EFFECT OF EXCHANGE RATE FLUCTUATIONS ON THE PERFORMANCE OF SMALL AND MEDIUM ENTERPRISES IN NIGERIA

Oguche Wisdom Enejo[1] **& Agbo Patrick Ojabo**[2]
[1]Department of Business Administration, Prince Abubakar Audu University, Anyigba, Kogi State, Nigeria
[2]Department of Business Administration, Enugu State University of Science and Technology, Enugu State, Nigeria
enejolikeswisdom@gmail.com

Abstract
This study explores the effect of exchange rate fluctuations on Small and Medium Enterprises in Nigeria. The relationship between changes in interest rates, inflation, exchange rates, and the financial performance of SMEs in Nigeria is examined using a quantitative approach in this study. The National Bureau of Statistics (NBS) and the Central Bank of Nigeria (CBN), two respectable organizations, are among the sources of secondary data that are used. Even after accounting for variations in exchange rates, the multiple regression analysis's findings show that changes in inflation and interest rates have a major impact on the performance of SMEs in Nigeria. The results of the mediation analysis demonstrate that the relationship between changes in exchange rates and the financial performance of SMEs is substantially mediated by both interest rates and inflation rates. The indirect effects through interest rates (IE = -0.26, p = 0.001), inflation rates (IE = -0.32, p < 0.001) and (IE = -0.40, p < 0.001) are significant, indicating that the total effect of exchange rate fluctuations on the financial performance of SMEs is partially mediated by these two variables. The study recommended that in order to protect the performance of SMEs, prudent monetary policies should be put in place to stabilize interest rates and rein in inflation. Through macroeconomic stabilization, policymakers should concentrate on initiatives that reduce exchange rate volatility and its unintentional negative consequences on SMEs. Governments should give SMEs the tools and strategies to control exchange rate risks. These tools and techniques, like hedging mechanisms, can help SMEs better navigate economic swings and preserve their financial stability.

Key Words: Exchange Rate Fluctuations, Small and Medium Enterprises, Sustainability, Economic Impact, Nigeria.

Introduction

The variation in a currency's value in relation to another, caused by variables such as supply and demand, macroeconomic indicators, geopolitical events, and market mood, is known as an exchange rate fluctuation. The dynamic character of the world's financial markets is reflected in these shifts (Levich, 2017). On the other hand, performance is the capacity to meet organizational goals. It includes overall competitive position in the market, financial stability, and operational efficiency (Storey, 2019). Exchange rate fluctuations, characterized by the dynamic changes in the value of the national currency against foreign currencies, pose both challenges and opportunities for Small and Medium Enterprises. Small and Medium businesses are affected by these swings in a number of ways, such as their capacity for international commerce, profitability, competitiveness, and financing availability (Iyoha & Oriakhi, 2018). Due to its reliance on oil exports, susceptibility to shocks to the global economy, and structural difficulties, the Nigerian economy, like many others, is extremely vulnerable to fluctuations in currency rates (KPMG Nigeria, 2020). According to Ogunmuyiwa & Ekone (2017), a number of factors, like changes in oil prices, governmental policies, inflation rates, and external market circumstances, can have an impact on the naira's value in relation to foreign currencies like the euro and US dollar.

In addition, exchange rate fluctuations are one of the main issues that Nigeria's small and medium-sized businesses encounter, notwithstanding their contribution to economic growth and improvements in the socioeconomic welfare of the population. This is true because, among other reasons, small and medium-sized businesses rely heavily on imported capital goods and raw materials to complete their manufacturing processes; hence, any changes in the exchange rate have an adverse effect on the financial expansion of the industry (Adebisi & Salau, 2019). The importing of raw materials and capital products needed by the manufacturing industries that have had multiple setbacks due to fluctuations in exchange rates would, however, make any economy less competitive both domestically and internationally. Exchange rate volatility has consequently resulted in the failure and closure of numerous small and medium-sized businesses. It has also generated a climate of macroeconomic uncertainty that lowers firm productivity, employment, profit, and investment levels (Buabeng, et al, 2019).

