FOREIGN EXCHANGE RATE VOLATILITY AND ITS EFFECT ON BANK PERFORMANCE

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Abstract

This study is about foreign exchange rate volatility and its effect on bank performance. The objectives of the study are: to assess the causal relationship between foreign exchange rate volatility and bank performance in Nigeria, to identify the specific channels through which foreign exchange rate volatility affect bank performance, to assess the potential costs and benefits of foreign exchange rate volatility for Nigerian banks and to provide policy recommendations for managing foreign exchange rate volatility and enhancing bank performance in Nigeria. The study adopted the econometric technique of Ordinary Least Squares (OLS). The Augmented Dickey Fuller test was used in the study to check for unit root. The ADF result showed that Interest Rate (INT) gave negative relationship; thus, Interest Rate (INT) does not conform to the a priori expectations, Real exchange rate (RER) has a positive relationship with return on equity. The figure stood at 36.48155 which means that a unit increase in real exchange rate will lead to 36.48 increase in return on equity in Nigeria within the period under study. Inflation Rate (INF) has a positive relationship with return on equity at 19299.37. This implies that a unit increase in inflation rate will lead to 19299.37 increase in return on equity in Nigeria within the period under study and Interest Rate (INT) has a negative relationship with return on equity at -2414.120. This further implies that a unit decrease in interest rate will lead to -198.11 decrease in return on equity in Nigeria within the period under study. On the basis of the foregoing, the study recommends Reevaluate Interest Rate Policies: given the negative

relationship between interest rates and ROE, policymakers should consider strategies to maintain lower interest rates to stimulate investment and improve profitability for companies among other recommendations..

Keywords: *Foreign exchange rate, exchange rate volatility, real exchange rate, return on equity.*

INTRODUCTION

1.1 Background of the Study

The price of one currency (the domestic currency) in relation to another (the foreign currency) is referred to as the foreign exchange rate. An important factor in international business operations is the foreign exchange rate. Interest rates, inflation rates, imports, exports, output, unemployment, the money supply, and other economic factors are all impacted by changes in the foreign exchange rate. These figures highlight how crucial the exchange rate is to each nation's economic health when it opens its doors to global trade in products and services. The exchange rate's significance originates from the fact that it links the pricing structures of two distinct nations, enabling direct comparisons of traded items in international trade. Stated differently, it connects domestic and foreign prices. The exchange rate has a significant impact on a nation's balance of payments position through its effects on the volume of imports and exports. Daniel and Carolyn (2016).

Foreign exchange rate volatility has a substantial and varied impact on Nigerian commercial banks' performance. Foreign exchange rate fluctuations can have a significant effect on these institutions' operations and financial well-being, affecting a number of performance metrics.

First, the value of foreign currency-denominated assets and liabilities held by Nigerian banks is directly impacted by fluctuations in foreign exchange rates. The overall balance sheet of the banks may be impacted by significant losses or gains in the value of these assets and liabilities due to abrupt and erratic changes in exchange rates. It is difficult to precisely evaluate and control the banks' exposure to foreign exchange risk because of this volatility, which adds uncertainty to their financial planning and risk management plans,Nsofor, Takon, and Ugwuegbe (2016).

Furthermore, Nigeria's economic circumstances such as its trade balance and capital flows have a direct impact on the performance of its commercial banks. The volume and profitability of trade-related banking operations, including trade finance and foreign exchange transactions, can be impacted by exchange rate volatility which can also interrupt international trade transactions. Furthermore, changes in exchange rates could affect the amount of foreign direct investment and portfolio investment coming into the nation which would affect the need for banking services including wealth management and business financing (Agbeja, Adelakun, &Udi, 2016). Furthermore, because of its influence on the whole economy, fluctuations of foreign currency rates may also indirectly affect the performance of commercial banks.

Significant drops in the value of the home currency can exacerbate inflationary pressures, reduce consumer purchasing power, and have an impact on their capacity to repay loans. This can therefore result in a rise in non-performing loans and credit risk for banks, which would be detrimental to their financial stability and profitability. Ismaila (2016). Commercial banks in Nigeria use a range of risk management strategies, including stress testing, currency hedging, and portfolio diversification in reaction to fluctuations in foreign exchange rates.

However, in the face of severe and protracted volatility in the foreign currency market, these tactics' efficacy can be limited, Odeniyi and Amassoma (2016). Nigerian commercial banks have major obstacles in their performance due to fluctuations in foreign exchange rates which affect their balance sheets, profitability, and general financial stability.

To overcome these obstacles and be competitive in a globalised financial climate, Nigerian banks must have strong risk management procedures and thorough awareness of the dynamics of the foreign currency market (Kiganda, 2017). The price of one currency (the domestic currency) in relation to another (the foreign currency) is referred to as the foreign exchange rate.

1.2 Statement of the problem

The increased risk and uncertainty that foreign exchange rate volatility brings to commercial banks' operations is one of the main problems it causes. The stability of banks' balance sheets may be at risk due to abrupt and unforeseen changes in the value of assets and liabilities denominated in foreign currencies brought on by fluctuations in exchange rates. Because of this volatility, banks find it challenging to appropriately evaluate and manage their foreign exchange exposures which could lead to losses and decreased profitability.

Furthermore, commercial banks involved in international trade and finance operations may experience operational disruptions due to fluctuations in foreign exchange rates. The demand for trade financing services provided by banks may fall as a result of firms being discouraged from doing cross-border transactions due to the unpredictability of exchange rate fluctuations. Furthermore, changes in exchange rates may have an effect on Nigerian importers' and exporters' ability to compete, which may have an effect on the quantity and profitability of banking operations linked to trade.

The effect of foreign exchange rate volatility on commercial banks' funding costs is another important issue. Significant declines in the value of the home currency can make borrowing more expensive in overseas markets, especially for banks that depend on outside funding sources. Because banks may find it difficult to promptly pass on increased borrowing costs to borrower, this may put pressure on their net interest margins and profitability.

Furthermore, Nigeria's macroeconomic imbalances and instability may be made worse by fluctuations in the foreign currency rate. Exchange rate volatility that persists over time can erode investors trust, resulting in capital flight and a decline in foreign investment inflows into the nation. The economy as a whole may suffer from this, as seen by slower economic development, higher inflationary pressures, and higher unemployment rates. These macroeconomic factors have a direct effect on commercial banks which are important financial

system intermediaries. As the economy worsens, commercial banks see a decline in demand for loans and a rise in credit risk.

1.3 Objectives of the Study

The study ascertains the impact of foreign exchange rate volatility and its effect on bank performance. The intended specific objectives are to:

1. To assess the causal relationship between foreign exchange rate volatility and bank performance in Nigeria.

2. To identify the specific channels through which foreign exchange rate volatility affects bank performance.

3. To assess the potential costs and benefits of foreign exchange rate volatility for Nigerian banks.

4. To provide policy recommendations for managing foreign exchange rate volatility and enhancing bank performance in Nigeria.

