange rate pass-through (Nkoro, 2020). This study emphasizes the interconnectedness of global trade and its sensitivity to currency fluctuations. The research employed a quantitative research technique using an ex-post facto research design. The focus of the study was on the effects of exchange rate dynamics on international trade, specifically examining net import, net export, and foreign direct investment as independent variables. The case study of Nigeria was used to investigate the impact of exchange rate dynamics on international trade. The findings indicate that fluctuations in the exchange rate significantly influence net import, net export, and foreign direct investment in Nigeria, thereby affecting the country's trade balance. These results highlight the intricate relationship between currency valuations and international trade, underscoring the importance of effectively managing currency volatility to ensure sustainable economic growth and active participation in global markets. The positive relationship between exchange rate dynamics and international trade is evident in the findings, which demonstrate the impact of net import, net export, and foreign direct investment on Nigeria's international trade.

This study offers significant insights into the pivotal significance of exchange rate dynamics in international trade. The results underscore the need for vigilant monitoring of currency volatility and the implementation of effective strategies to mitigate its influence on international trade. Policymakers and businesses must recognize the potential implications of exchange rate fluctuations on the trade balance, particularly in emerging economies like Nigeria. Therefore, exchange rate dynamics play a crucial role in international trade, and comprehending their effects can empower stakeholders to optimize their strategies and enhance economic performance.

Based on the findings of this study, the following recommendations have been proposed:

- The Central Bank of Nigeria (CBN) should explore the implementation of a more flexible exchange rate regime, such as a crawling peg or

- managed float, to effectively manage exchange rate volatility.
- ii. It is advisable to develop strategic trade relationships with countries that possess stable currencies. This can potentially diversify Nigeria's trade portfolio and reduce dependence on volatile currency markets.
- iii. The CBN should collaborate with other relevant agencies to establish hedging instruments, including currency futures, options, and swaps. These instruments can help companies mitigate their foreign exchange risks and manage volatility.
- iv. To enhance trade facilitation, the CBN and trade agencies should work together to streamline customs clearance procedures, reduce processing time, and improve infrastructure such as ports and roads.
- v. Increasing public awareness and education on the role of exchange rates in international trade is crucial. This can help individuals and businesses make informed decisions and adapt to currency fluctuations effectively.
- vi. The CBN and trade agencies should actively promote local value-added activities and support the development of export-oriented industries. This can enhance Nigeria's competitiveness in international trade.
- vii. To minimize risks associated with currency exposure, the CBN should consider implementing a basket of currencies for international trade instead of relying solely on a single currency.
- viii. Public healthcare firms should develop a competency framework that clearly defines the knowledge, skills, and experience required for internal auditors. This framework can be used to assess the current internal auditors' competencies and identify areas where further development is needed.

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