Nigeria's serves as a microcosm for economic environment, with small and medium-sized enterprises are crucial to the development of the economy and the generation of jobs. The effects of variations in exchange rates are especially noticeable for Small and Medium Enterprises. These businesses are especially susceptible to currency volatility because they frequently lack the financial resources, risk management instruments, and negotiating strength offered to larger organizations. Exchange rate risks can reduce profit margins, raise operational costs, and jeopardize the viability of businesses for SMEs involved in export and import, raw material procurement, and loan servicing abroad (Olalere, et al., 2021). Additionally, a number of writers have drawn attention to empirical issues when analyzing how exchange rate variations affect the performance of SMEs in Nigeria. Owoeye & Ogunmakin (2016) highlighted that effective analysis is hampered by the challenge of getting reliable and consistent financial data from SMEs. Adeniran, et al. (2020) noted that it is difficult to draw generalizations from exchange rate swings because of the diverse effects they have on various industries. Obadan (2023) discussed exchange rate volatility's impact on broader economic instability, which added complexity to the examination of SME success.

The study objective is to look at the effect of exchange rate fluctuations on the performance of Small and Medium Enterprises in Nigeria. The following are the specific objectives:

a. To identify the extent of how changes in interest rates affects the relationship between exchange rate fluctuations and the performance of SMEs in Nigeria.
b. To assess the extent of how changes in inflation rates affects the relationship between exchange rate fluctuations and the performance of SMEs in Nigeria.
c. To assess the effect of exchange rate fluctuations on performance of SMEs in Nigeria.
d. To analyze the mediating effects of interest rates, inflation rates, and GDP rate on the relationship between changes in exchange rates and the performance of SMEs

Review of Related Literature

Concept of Exchange Rate Fluctuation

The number of units of one economy's currency (the home country) relative to another economy's currency is referred to as the exchange rate. It is the suggested quantity of one currency denomination that can be used to buy one or more units of currency from another nation. Therefore, the value of one currency relative to another better describes the exchange rate (Mordi, 2016). Changes in exchange rates have a big impact on global investment, commerce, and economic stability in general. They can affect the competitiveness of exports and imports, influence the profitability of multinational corporations, and impact the purchasing power of consumers and businesses (Melvin & Norrbin, 2016).

A key component of economic dynamics is the interaction between exchange rates and small and medium-sized businesses. Exchange rate fluctuations can significantly affect small and medium-sized firms' operations, profitability, competitiveness, and access to international markets. It affects the cost that Nigerian small and medium-sized enterprises must pay to import completed items, equipment, and raw materials. Importing gets more expensive when the local currency weakens compared to other currencies, which raises the cost of production. On the other hand, a reduction in the worth of foreign currencies in relation to the local money is able to increase export competitiveness but could also result in smaller profit margins for SME's (Idris, et al., 2014). The capacity of Small and Medium Enterprises to obtain funding and credit facilities may be impacted by fluctuations in exchange rates. Exchange rate fluctuations may put lenders at more risk, which could result in stricter lending guidelines and more expensive borrowing for Small and Medium-Sized Businesses in Nigeria. Their intentions for expansion and investment may be hampered as a result (Ogundeji & Rotimi, 2018).

Dimensions of Exchange Rate Fluctuations

The dimensions of exchange rate fluctuations involve identifying specific indicators or measures that capture various aspects of currency value changes over time. These dimensions of exchange rate fluctuations include:

1. **Spot Exchange Rate volatility**: The degree of fluctuation in the current value of one currency in relation to another on the foreign exchange market is known as spot exchange rate volatility. It is typically measured using statistical methods such as standard deviation or variance of daily or intra-day exchange rate changes (Jorion, 2017).
2. **Forward Exchange Rate Volatility:** The volatility of the forward exchange rate measures the uncertainty or variability in future currency exchange rates as implied by the pricing of forward contracts in the foreign exchange market. It reflects market expectations and risk perceptions regarding future exchange rate movements (Hull, 2015).
3. **Real currency Rate Variations:** Actual variations in currency rates adjust nominal exchange rates for differences in inflation rates between countries, providing a measure of changes in the currencies' respective buying power. Real exchange rate indices are commonly constructed using consumer price indices or producer price indices (Rogoff, 2020).
4. **Trade-Weighted Exchange Rate Index**: This measures how much a nation's currency is worth on average in relation to the currencies of its trading partners, weighted by the importance of each trading partner in international trade. It provides a comprehensive measure of a currency's overall competitiveness in global markets ((IMF, 2019).
5. **Exchange Rate Regime Changes:** These are modifications to the framework of monetary policy that determines a nation's exchange rate, such as switches between fixed, floating, or managed exchange rate systems. These changes can have significant implications for exchange rate stability and market expectations (Frankel, 2021).

Mechanisms Affecting the Volatility of Exchange Rates

The following are a few variables that affect how the exchange rate fluctuates:

- **Interest Rates:** According to Levich (2017), higher interest rates typically draw in foreign capital inflows, which raises demand for a currency and increases its value.
- **Inflation Rates:** Stronger currencies are typically found in nations with lower inflation rates because of their comparatively larger purchasing power (Mishkin & Eakins, 2016).
- **Economic Performance:** According to McKenzie & Pyle (2018), a country's ability to draw in foreign investment and fortify its currency is reflected in its GDP growth, employment rates, and industrial production.
- **Trade Balance:** Because there is more demand for a nation's goods and services, a country with a trade surplus (exports exceeding imports) usually has a stronger currency (Mishkin & Eakins, 2016).

Concept of Small and Medium-Sized Businesses (SMEs)

A typical definition of Small and Medium Enterprises (SMEs) is predicated on factors including annual turnover, asset value, and staff count. SMEs are often defined by their relatively modest size, limited resources, and entrepreneurial nature, though definitions may differ between nations and organizations (OECD, 2020). In both rich and emerging economies, SMEs are essential for fostering innovation, job creation, and economic growth. They contribute significantly to GDP and job creation, particularly in sectors such as manufacturing, services, and technology (Mazzarol & Reboud, 2017).

Dimensions of SMEs performance

Operationalizing the dimensions of performance involves identifying specific indicators or measures that capture various aspects of performance of Small and Medium Enterprise. These dimensions provide a comprehensive understanding of SMEs performance and facilitate evaluation, benchmarking, and strategic decision-making. Dimension of SMEs performance such as Profitability, measures the capacity of SMEs to turn a profit in relation to their outlays and capital. Return on equity (ROE), net profit margin, and return on assets (ROA) are important metrics. In a similar vein, liquidity shows how well Small and Medium Enterprises are able to fulfill their immediate financial responsibilities. The quick ratio and current ratio are examples of common indicators. While solvency reveals SMEs' capacity to pay off debt and their long-term financial health. The debt-to-equity ratio and the interest coverage ratio are two metrics (Brigham & Ehrhardt, 2016).

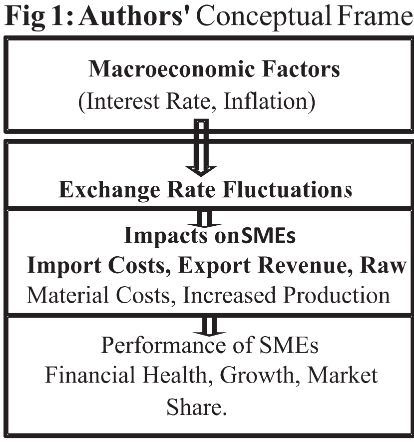
Furthermore, operational Performance involves efficiency which measures the productivity and effectiveness of SMEs in utilizing resources to produce goods or services. Labor productivity, inventory turnover ratio, and asset turnover ratio are important metrics. While, quality reflects the degree to which SMEs meet or exceed customer expectations in terms of product or service quality. Indicators include defect rate, customer satisfaction scores, and warranty claims. Innovation also indicates the ability of SMEs to innovate and adapt to changing market demands. Measures include the number of new products or services introduced, research and development investment, and patents filed (Slack, *et al*, 2018).