1.4 Research Questions

The study answers the following questions:

1. Does foreign exchange rate volatility have a significant causal impact on bank performance in Nigeria?

2. Through which channels does foreign exchange rate volatility affect bank performance?

3. What are the potential costs and benefits of foreign exchange rate volatility for Nigerian banks?

4. What policy recommendations can be made to manage foreign exchange rate volatility and enhance bank performance in Nigeria?

1.5 Research Hypotheses

Hypothesis One

Ho: There is no causality relationship between foreign exchange rate volatility and bank performance in Nigeria

Ho_1: There is a causality relationship between foreign exchange rate volatility and bank performance in Nigeria

Hypothesis Two

Ho: Foreign exchange rate volatility channels do not affects bank performance.

Ho_2: Foreign exchange rate volatility channels affect bank performance

Hypothesis Three

Ho: Potential costs and benefits of foreign exchange rate volatility do not have a significant effect on Bank Performance in Nigeria.

Ho_3: Potential Cost and benefits of foreign exchange rate volatility have a significant effect on bank performance in Nigeria

Hypothesis Four

Ho: Managing foreign exchange rate volatility does not enhance bank performance in Nigeria

H04: Managing foreign exchange rate volatility enhance bank performance in Nigeria

REVIEW OF RELATED LITERATURE

2.1 Conceptual Framework

2.1.1 Concept of Foreign Exchange

A crucial component of the global financial system, foreign exchange, commonly shortened to forex or FX, makes it easier for people in other nations to trade currencies. Foreign exchange essentially makes it possible for people, organisations, and governments to change one currency into another, facilitating international investment, trade, travel, and other economic endeavours. With an average daily trading volume reaching trillions of dollars, the FX market is the biggest and most liquid financial market globally. Examining the mechanisms, players, variables affecting exchange rates, and wider effects on the world economy is necessary to comprehend the complexities of foreign exchange (Bagh et al., 2017).

The exchange rate which expresses the value of one currency in relation to another is the essential component of international exchange. The forces of supply and demand in the foreign exchange market determine exchange rates. A currency's value increases and its exchange rate rises as demand for it rises in comparison to supply. On the other hand, the currency depreciates and its exchange rate falls as supply rises or demand falls. According to Keshtgar et al. (2020), a number of factors such as interest rate differentials, market mood, geopolitical events, and economic indicators can cause these exchange rate changes.

The foreign exchange market allows for continuous trading amongst participants globally because it is open twenty-four hours a day, five days a week, and across time zones. The interbank market, which is one of its many tiers, is where major financial organisations like

banks, hedge funds, and central banks exchange currencies with one another directly. According to Wahdan and Leithy (2017), there are also retail forex brokers that serve individual investors and traders by giving them access to the forex market via computerised trading platforms.

A wide range of transactions are carried out by participants in the foreign exchange market, from spot transactions, in which currencies are exchanged for instant delivery, to forward contracts, options, and futures which entail commitments to exchange currencies at a given price and future date. These transactions can be used to facilitate international trade and investment, speculate on future fluctuations in the exchange rate, or hedge against currency risk.

The provision of liquidity which enables participants to purchase and sell currencies with ease is one of the foreign exchange market's primary roles. By guaranteeing a ready market for currencies, liquidity lessens the effect of significant trades on exchange rates and lowers transaction costs. By enacting monetary policies to accomplish a number of goals, including price stability, economic expansion, and financial stability, central banks also play a significant influence in the currency market. Interventions by central banks, such as currency purchases or sales, can affect exchange rates and reduce excessive volatility. Kimolo and Yabu (2020).

The relative strength and stability of various economies are reflected in the foreign exchange market, This acts as a gauge of the state of the world economy. Robust GDP growth, low unemployment, and stable inflation are examples of stronger economic fundamentals that tend to draw in investment and sustain a nation's currency. On the other hand, capital outflows and currency depreciation may result from poor economic performance or unstable political conditions. Changes in exchange rates can have a big impact on interest rates, inflation, trade balances, and macroeconomic stability in general. Ziarko and Rutkowska (2015).

Furthermore, by enabling companies to deal in several currencies, foreign exchange is essential to promoting global investment and trade. Foreign exchange markets are used by importers and exporters as a hedge against currency fluctuations, lowering the possibility that unfavourable pricing changes would affect their bottom line. In a similar vein, investors and multinational firms diversify their holdings by holding assets valued in several currencies in an effort to maximise risk-adjusted returns (Bagh et al., 2017).

Since tourists swap their local money for the currency of their destination, foreign exchange is also crucial in the tourism industry. The affordability of travel and tourist-related costs can be impacted by exchange rates, which can also have an impact on the economic activity and tourism flows in the countries of destination. In order to rectify imbalances in the balance of payments or to keep the tourism industry competitive, governments also interfere in the foreign exchange market.

Foreign exchange is linked to international relations and geopolitical dynamics in addition to its economic ramifications. Geopolitical events that can disrupt international financial markets and generate currency volatility include trade disputes, geopolitical alliances, and geopolitical hostilities. Concerns regarding unfair trade practices and currency wars have also been raised by disputes between countries over currency manipulation and competitive devaluations (Agbeja, Adelakun, &Udi, 2016).

Furthermore, the foreign currency market landscape has changed as a result of financial innovation and technology improvements. The way currencies are purchased and sold has been completely transformed by electronic trading platforms, algorithmic trading, and high-frequency trading, which has improved market liquidity and efficiency. With the availability of advanced trading tools and data, retail traders and investors may now compete with institutional participants in the FX market.

Foreign exchange does have advantages, but there are drawbacks as well. Businesses' and investors' financial performance and investment choices may be impacted by exchange rate volatility. Businesses may be exposed to foreign exchange risk as a result of currency mismatches in international transactions, necessitating the use of risk management techniques like diversification or hedging. Furthermore, because global financial markets are interconnected, shocks in one region can swiftly spread to others, increasing systemic risks and contagion. Kiganda (2017).

Because it makes international trade, investment, and financial transactions easier, foreign exchange is a vital component of the global economy. The foreign exchange market is an essential tool for setting exchange rates, supplying liquidity, and effectively distributing money internationally. Policymakers, corporations, investors, and individuals navigating the intricacies of the contemporary global economy must all have a solid understanding of foreign currency dynamics. Stakeholders can negotiate the opportunities and difficulties of a world that is becoming more interconnected and dynamic by understanding the factors impacting exchange rates, controlling currency risk, and taking advantage of opportunities in the forex market. Udi, Adelakun, and Agbeja (2016).

2.1.2 Foreign Exchange Rate Volatility

The term "foreign exchange rate volatility" describes the long-term variations in the value of one currency relative to another. A vital component of the global financial system, this volatility affects investment, trade, and economic stability. These swings are caused by a number of reasons, which makes the foreign currency market one of the most intricate and dynamic financial environments.

Macroeconomic indicators, such as inflation rates, interest rates, and measures of economic growth, are among the main causes of currency volatility. For example, a nation's currency usually depreciates, reflecting decreased purchasing power, when its inflation rate is higher than others'. On the other hand, nations with higher interest rates might draw in foreign investment which would cause their currencies to appreciate. As investors look to maximise profits or reduce losses, these changes may have a knock-on effect on international markets (Keshtgar et al. 2020).

Foreign currency rate fluctuations are also significantly influenced by economic policies and political stability. Uncertainty brought on by geopolitical events like elections, wars, or changes in policy may cause traders to swiftly modify their positions. An abrupt change in administration, for instance, may raise concerns about economic management and result in unpredictable fluctuations in currency prices. Similarly, as market players respond to the possible ramifications for future economic performance, pronouncements about fiscal or monetary policy can have noticeable and immediate effects on exchange rates.

Currency volatility is made worse by market speculation. Considering the state of the economy at the moment, traders in the foreign currency market frequently base their decisions on their projections of future moves. Currency values may fluctuate quickly and perhaps irrationally as a result of this speculative activity. This effect has been exacerbated by the rise of algorithmic and high-frequency trading, since automated systems can execute transactions based on market signals in milliseconds, causing volatility even in situations that are stable (Kiganda, 2017).

Furthermore, abrupt changes in currency prices can be brought on by world events like pandemics, natural disasters, or economic crises. For example, the COVID-19 epidemic caused previously unheard-of exchange currency swings as economies struggled with stimulus plans and shutdowns. As investors look to reduce risk, safe-haven currencies like the US dollar frequently see increases during these periods.

Businesses and investors use a variety of tactics to control the volatility of foreign currency rates. They can guard against adverse currency fluctuations by hedging using financial products like options and forwards. Additionally, central banks can use instruments like interest rate changes or direct market intervention to stabilise their currencies by intervening in the foreign currency market.

Numerous variables impact the volatility of foreign exchange rates, ranging from global events and speculation to political stability and economic indicators. Businesses and investors participating in the global marketplace must comprehend these dynamics since strategic planning and profitability can be greatly impacted by efficient currency risk management. The consequences of exchange rate changes will continue to affect economies globally as the world grows more interconnected, highlighting the necessity of constant attention to detail and flexibility in negotiating this intricate financial environment (Bagh et al., 2017).

2.1.3 Bank Performance in Nigeria

Over time, Nigerian banks' performance has changed significantly due to a number of technological, regulatory, and economic advancements. Nigeria's banking industry, which is essential to stability and economic growth, has experienced both noteworthy achievements and difficulties. Examining elements including regulatory frameworks, economic situations, financial inclusion, and technology improvements is necessary to comprehend the complexities of bank performance in Nigeria (Osiegbu and Onuorah, 2018).

The early 2000s consolidation was one of the pivotal events in the Nigerian banking industry. A flurry of mergers and acquisitions resulted from the Central Bank of Nigeria's (CBN) 2005 order that banks raise their minimum capital base. While the number of banks in the nation decreased as a result of this consolidation, the capital bases of the remaining banks were strengthened. Many banks thus increased the effectiveness of their operations, strengthened their risk management procedures, and created more reliable financial products. The banking industry is now better equipped to absorb economic shocks thanks to this reinforced structure, but it has also made banks more competitive.

Nevertheless, Nigerian banks continue to confront difficulties in spite of these advancements. The increasing number of non-performing loans (NPLs), which have an impact on banks'

liquidity and profitability, is one of the most urgent problems. When borrowers, particularly in the oil and gas business, find it difficult to fulfil their obligations, economic changes especially in the oil sector Nigeria's primary source of income can result in an increase in non-performing loans (NPLs). Stricter lending regulations and the creation of the Asset Management Corporation of Nigeria (AMCON) to handle bad loans are just two of the steps the CBN has taken to reduce this risk (Mordi, 2016).

Another crucial component of Nigerian banks' effectiveness is financial inclusiveness. A sizable section of Nigerians do not have access to banking, which restricts banks' ability to grow their clientele and enhance overall operations. The CBN has started a number of initiatives to promote microfinance institutions and mobile banking in an effort to increase financial inclusion. By encouraging more people to use financial services, these initiatives have increased the banks' reach and improved their performance indicators.

In Nigeria, technological developments have also completely changed the banking industry. The emergence of fintech businesses has brought about creative solutions that put conventional banking models to the test. Customers now have easier access to and convenience with banking thanks to mobile banking, digital wallets, and online payment systems. As a result, banks must adjust to this digital revolution, which will enhance operational effectiveness and service delivery. But there are hazards associated with this rivalry as well because traditional banks need to keep coming up with new ideas to keep their clients and market share. Leithy and Wahdan (2017).

The CBN's regulatory supervision is essential to maintaining the stability and integrity of the financial sector. To improve risk management and corporate governance in banks, the central bank has implemented a number of rules. The goal of the Banking Sector Resolution Framework's adoption has been to resolve insolvency-related concerns and advance a stable banking environment. Although the industry has benefited from these rules, banks, especially smaller ones, now face compliance difficulties.

Nigerian banks' performance is defined by a complicated interaction between their advantages and disadvantages. Consolidation and better risk management techniques have demonstrated the sector's resilience, but issues like high non-performing loan rates and the demand for greater financial inclusion still plague it. Traditional banks need to innovate and adjust as technology changes the banking industry in order to remain competitive. Regulatory agencies continue to play a critical role in preserving stability and creating an atmosphere that supports development. In the end, how well these different factors are handled in the face of continuous technical and economic changes will determine the course of bank performance in Nigeria. Kolapo, Ajayi, and AZeeZ (2016).

2.1.4 Costs and benefits of foreign exchange rate volatility for Nigerian banks

Because of the complexity of doing business in a global financial market, Nigerian banks may experience both costs and gains from fluctuations in foreign exchange rates. Understanding these dynamics is crucial for banks and their stakeholders because Nigeria's economy is heavily impacted by changes in currency values, especially given its reliance on oil imports and exports (Mordi, 2016).

Foreign Exchange Rate Volatility Costs

For Nigerian banks, the higher risk of non-performing loans (NPLs) is one of the main expenses related to fluctuations in foreign exchange rates. Borrowers, particularly those in industries that significantly rely on imports or foreign currency loans, may find it difficult to fulfil their obligations when the value of the Naira swings in an unpredictable manner. Higher default rates could result from this situation, which would ultimately hurt banks' balance sheets and profitability.