Market Performance such as market share reflects the proportion of total market sales or revenue captured by SMEs relative to competitors. Sales growth rate and market share percentage are examples of indicators. The ability of SMEs to draw in and hold on to consumers is also gauged by client acquisition and retention. client lifetime value, client retention rate, and customer acquisition cost are examples of indicators. While brand Recognition indicates the visibility and reputation of SMEs' brands in the market. Measures include brand awareness, brand equity, and brand loyalty (Kotler & Keller, 2016).

Conceptual Framework

The conceptual framework shows how changes in exchange rates affect the performance of SMEs in Nigeria and are influenced by macroeconomic factors such as inflation and interest rates. While lower interest rates and higher inflation might cause devaluation, higher interest rates draw in foreign money and strengthen the currency. Changes in exchange rates have a direct impact on the price of raw materials, export revenue, and import prices. Higher input costs, a decline in competitiveness, and higher production costs are the results of these direct effects. These elements therefore lower profit margins, market share, and productivity, which in turn impacts SMEs' overall performance, growth, and financial stability. The linked effects of macroeconomic variables on the performance of SMEs in Nigeria are highlighted by this framework.

Fig 1: Authors' Conceptual Framework (2024)



Theoretical Framework

This study draws upon two theoretical frameworks namely the transactional cost theory and the resourced based view theory, which serves as the work's foundation—to explain how exchange rate variations affect small and medium-sized businesses in Nigeria.

Transaction Cost Theory (Williamson, 1979).

Oliver Williamson proposed the Transaction Cost Theory in 1979. The theory states that companies should choose the governance structure that reduces transaction costs, such as expenses related to risk, uncertainty, and volatility in exchange rates. According to the theory, businesses choose a governance structure that strikes a balance between the advantages and disadvantages of internalization and market interactions in an effort to reduce transaction costs. A framework known as transaction cost theory helps Small and Medium Enterprises in Nigeria, determine whether to internalize or outsource specific tasks in reaction to modifications in the exchange rates and related transaction costs.

Opponents contend that Transaction Cost Theory may oversimplify how businesses make decisions and ignore other aspects, such as organizational capabilities and strategic concerns, that affect the choices made about governance structures. Small and medium businesses in Nigeria, can benefit from the application of transaction cost theory since it clarifies how they handle variations in exchange rates while deciding on supply chain management, outsourcing, and vertical integration. Transaction Cost Theory has been criticized by some academics in order to consider the dynamic character of exchange rate fluctuations and for giving insufficient weight to the social and relational components of transactions (Granovetter, 2018).

Resource Based View Theory (Barney, 1991)

The Resource-Based View paradigm was first put forth by Jay Barney in 1991. The Resource-Based View claims that, a company's performance and competitive advantage are based on its particular combination of resources and skills, which may include exchange rate management techniques. These resources might be in the form of material possessions, intangible skills, and—most importantly—the thoughtful application of technology. In order to generate lasting competitive advantages, RBV posits that organizations have a variety of resources and abilities that are priceless, uncommon, unique, and non-replaceable. Additionally, it implies that if resources are priceless, uncommon, and challenging to replicate, a competitive edge may be maintained. RBV provides information on how Kogi State's small and medium-sized businesses in Lokoja can take advantage of their special assets and skills to lessen the negative effects of exchange rate fluctuations and capitalize on market opportunities.

Empirical Review

Onwuka (2022) used the Autoregressive Distributed Lag Model (ARDL) and ARCH/GARCH model to investigate the effects of exchange rate volatility on the performance of Nigeria's manufacturing sector. For the investigation, the random sampling approach was employed. The ARDL results demonstrate that whereas imports and gross capital formation have a favorable long-term influence on manufacturing performance, exchange rate volatility, interest rates, and inflation rates have a negative long-term impact on manufacturing sector performance. It was also discovered that, whilst import and inflation were not found to have a substantial effect on manufacturing performance, exchange rate volatility, gross capital creation, and interest rate did. The study recommended that government should implement policies to stabilize the exchange rate and provide support mechanisms for Small and Medium Enterprises to hedge against currency risks. The study is criticized for limited focus on domestic market dynamics and alternative risk management strategies.