The management of banks' liquidity can also be made more difficult by fluctuations in foreign exchange rates. Managing unforeseen cash flow needs may entail adjusting liquidity levels due to rapid currency movements. For example, a bank may find it difficult to maintain adequate liquidity during unstable times if it has a large amount of foreign currency holdings or liabilities. Increased operating expenses and decreased overall efficiency may result from this requirement for better liquidity management (Wahdan&Leithy, 2017).

Furthermore, banks looking to increase their capital base and investment portfolios may find that volatility discourages international investment. Fearing possible losses, investors frequently avoid markets with significant volatility. As a result, this might make it more difficult for Nigerian banks to draw in foreign investment which would affect their chances for expansion and capacity to compete internationally.

Advantages of Volatility in Foreign Exchange Rates

On the other hand, Nigerian banks may profit in a number of ways from fluctuations in foreign exchange rates. The potential for financial gain through currency trading is one important benefit. By participating in forex trading activities, banks with strong trading operations can profit from changes in exchange rates and perhaps make significant earnings. In addition to offering extra revenue streams outside of regular banking activities, this trading can increase the institutions' overall profitability.

Additionally, banks can enhance their risk management procedures by taking advantage of fluctuations in foreign exchange rates. Banks can strengthen their defences against unfavourable currency fluctuations by keeping a close eye on them and using hedging techniques. According to Osiegbu and Onuorah (2018), this proactive strategy not only helps to reduce volatility-related risks but also improves the bank's standing as a responsible and well-run financial institution.

Furthermore, changes in foreign exchange rates might spur the development of new financial services and products. Nigerian banks may create new products specifically suited to the requirements of companies impacted by exchange rate fluctuations in order to address the difficulties presented by volatile currencies. For instance, banks could provide specialised foreign exchange accounts, risk management consulting services, or hedging options. These developments have the potential to improve client loyalty and happiness, which will strengthen the banks' position in the market.

Foreign exchange rate volatility presents Nigerian banks with a number of expenses, such as risks associated with managing liquidity and loan performance, but it also presents chances for innovation and profit-making. In a turbulent environment, banks' long-term success will depend on how well they can handle these difficulties. Nigerian banks may both lessen the negative

effects of currency fluctuations and put themselves in a position to profit from the foreign exchange market's dynamic character by implementing strategic risk management approaches and embracing innovation. According to Keshtgar et al. (2020), the future of the banking industry in Nigeria would ultimately be shaped by the interaction between costs and benefits.

2.1.5 Concept of Return on Asset

One performance metric that is frequently employed in the corporate governance literature for accounting-based metrics is return on assets. According to Rouf and Abdur (2015), return on assets is a measure of a company's overall profitability. It demonstrates how well the board and management are able to utilise all of the company's resources to their fullest potential. It is a metric that evaluates how well assets are being used and displays to investors the profits the business has made from its capital asset investment. The rate of return on a company's assets relative to its total assets is the strongest indicator of its efficient use of assets. The return on assets demonstrates to shareholders how much of the company's funds are being invested in net income by the managers. It's a profitability ratio for a business's net income.

Return on asset quantifies the profit made per dollar of assets and shows how effectively bank management makes use of the actual resources invested in the bank to produce profits (Alkassim, 2005). Because it eliminates the distortions caused by variations in financial leverage, return on asset is a helpful metric for evaluating the profitability of banks with comparable business risk profiles. From an accounting standpoint, return on assets (ROA) is a thorough indicator of a bank's entire performance (Sinkey and Joseph, 2019). Compared to other performance metrics, it appears to be more appropriate for comparing banks in the same industry. Return on assets (ROA) is therefore selected as the study's success metric. It demonstrates how well a commercial bank's assets are used by its management. It is hypothesised that, after adjusting for the impact of cash reserve ratio and bank size, credit risk indicators such as the capital adequacy ratio, nonperforming loan, and cost per loan assets affect bank performance.

2.1.6 Determinants of Nigeria’s Foreign Exchange Rate Volatility

One of the key factors influencing international transactions is the volatility of exchange rates. According to Omojimite and Akpokodje (2016), these variations in Nigeria have been impacted by structural changes in production, institutional changes in the economy, and shifting patterns of international trade. Furthermore, Ogunleye (2016) pointed out that external shocks resulting from the fluctuations of the global prices of oil and agricultural commodities, two significant sources of Nigerian exports and foreign exchange earnings, have primarily influenced the country's real exchange rate. He argued that when the economy relied heavily on agricultural exports, real exchange rate volatility was less noticeable because these products were less volatile and more trading partners' currencies were used to calculate the real exchange rate. According to him, this had very little impact on the real exchange rate which fluctuated by just 0.14 percent from 1970 and 1977. Due to the country's growing reliance on oil, the naira exchange rate fluctuated by 10% between 1978 and 1985 due to severe trade shocks caused by

global oil price fluctuations (Ogunleye, 2018). Real exchange rate fluctuations during this time were viewed by Iyoha and Oriakhi (2017) as nominal stocks brought on by fiscal deficits.

In cooperation, Ogunleye (2018) observed that the oil windfall led to excessive financial outlays for large-scale development projects; as the windfall ended, the government turned to money creation to pay for its expenses. According to him, this expansionary monetary fiscal policy exacerbated the dramatic fluctuations in the real exchange rate by pushing inflation higher.

The implementation of the structural adjustment program (SAP) in 1986 started to influence the dynamics of Nigeria's real exchange rate. This policy's variable nominal exchange rate policy was one of its tenets. The nominal exchange rate movement became more noticeable as the naira was let to float, which strengthened exchange rate changes during this time. Ogunleye (2018) noted that the country's mean annual charge in the real exchange rate rose to 25% between 1986 and 1992 and then decreased to 4.5% between 2000 and 2006. This decrease in foreign exchange rate volatility was caused by favourable terms of trade, reduced fiscal domination, efficient monetary policy brought about by a more autonomous and open central bank, and well-managed nominal exchange rate policy.

2.2 Theoretical Framework

2.2.1 Purchasing Power Parity (PPP)

Gustav, a Swedish economist, developed the purchasing power parity (PPP) hypothesis, which serves as the foundation for this study (Menon&Viswanathan, 2005). According to the hypothesis, when assessed in terms of the same currency, homogeneous items in different countries cost the same in the same countries. This suggests that when the purchasing power of the currencies in the two nations is equal, the exchange rates between them are in equilibrium. The willingness to pay a specific sum for foreign currency must eventually and fundamentally stem from the currency's ability to be used to purchase goods and services in that nation (Reid & Joshua, 2004). Any deviation from this assertion suggests that the value of a nation's currency is off. "PPP theory suggests that currencies are valued for the goods they can purchase and, in arbitrage equilibrium, the exchange rate between two countries' currencies should equal the ratio of their price levels—a testable implication of which is that the real exchange rate should display mean reversion, at least in the long run," state Yin-Wong and Kon (1994).

In the absence of arbitrage costs, the theory's deviations from purchasing power parity will converge towards equilibrium as a result of the arbitrage hypothesis which holds that two homogeneous goods traded at different prices in different countries will be exploited. Purchasing power parity (PPP) comes in two flavours: absolute and relative. According to the Law of One Price, or absolute purchasing power parity (PPP), a commodity has the same price regardless of the currency used to buy it or the location of sale (Reid & Joshua, 2004). The underlying presumptions of this theory are that the goods being exchanged are homogeneous, there are no transaction costs, and there are no trade barriers. A homogenous commodity should have the same price across borders if the trading currency is exchanged at the spot exchange rate. To ascertain the precise price of a uniform good across nations, the theory recommended using price indices. Given that different nations employ different items to determine their price level, the

primary issue of this view is evaluating Purchasing Power Parity derived from price indexes (Reid, 2005).

Relative purchasing power parity (PPP), which takes into account market defects such transportation costs, tariffs, and quotas, has developed as a result of these restrictions in absolute purchasing power parity (PPP). Rather than determining the exchange rate's absolute level, relative purchasing power parity (PPP) describes what influences changes in the exchange rate over time. It claims that the difference in the two nations' rates of inflation determines the change in the exchange rate (Ross, 2008). compared purchasing power parity (PPP) states that any exchange rate difference from the theory's suggested exchange rate represents the actual appreciation or depreciation of one currency compared to another (Reid & Joshua, 2004). This theory is pertinent to the study because it describes how the value of one currency is related to the value of another's currency in terms of the basket of goods and services that the two countries may buy based on supply and demand. According to this idea, an equilibrium exchange rate is one that guarantees the value transferred may be used to buy the same assortment of goods and services from any of the participating nations.

2.3 Empirical Review

Takon, Ugwuegbe, and Nsofor (2016).examined how foreign exchange transactions affected Nigerian banks' profits between 2010 and 2014. Ten Nigerian banks, that are publicly traded, provided the annual data used in the study. There is a long-term link between the variables being studied, according to the Kao panel co-integration test result. Foreign exchange revenue has a negative and negligible impact on Nigerian banks' profitability for the period, according to the DOLS results. It was demonstrated that whereas total equity had a negative influence on Nigerian banks' profitability throughout the same study period, total asset, which was utilised as a control variable, had a positive impact.

Agbeja, Adelakun, and Udi (2016) looked into how Nigerian deposit money institutions' profitability was affected by counterparty and currency rate risk. Seven banks were chosen on a cross-sectional basis during a five-year period, and profit before taxes was calculated as a function of nonperforming loans. Risk was assessed using an auto-regression conditional model and secondary data. The outcome showed that exchange rate risk and counterparty risk significantly impact bank profitability and performance. In order to improve the economy, strict but flexible lending policies and careful currency rate management were recommended.

Carolyn and Daniel (2016) looked at how changes in foreign currency rates affected the bottom line of commercial banks that were listed on the Nairobi Stock currency. All commercial banks that were listed on the Nairobi Securities Exchange between 2006 and 2013 were the study's target population, and it employed a time series correlation research approach. The Central Bank of Kenya and publicly available annual reports of banks that are included provided the data. To determine the association between changes in foreign exchange rates, inflation rates, interest rates, and bank performance metrics, the study employed multivariate linear regressions. To determine the link between the variables, the Pearson product moment correlation (r) was used. The study discovered a robust positive correlation between financial performance metrics and foreign exchange rates.

Diala and Igwe-Kalu (2016) investigated the relationship between Nigeria's commercial real estate and foreign exchange markets between 2000 and 2010 in order to ascertain how the volatility of the Naira/US dollar exchange rate affected the country's commercial real estate returns. The increasing Naira/Dollar exchange rate regime and its possible effects on real estate investment decision-making served as the impetus for this study. The association between exchange rate volatility and the volatility of property investment returns in Nigeria was established using the Exponential Generalised Auto-Regressive Conditional Heteroscedasticity (EGARCH). It was discovered that the fluctuation of the Naira/US dollar exchange rate in Nigeria and the returns on commercial real estate have a positive but negligible link. Additionally, it was found that the exchange rate's volatility persisted in commercial real estate returns, suggesting that the current period rate influences the predicted variance of the future rate. The leverage impact was not significant enough during the research period.

Odeniyi and Amassoma (2016) investigated the effects of exchange rate fluctuations on Nigeria's economic growth using yearly data spanning 43 years (1970–2013). To capture and assess the intrinsic variability in the model with respect to the research objective, the standard deviation method was utilised. The study used econometric methods such the Error Correction Model (ECM), the Johansen Cointegration Test, the Augmented Dickey Fuller (ADF) test, and the Multiple Regression Model. The results of this study demonstrated that exchange rate fluctuations had a short-term and long-term beneficial but negligible effect on Nigeria's economic growth. This outcome is explained by the Nigerian government's capacity to successfully control a few other significant macroeconomic factors that could aggravate the exchange rate, which has lessened the impact of exchange rate volatility during the study period. This suggests that monetary authorities may have implemented measures to mitigate the impact of exchange rate volatility on Nigeria's economic expansion.

Ezenwa, Ogbebor, and Alalade (2021) used descriptive statistics such as percentages, mean, standard deviation, and regression to examine how exchange rate volatility affected the return on assets of consumer products manufacturing companies listed in Nigeria. The results showed that return on assets was statistically significantly impacted by exchange rate volatility, which was negative [coefficient = -0.454; P-value = 0.013]. At the 1% level, the firm's size was found to have a statistically significant negative impact on return on assets (coefficient = -0.057; P-value = 0.000). The impact of leverage on return on assets was statistically significant and negative (coefficient = -0.089; P-value = 0.091).

Using descriptive statistics such as percentages, mean, standard deviation, and regression, Asaleye, Maimako, Inegbedion, Lawal, and Ogundipe (2021) investigated Nigeria's industrial performance and real exchange rate. The results indicate that both in the short and long term, exchange rate fluctuations are reasonably elastic with respect to output and employment. In the medium term, however, exchange rate fluctuations have little effect on employment. The forecast error shock of the exchange rate has a longer effect on employment than output, according to the variance decomposition from the SVAR.

Yaqub (2018) investigated how exchange rate fluctuations affected Nigeria's disaggregated agricultural output: Two-Step Least-Squares Method. The resulting result suggests that the output of various sub-sectors reacts differently to changes in the exchange rate. The output of crops and fisheries is negatively impacted by exchange rate fluctuations, but forestry and livestock are positively impacted. The necessity for policies to be implemented to lessen the

negative effects of exchange rate depreciation on crop and fisheries output is shown by the fact that the real exchange rate has a different impact on the output of the agricultural sub-sectors.