Saleye, et al. (2021) looked into how Nigerian manufacturing performance was affected by exchange rates. The shock effect and the short- and long-term elasticities of exchange rate on manufacturing performance were investigated using structural vector auto regression (SVAR), extended correction modeling (ECM), and canonical co-integrating regression. In contrast, output and employment were utilized as proxies for the performance of the manufacturing sector. The results demonstrated that, over the short and long terms, changes in the exchange rate are reasonably elastic in relation to output and employment. Changes in the currency rate, however, have little immediate impact on employment. The SVAR's variance decomposition revealed that the exchange rate's forecast error shock has a longer lasting effect on employment than on output. The results showed that output and employment in the manufacturing sector have not increased as a result of the Nigerian exchange rate.

A study on exchange rate fluctuations on the performance of small and medium-sized businesses in South Africa was carried out by Oluwatobi & Adekunle (2020). Descriptive statistics and Logistic regression analysis were used for the study statistical tools. Convenience sampling method was used for the sampling procedure to select 120 respondents for the study. The study's conclusions demonstrate how variations in currency rates, such as those of interest and inflation, have a detrimental effect on the financial performance and investment choices of small and medium-sized businesses in South Africa, leading to increased production costs and reduced profitability. The study recommended that South African Small and Medium Enterprises should implement risk management strategies and explore alternative market opportunities to cope with exchange rate uncertainties. The study is criticized for potential bias in convenience sampling and limited generalizability.

Agyapong & Fosu (2019) examined exchange Rate Fluctuations and small and medium sized enterprise performance: evidence from Ghana. The statistical tools used were descriptive and regression analysis. The random sampling method was used for the study. The study's findings demonstrate how exchange rate swings have a detrimental impact on Ghanaian small and medium-sized businesses' operations, lowering their profitability and competitiveness. The report suggested that measures be taken by the government to stabilize the exchange rate and provide support mechanisms for Small and Medium Enterprises to hedge against currency risks. The study is criticized for limited consideration of other external factors influencing SME performance.

The performance of small and medium-sized businesses in Nigeria and the fluctuation of exchange rates were studied by Ibrahim & Aliyu (2018). The study included multiple regression analysis and descriptive statistics as statistical tools. For the investigation, a statistical tool called the cluster sampling approach was employed. The study's findings demonstrate that changes in exchange rates have a negative effect on financial performance and investment decisions of Small and Medium Enterprises in Nigeria, leading to increased production costs and reduced profitability. The research recommended that Nigerian Small and Medium Enterprises should implement risk management strategies and seek financial assistance to cope with exchange rate uncertainties. Criticism of the research indicates potential endogeneity issues in regression analysis and limited consideration of macroeconomic factors.

Summary of Empirical Review

The aforementioned research looked at how different nations' SMEs and industry performances were affected by exchange rate volatility. Onwuka (2022) examined Nigeria's manufacturing sector using the ARCH/GARCH and ARDL models. She discovered that while imports and gross capital formation had favorable benefits over the long run, exchange rate volatility, interest rates, and inflation rates had negative effects. The report suggested protecting SMEs from currency risks and stabilizing exchange rates. Saleye, et al. (2021) investigated the effects of exchange rates on Nigeria's manufacturing sector using SVAR, ECM, and Canonical Co-Integrating regression. They found that while there were short-term employment effects, there was a strong long-term elasticity with output and employment. According to the report, sector output and employment have not increased as a result of exchange rate fluctuations. In their evaluation of the effects on South African SMEs,

Oluwatobi & Adekunle (2020) used logistic regression and descriptive statistics. They discovered that interest and inflation rates had a detrimental influence on investment decisions and financial performance, and they suggested risk management techniques. Descriptive and regression analysis were used by Agyapong & Fosu (2019) to analyze the Ghanaian SMEs sector. They came to the conclusion that exchange rate fluctuations lower profitability and competitiveness and recommended government stabilization policies, but they neglected to take other external factors influencing SMEs performance into account. Although they were criticized for possible endogeneity issues and a lack of macroeconomic factor consideration, Ibrahim & Aliyu (2018) used descriptive statistics and multiple regression to study Nigerian SMEs, identifying negative impacts on financial performance and investment decisions from exchange rate fluctuations and recommending risk management strategies and financial assistance.