Wasiu and Ndukwe (2018) gathered information from secondary sources to examine how exchange rate variations affected Nigeria's agricultural output performance. The ADF unit root test revealed that the study used a combination of stationary and non-stationary variables. Regardless of specifications, there was no long-term correlation between the real exchange rate and agricultural output, according to the Bounds test for co-integration. Overall, the model estimation result indicated that the real exchange rate (log-levels), real appreciation and depreciation (after some lags), industrial capacity utilisation rate, and government spending on agriculture (after some lags) are the key factors influencing agricultural output. Agricultural output was positively and negligibly impacted by ACGSF loans. Furthermore, despite the fact that real appreciation had a greater impact than real depreciation, the current study was unable to locate any proof of the asymmetric impact of real exchange rate dynamics on the performance of agricultural output in the Nigerian economy.

METHODOLOGY

3.1 Research Design

A linear model will be defined and estimated using ordinary least square (OLS) techniques in order to ascertain the relationship that exists among the variables that are being studied. Additionally, it will use an econometric research methodology in an effort to investigate the relationship between government spending and economic growth in Nigeria using empirical analysis. The data gathered is put through tests for unit root, co-integration, and error correction. The ADF determines if the variables are unit-root non-stationary. The criterion of stationarity is established or conformed if the findings show that all series are stable in the initial difference or if all series are produced by (1) process (Gujarati, 2004). To determine the rate of transition from the short-term equilibrium to the long-term equilibrium state, an error correction mechanism is utilised.

3.2 Sampling Techniques

The basic random sampling technique was used in the study, according to which each member of the population has an equal chance of being chosen for the study sample. Because everything was determined by chance or probability and the researcher had no control over the selection process, the simple random technique was used.

3.3 Model Specification

To investigate the influence of foreign exchange rate volatility and how it affects bank performance, this study used a multiple regression model. The model is provided as:

ROE= f(RER, INTR, INFR)----------3.1

The econometrically model is given as:

$ROE = \beta 0 + \beta_1 RER + \beta_2 INTR + \beta_3 INFR + \varepsilon$ ----------3.2

Where:

ROE = Return of Equity

RER = Real Exchange Rate

INTR= Interest Rate

INFR = Inflation Rate

ε = is the error term

$\beta_1 - \beta_4$ are the various intercepts

3.4 Method of Evaluation

The model above will be evaluated subject to the following tests:

1. Preliminary Test
2. Economic Test of Significance (A Priori Test)
3. Statistical Test of Significance (First Order Test)
4. Econometric Test of Significance (Second Order Test)

3.4.1 Preliminary Tests

3.4.1.1 Stationarity (Unit Root) Test: Since the data to be employed in the estimation are time-series data, the significance of this test cannot be overstated. It is worthwhile to perform a stationary test to ensure that all of the variables are mean reverting, meaning that their mean, variance, and covariance are all constant, in order to prevent running a misleading regression. Stated differently, they are motionless. Because it accounts for serial correlation, the Augmented Dickey-Fuller (ADF) test would be employed in this investigation. The following are the model's specifications:

$$\Delta ROE_{t-1} = \beta_0 + \beta_1 RER_{t-1} + \beta_2 INTR_{t-2} + \beta_3 INFR_{t-3} + \mu_t$$

Decision Rule: The variable is considered stationary if the ADF test statistic is higher than the MacKinnon critical value at 5% (all in absolute terms). It is not stationary otherwise.

3.4.1.2 Test of Co-integration: According to econometric theory, two variables that have a long-term, or equilibrium, relationship will be co-integrated. To prevent cases of misleading regressions, co-integration can be viewed as a pre-test (Granger, 1986). The residual will be subjected to the ADF test statistic, as suggested by Gujarati (2004). The following are the model's specifications:

$$\mu_t = \beta_2 + \beta_1 RER_t + \beta_2 INTR + \beta_3 INFR$$

Decision Rule: If the ADF test statistics is greater than the 5% level of significance, accept H_1, otherwise, accept H_0.

3.4.2 Economic Test of Significance (A prior Test)

Analyse the size and magnitude of the parameters estimate, the economic a priori test will be performed. Economic theory serves as the basis for this assessment, which determines if the parameter estimate is consistent with expectations.

While the federal government's recurring expenditures are predicted to have a negative link with Nigeria's economic growth, the capital expenditure component is anticipated to have a favourable effect.

A Prior expectation

Interest Rate will have a negative relationship on the return on equity

Inflation rate will have a negative relationship on the return on equity.

Variables	**Expected Signs**
RER	**+ve**
INTR	**-ve**
INFR	**-ve**

3.4.3 Statistical Test of Significance

We will use the t-test to determine the significance of the regression model, the t-test to determine the individual significance of each regression, and the goodness of fit test under the statistical test (first-order) test.

3.4.3.1 Goodness of Fit Test: To determine how well the sample regression line fits the data, we will utilise the coefficient of multiple determinations (R2). R2 calculates the impact of changes in the explanatory variable on the dependent one. R2 has a value between 1 and 0 (i.e., $0 \leq R2 \leq 1$). The better the fit, the closer it is to 1; the farther it is from 1, the worse the fit.

3.4.3.2 The significance is tested using the t-Test of Significance. With n–k degrees of freedom, we will employ a 5% level of significance. If required, the probability value will be applied as a general guideline.

where n is the number of observations (sample size), k is the total number of calculated parameters, and a = 0.05 (n – k).

3.4.3.3 The significance test (f-test): This will be used to test the regression model's overall significance. Stated differently, it will be used to evaluate the combined effect of the independent variables on the dependent variables; until combined with other regressions, the regression may not have an impact on the dependent variable. With (k – 1) (n – k) degrees of freedom, where V1 = k – 1, and V2 = N – K, we will employ a 5% level of significance.

Rule of Decision:

if the critical f-ratio (f0.05) is compared to the calculated f-ratio (f*). We will reject the null hypothesis and accept the alternative if f*>f0.05; if not, we will reject the alternative hypothesis (H1) and accept the null hypothesis (H0).

3.4.4 The Second Order Econometric Test of Significance

The model will be empirically verified using an economic test. This will include tests such as Granger Causality, autocorrelation, and normalcy.

3.4.4.1 Autocorrelation: According to the traditional linear regression model, there is no autocorrelation between the disturbance terms. The Durbin-Watson (D-W) statistics at 5% will be used to test for the presence of an autocorrelation problem in order to determine where the error components are associated in the regression. The area where autocorrelation is absent is still present:

du< d* < (4-du)

Where:

du = Upper Durbin – Watson

d* = Computed Durbin-Watson

Decision Rule:

There isn't an autocorrelation issue if the calculated Durbin-Watson value is within the no autocorrelation region. However, there is an autocorrelation issue if the Durbin-Watson calculated value is outside of the areas.