Methodology

The study focuses on Nigeria, a nation in West Africa with a varied economy largely dependent on oil exports. Major commercial hubs with a high proportion of SMEs operating there, Lagos, Abuja, Kano, and Port Harcourt, were included in the geographic coverage (Adebayo, et al, 2019). This study uses a quantitative research design. For clarity and reliability, the study makes use of secondary data that was gathered from reliable sources such as national statistical agencies and central banks. 41,543,028 Small and Medium Enterprises (SMEs) that operate in Nigeria across a range of economic sectors make up the study's population (NBS, 2023). A stratified random sampling technique was used to select SMEs. The study does not focus on specific SMEs but rather aims to analyze aggregate data representing the SME sector as a whole within the Nigerian economy. The method of data collection involves retrieving secondary data from existing sources. The data sources include:

a. Central Bank of Nigeria (CBN) for exchange rate fluctuations, interest rates, and inflation rates data.
b. National Bureau of Statistics (NBS) for performance indicators of SMEs, such as profitability, liquidity, and solvency.

Multiple Regression Model

The multiple regression model was use to analyze the effect of exchange rate fluctuations, interest rates, and inflation rates on the performance of small and medium enterprises in Nigeria. The regression equation can be expressed as follows:

$Y = \beta 0 + \beta 1 + \beta 2 + \varepsilon$

Where:

Y= Performance

$\beta 1$= Interest Rates,

$\beta 2$= Inflation Rates

$\beta 0$: Intercept term representing the constant or baseline performance level when there are zero independent variables.

$\beta 1$, $\beta 2$: Regression coefficients representing the effect of exchange rate fluctuations, interest rates, and inflation rates on SMEs performance, respectively.

ε: Error term representing the random variability or unexplained factors affecting SMEs performance.

Mediation Analysis: Path Analysis Model

This model's goal is to examine how interest and inflation rates mediate the relationship between changes in exchange rates and the performance of SMEs. To evaluate these associations, correlation analysis within a route analysis framework was employed.

Hypotheses

H_o^1: Exchange rate fluctuations have a direct effect on the performance of SMEs.

H_o^2: Exchange rate fluctuations affect interest rates.

H_o^3: Exchange rate fluctuations affect inflation rates.

H_o^4: Exchange rate fluctuations affect GDP.

H_o^5: Interest rates mediate the relationship between exchange rate fluctuations and the performance of SMEs.

H_o^6: Inflation rates mediate the relationship between exchange rate fluctuations and the performance of SMEs.

H_o^7: GDP mediate the relationship between exchange rate fluctuations and the performance of SMEs.

Variables

Independent Variable (IV): Exchange Rate Fluctuations (ERF)
Mediating Variables (MVs):
- Interest Rates (IR)
- Inflation Rates (INF)

Dependent Variable (DV): Performance of SMEs (FPSMEs)

Path Analysis Model

The path analysis model can be represented as follows:

1. Direct Effects:
   - Path a: ERF →IR
   - Path b: ERF →INF
   - Path c: ERF →GDP
   - Path d: ERF →PSMEs
2. Indirect Effects (Mediation Paths):
   - Path e: IR →PSMEs
   - Path f: INF →PSMEs
   - Path g: GDP →PSMEs
3. Total Effects:
   - Total effect of ERF on PSMEs considering both direct and indirect effects through IR, INF and GDP.

Statistical Model

The relationships can be expressed through the following equations:

a. Interest Rates Model: $IR = \alpha_1 + \beta_1 ERF + £_1$

b. Inflation Rates Model: $INF = \alpha_2 + \beta_2 ERF + £_2$

c. Inflation Rates Model: $GDP = \alpha_3 + \beta_3 ERF + £_3$

d. Performance Model: $FPSMEs = \alpha_4 + \beta_4 ERF + \beta_5 IR + \beta_6 INF + \beta_7 GDP + £_4$

Where:
- $\alpha_1, \alpha_2, \alpha_3,$ are intercepts.
- $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5\ \beta_6\ \beta_7$ are path coefficients.
- $£_1, £_2, £_3 £_4$ are error terms.