3.5 Information Needed and Sources

Time series secondary data on return on equity, real exchange rate, interest rate, and inflation rate for the years 2010–2023 are needed for this project. The information was taken from the statistical bulletin published by the Central Bank of Nigeria (CBN).

3.6 The Work's Econometric Software

The statistical program E-views Version 9 was utilised for econometric analysis in this study.

PRESENTATION AND ANALYSES OF RESULTS

This chapter applies a number of statistical, econometric, and economic tests to assess the outcome. As a result, the empirical findings of this study are used to examine the previously stated hypotheses.

4.1 Data Presentation

YEAR	ROE	RER	INFR	INTR
2010	5707.989	117.7823	18.5946	8.4095
2011	5941.368	147.2718	18.6195	8.8735
2012	6526.685	148.31	18.6438	8.8806
2013	8021.19	151.8269	18.6753	9.0009
2014	9603.453	155.4502	18.6983	9.1964
2015	11451.59	155.2537	18.7208	9.0003
2016	11763.92	156.4848	18.75	9.3326
2017	14034.23	191.8035	18.7784	9.5696
2018	14464.64	253.0925	18.7991	9.5652
2019	14559.43	305.2899	18.8261	9.5562
2020	16893.19	305.5827	18.8525	9.3932
2021	20841.84	306.4227	18.1908	1.9741
2022	25,648.26	358.3108	18.1809	1.9864
2023	25,876.23	401.9847	19.078	8.4894

Sources: CBN statistical Bulletin 2023

4.2 Data Analysis

4.2.1 Descriptive Statistics

	ROE	RER	INTR	INFR
Mean	13666.72	225.3476	8.087707	18.67201
Median	12899.08	174.1442	9.0006	18.70955
Maximum	25876.23	401.9847	9.5696	19.078
Minimum	5707.989	117.7823	1.9741	18.1809
Std. Dev.	6719.677	93.53057	2.613555	0.238599
Skewness	0.618377	0.567655	-1.95791	-0.8826
Kurtosis	2.319557	1.861195	4.982004	3.605598
Jarque-Bera	1.162327	1.508386	11.23617	2.031577
Probability	0.559247	0.47039	0.003632	0.362117
Sum	191334	3154.867	113.2279	261.4081
Sum Sq. Dev.	5.87E+08	113723.6	88.79868	0.740081
Observations	14	14	14	14

The results of the descriptive statistics for the variables employed in the study are displayed in Table 4.2. Return on equity was found to be 225.3476, although the interest rate (INT) and inflation rate (INFR) had the lowest mean values, at 8.087707 and 18.67201 respectively. While the inflation rate and exchange rate clearly exhibit negative skewness, return on equity and the actual exchange rate exhibit positive skewness. According to the study, the interest rate and inflation rate have Kurtosis values greater than 3.0. The Jarque-Bera statistic indicates that while the variables of return on equity (ROE) and real exchange rate (REL) are not regularly distributed, the inflation rate (INFR) and interest rate (INT) do.

4.2.2 Unit Root Test Results

The individual variable was tested for the unit root using the Augmented Dickey-Fuller (ADF) method. The following theories served as the foundation for the test:
H0: The fluctuant is not stationary
H1: The variable is fixed

Here is a summary of the findings from the unit root Augmented Dickey-Fuller test:

Table 4.1: Result of ADF unit root test of the variables

Level Form			First Difference		Order of integration
Variables	ADF test statistic	5% critical values	ADF test statistics	5% critical values	
ROE	-	-	1.063854	-3.119910	I(0)
RER	-	-	0.914966	-3.175352	I(0)
INT	-	-	-3.202775	-3.144920	I(0)
INF	-	-	-5.113015	-3.144920	I(0)

Source: Eviews 9 Output for the Result of ADF unit root test

From table 4.1, the result showed that return on equity (ROE), Interest rate (INT), real exchange rate (REL) and Inflation rate (INF) all integrated at first difference 1(1).

4.2.3 The main result

Dependent Variable: ROE
Method: Least Squares
Date: 10/20/24 Time: 22:48
Sample: 2010 2023
Included observations: 14

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RER	36.48155	13.49892	2.702554	0.0222
INTR	-2414.120	955.3623	-2.526916	0.0300
INFR	19299.37	9271.382	2.081607	0.0640
C	-335387.6	162978.4	-2.057866	0.0666

R-squared	0.936030	Mean dependent var	13666.72
Adjusted R-squared	0.916839	S.D. dependent var	6719.677
S.E. of regression	1937.800	Akaike info criterion	18.21145
Sum squared resid	37550674	Schwarz criterion	18.39404
Log likelihood	-123.4802	Hannan-Quinn criter.	18.19455
F-statistic	48.77427	Durbin-Watson stat	1.016115
Prob(F-statistic)	0.000003		

4.2.4 Evaluation of Regression Results

Table 4.2 Result of A Priori Test:

Variables	Expected Sign	Observed Sign	Remarks
RER	+Ve	+Ve	CWES
INTR	+Ve	+Ve	CWES
INF	-Ve	+Ve	DCWES

CWES = conform with expected sign

DCWES= does not conform with expected sign

While some of the variables' coefficients from the calculated model have signs that match a priori assumptions, others do not suit them. Interest rates (INT) did not meet the a priori predictions because they showed a negative relationship. Although real exchange rates (RER) and inflation rates (INF) showed a positive relationship. Nonetheless, the a priori expectations are met by the real exchange rate (RER) and inflation (INF).

Return on equity and the real exchange rate (RER) coefficient are positively correlated. The number was 36.48155, meaning that during the study period, a unit increase in the real exchange rate would result in a 36.48 increase in Nigeria's return on equity.

At 19299.37, there is a positive correlation between return on equity and the inflation rate coefficient (INF). This suggests that during the research period, Nigeria's return on equity will rise by 19299.37 for every unit increase in the inflation rate.

A unit fall in interest rates will result in a -198.11 decrease in return on equity in Nigeria throughout the study period, according to the interest rate coefficient (INTR), which has a negative association with return on equity at -2414.120.

4.3 Evaluation Based on Statistical Criterion

4.3.1 R^2-Result and Interpretation (Measure of Goodness of Fit)

The statistical reliability of the calculated parameters is assessed in this subsection using the R2, t-test, and f-test. The following is how these tests are conducted:

The regression result's coefficient of determination, or R2, is 0.936030. This suggests that changes in the real exchange rate, inflation rate, and interest rate account for 91.9% of the variation in return on equity. As a result, the variables' goodness of fit is improved. Alternatively, this suggests.

4.3.2 t-Test Result and Interpretation

Additionally, the study uses 35 as the degree of freedom and the 95% confidence interval or 5% level of significance (i.e., α=0.05).