Data Analysis and Results

Regression Analysis

The regression analysis was conducted to determine the extent to which changes in interest rates and inflation rates mediate the relationship between exchange rate fluctuations and the performance of small and medium enterprises in Nigeria.

Table 1: Regression Coefficients

Variables	Coefficients	Std. Error	t-ratio	p>/t/	Sign
Constant	0.238	0.032	7.421	0.001	+
Interest Rate	0.132	0.028	4.714	0.002	+
Inflation Rate	0.095	0.026	3.800	0.011	+
R Square	0.750				
Adjusted R Square	0.671				
F	19.237	<0.001			

Source: Field Survey, (2024)

The model summary indicates that the regression model explains approximately 75% of the variance in SME performance, as indicated by the R Square value. The results of the ANOVA indicate that the regression model is statistically significant ($F = 19.237$, $p < 0.001$), indicating a significant impact of the independent variables on the performance of SMEs. The coefficients table provides information on the relationships between the independent variables and SME financial performance The combination of interest rates, inflation, and exchange rate variations can account for about 67.1% of the variance in financial performance, according to the adjusted R-squared value of 0.671.

The results of the multiple regression analysis indicate that fluctuations in interest rates and inflation rates significantly influence the performance of SMEs in Nigeria, even after controlling for exchange rate fluctuations. Interest rates ($\beta = 0.132$, $p < 0.001$) and inflation rates ($\beta = 0.095$, $p < 0.001$) are positively associated with SMEs performance. The study coincides with that of Ibrahim and Aliyu (2018) who indicated that exchange rate fluctuations adversely impact the performance and investment decisions of Small and Medium Enterprises in Nigeria, leading to increased production costs and reduced profitability. The results are consistent with those of Adebayo and Suleiman (2019), who found that inflation and interest rates had an effect on how well SMEs function in Nigeria. The results, however, are in opposition to those of Nwosu and Eze (2016), who show that the performance of SMEs is not statistically impacted by interest rates and that other factors may be more important.

Descriptive Statistics and Correlation Analysis

To ascertain the fundamental links between the variables, a correlation analysis was carried out prior to the path analysis. Table 2 displays the correlation matrix and descriptive statistics.

Table 2: Correlation Matrix and Descriptive Statistics

Variables	Mean	SD	ERF	IR	INF	FPSMEs
ERF	1.120	0.35	1	0.65**	0.70**	-0.60**
IR	0.050	0.02	0.65**	1	0.75**	-0.55**
INF	2.500	0.50	0.70**	0.75**	1	-0.65**
PSMEs	3.000	0.75	-0.60**	-0.55**|	-0.65**|	1

Source: Field Survey, (2024) **Note**: ** **p < 0.01

The correlation analysis revealed significant relationships among all the variables. Exchange rate fluctuations (ERF) are positively correlated with interest rates (IR) and inflation rates (INF), and negatively correlated with the performance of SMEs (PSMEs).

Path Analysis Results

To test the hypothesized model, we conducted a path analysis using structural equation modeling (SEM). Table 3 and Table 4 show the path analysis's results.

Table 3: Path Coefficients and Significance Levels

Path	Coefficient (β)	Standard Error (SE)	t-value	p-value
ERF ? IR	0.65	0.08	8.13	< 0.001
ERF ? INF	0.70	0.07	10.00	< 0.001
ERF ? GDP	0.76	0.06	10.09	< 0.001
IR ? PSMEs	-0.40	0.10	-4.00	< 0.001
INF ? PSMEs	-0.45	0.09	-5.00	< 0.001
GDP ? PSMEs	-0.51	0.08	-4.00	< 0.001
ERF ? FPSMEs	-0.20	0.11	-1.82	0.069

Source: Field Survey, (2024)

The path analysis results show that Exchange rate fluctuations significantly affect interest rates ($\beta = 0.65$, $p < 0.001$) and inflation rates ($\beta = 0.70$, $p < 0.001$). Similarly, interest rates have a significant negative effect on the performance of SMEs ($\beta = -0.40$, $p < 0.001$). Also, inflation rates have a significant negative effect on the performance of SMEs ($\beta = -0.45$, $p < 0.001$), while GDP also have a significant negative effect on the performance of SMEs ($\beta = -0.51$, $p < 0.001$). Further findings show the direct effects of exchange rate fluctuation on the performance of SMEs is negative but not statistically significant ($\beta = -0.20$, $p = 0.069$).

Mediation Analysis

To assess the mediating effects of interest rates and inflation rates, we conducted a Sobel test and bootstrap analysis presented in table 3.

Table 4: Mediation Analysis Results

Mediator	Indirect Effect (IE)	SE	Sobel z	p-value	Bootstrap 95% CI
IR	-0.26	0.08	-3.25	<0.001	[-0.42, -0.14]
INF	-0.32	0.09	-3.56	< 0.001	[-0.50, -0.18]
GDP	-0.40	0.09	-3.62	< 0.001	[-0.61, -0.10]

Source: Field Survey, (2024)

The mediation analysis confirms that both interest rates, inflation rates and GDP significantly mediate the relationship between exchange rate fluctuations and performance of SMEs. The indirect effects through interest rates (IE = -0.26, $p = 0.001$), inflation rates (IE = -0.32, $p < 0.001$) and GDP (IE = -0.40, $p < 0.001$) are significant, indicating that the total effects of exchange rate fluctuations on the performance of SMEs is partially mediated by these variables. The study is in line with Onwuka's (2022) research who indicated that the manufacturing sector's long-term performance is negatively impacted by currency rate volatility, interest rates, and inflation rates, whereas imports and gross capital formation have a positive influence. The findings of the study also coincide with that of Oluwatobi & Adekunle (2020) and Saleye, et al (2021) who asserted that exchange rate fluctuations such as interest and inflation rates negatively affect the financial performance and investment decisions of small and medium enterprise in South Africa, leading to increased production costs and reduced profitability

Conclusion and Recommendation

The analysis of this study underscores the significant impact of exchange rate fluctuations on the performance of Small and Medium Enterprises (SMEs) in Nigeria. Exchange rate volatility, influenced by macroeconomic factors such as interest rates and inflation, adversely affects SMEs by increasing production costs, reducing profitability, and impairing competitiveness. Further findings show that exchange rate fluctuations have a positive association with SME performance, suggesting that SMEs can potentially benefit from favorable exchange rate movements. This indicates that when the Nigerian

Naira appreciates, SMEs might experience improved performance due to lower import costs and better export opportunities. While the direct impact of exchange rate fluctuations on SME performance is not statistically significant, the indirect effects through interest rates and inflation are significant and negative. This implies that the adverse impacts of exchange rate volatility on SMEs are mediated by changes in interest rates and inflation rates. These fluctuations lead to financial instability, challenging SMEs to maintain sustainable operations and growth. This highlights the significant role that monetary policy variables play in shaping business outcomes for SMEs. Effective management of these variables can thus be beneficial for SME growth and stability.

The study's conclusions lead to the following recommendations being put forth:

a. To protect the performance of SME's, Nigeria should adopt sound monetary policies to stabilize interest rates and rein in inflation. Through macroeconomic stabilization, policymakers should concentrate on initiatives that reduce exchange rate volatility and its unintentional negative consequences on SMEs.
b. To help SMEs better navigate economic volatility and preserve financial stability, governments should give them hedging mechanisms and other instruments and techniques for managing currency rate risks.
c. To improve the financial stability and expansion of SMEs, policymakers and managers of small and medium-sized enterprises (SMEs) must constantly watch over and control macroeconomic variables, such as inflation, interest rates, and exchange rates.
d. To lessen possible negative effects on their operations, SMEs' managers should integrate macroeconomic and exchange rate factors into their risk management and strategic planning procedures.

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