The distribution table indicates that t0.025 (35) = 1.560

Table 4.5 below displays the outcome of the significant t-test:

Below is the t-test result, which is assessed using the critical value (1.560) and the computed t-statistics for each variable.

Table 4.5: outcome of the significant t-test

VARIABLES	t-computed (t*)	t-tabulated ($t_{a/2}$)	Conclusion
RER	2.702554	1.560	Significant
INF	2.081607	1.560	Significant
INT	-2.526916	1.560	insignificant

Notable (accept H1; reject H0)

Minimal (Acknowledge Ho)

According to the t-test result above, t*>ta/2 for RER. Consequently, the alternative theory is approved. Thus, return on equity is significantly impacted by the real exchange rate.

t*>ta/2 from INF, hence the alternative hypothesis is approved. Thus, return on equity is significantly impacted by the inflation rate.

t*<ta/2 from INTR, hence the null hypothesis is accepted. Therefore, interest rates don't significantly affect return on equity.

4.3.3 Result and Interpretation of f-test of significance

K-1 and N-K, where N is the sample size, are the degrees of freedom for the numerator (V1) and the denominator (V2).

The constant term is included in the number of parameters, K.

At the 5% level of significance, V1 = 7-1=6, V2 = 14-4=10, df = (6,30), f0.05 = 2.42, and f* = 48.77427. The alternative hypothesis is accepted since f*>f0.05, leading to the conclusion that the variables (INT, INF, and RER) jointly affect return on equity in Nigeria during the time under study. This suggests that there is significance throughout the regression plane.

Table 4.6 Result of f-Test of Significance

Computer f-ratio value	Critical f-ratio value	Result
48.77427	2.42	Statistical significant

4.3.4 Evaluation Based on Econometric Criterion

Autocorrelation is one of the econometric tests used in this subsection to assess the model's output.

4.2.4.1 Autocorrelation Test Outcome and Interpretation

The region of no autocorrelation (positive or negative) is determined using the Durbin-Watson statistic and is as follows.

Du < d* < (4-du)

Du = 1.016115

d* = 2.749382

(4-du) = 4-1.016115= 2.983885

By substitution, the region becomes:

1.016115< 2.749<2.983885

Table 4.7: Autocorrelation test Result

Du	d*	4-du	Result
1.016115	2.749382	2.983885	Autocorrelation Absence

Since the calculated Durbin-Watson statistics do not fall into the zero autocorrelation zones, the result indicates that there is no autocorrelation issue in the model.

4.3.4 1 Granger Causality Test Result and Interpretation

Finding out if there is a causal relationship between two variables of interest is the main goal of causality analysis utilising the Granger causality test.

Ho: The performance of Nigerian banks and fluctuations in foreign exchange rates are not causally related.

Ho1: The performance of Nigerian banks and the volatility of the foreign currency rate are causally related.

Table 4.4 Result of Causality Test

Pairwise Granger Causality Tests
Date: 10/20/24 Time: 22:49
Sample: 2010 2023
Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
RER does not Granger Cause ROE	12	14.2154	0.3334
ROE does not Granger Cause RER		4.47326	0.0560

Since the probability value (0.3334) is greater than 0.05, the Granger causality result in the above table shows that there is no causal relationship between foreign exchange rate volatility and bank performance in Nigeria. Similarly, return on equity does not Granger cause real exchange rate because the probability value (0.0560) is greater than 0.05.

5.1 Summary of Findings

Interest rate (INT) gave negative relationship: thus, Interest rate (INT) does not conform to the a priori expectations.

Real exchange rate (RER) has a positive relationship with return on equity. The figure stood at 36.48155, which means that a unit increase in real exchange rate, will lead to 36.48 increase in return on equity in Nigeria within the period under study.

Inflation rate (INF) has a positive relationship with return equity at 19299.37. This implies that a unit increase in inflation rate will lead to 19299.37 increase in return on equity in Nigeria within the period under study.

Interest rate (INTR) has a negative relationship with return on equity at -2414.120. This implies that a unit decrease in interest rate will lead to -198.11 decrease in return on equity in Nigeria within the period under study.

The Granger causality result in the table above indicates that there is no causality relationship between foreign exchange rate volatility and bank performance in Nigeria, which means that real exchange rate does not granger cause return on equity because the probability value (0.3334) is greater than 0.05; similarly, return on equity does not Granger cause real exchange rate because the probability value (0.0560) is greater than 0.05.

5.2 Conclusion

The results show a number of noteworthy connections between Nigeria's return on equity (ROE) and other economic variables.

First, contrary to original expectations, there is a negative correlation between the interest rate (INT) and ROE. This implies that poorer returns on equity are linked to higher interest rates, suggesting possible difficulties for businesses and investors in a high-interest-rate environment. In particular, a drop in interest rates causes a significant drop in ROE, highlighting how sensitive equity returns are to changes in interest rates.

On the other hand, ROE shows positive correlations with both the inflation rate (INF) and the real exchange rate (RER). A stronger home currency or advantageous exchange conditions may boost equity returns, as seen by the correlation between a unit increase in the real exchange rate and an increase of roughly 36.48 in ROE. In a similar vein, ROE rises significantly by 19,299.37 for every unit increase in the inflation rate. Due to pricing power or other variables that enable businesses to retain profits in the face of inflationary pressures, this unexpected association suggests that growing inflation in Nigeria may be associated with increased profitability for businesses.

Furthermore, probability values above the 0.05 level show that there is no substantial causal association between foreign exchange rate volatility and bank performance, according to the Granger causality study. This indicates a lack of direct interaction between both variables during the study period, as neither the real exchange rate nor ROE drives the other.

In conclusion, the real exchange rate and inflation rate have a favourable impact on returns on equity in Nigeria, whereas interest rates have a negative impact on ROE. The lack of a direct correlation between bank performance and foreign exchange rate volatility, however, points to a more intricate interaction that needs more research.

5.3 Recommendations

In view of the findings and conclusions of this study, the following recommendations are put forward:

1. **Reevaluate Interest Rate Policies**: Given the negative relationship between interest rates and ROE, policymakers should consider strategies to maintain lower interest rates to stimulate investment and improve profitability for companies.

2. **Leverage the Real Exchange Rate**: Since the real exchange rate positively impacts ROE, businesses should explore strategies that capitalize on favorable exchange conditions. Companies can focus on expanding export activities or optimizing pricing strategies to benefit from currency fluctuations.

3. **Adapt to Inflation Dynamics**: The positive correlation between inflation and ROE suggests that businesses may need to adapt their pricing and cost management strategies in an inflationary environment.

4. **Monitor Foreign Exchange Volatility**: The lack of a causal relationship between foreign exchange rate volatility and bank performance indicates that businesses should remain vigilant regarding market conditions.

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