

EXCHANGE RATE VOLATILITY AND FINANCIAL PERFORMANCE OF LISTED DEPOSIT MONEY BANKS IN NIGERIA

BY

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Abstract

This study investigated the relationship between exchange rate volatility (ERV) and the financial performance of listed Deposit Money Banks in Nigeria, as measured by Net Profit Margin (NPM). The Study utilized secondary source of data from audited annual reports and accounts of selected listed deposit money banks in Nigeria and exchange rate data were sourced Oanda FX Data Services spanning from 2019 to 2023. It utilized ex-post facto research design, and the Purchasing Power Parity (PPP) theory was utilized to guide the study. The findings revealed a moderate positive correlation ($r = 0.399$) between ERV and NPM, with a statistically significant p-value of 0.015. The regression model shows approximately 15.9% of the variance in NPM, with an R^2 of 0.159, indicating that while ERV has an effect; other factors likely contribute to the variation in NPM. The results show that a unit increase in ERV leads to a 128.857 increase in NPM, suggesting a positive influence. The model's F-value of 5.290 and p-value of 0.029 further confirm the significance of ERV as a predictor of NPM. However, the study recommends that as model's explanatory power is limited, indicating the need for further research with additional predictors to fully understand the determinants of bank profitability in the context of exchange rate fluctuations.

Keywords: Exchange rate volatility, Deposit money banks, and Net Profit Margin.

Introduction

Deposit Money Banks (DMBs) In Nigeria, are among major drivers of nation's economic development by facilitating financial intermediation. They transfer funds from surplus units to deficit units for investment, thereby increasing the nation's Gross Domestic Product (GDP) and acting as a facilitator for economic growth. Banks are essential to economic development as they transform deposits into productive investments, which in turn supports overall economic expansion (Ali & Sukana 2022). The exchange rate is essential to an economy, as it influence domestic prices, trade profitability, resource allocation, and investment choices. In Nigeria, the shift from fixed exchange rates to various floating regimes began with the Structural Adjustment Programme (SAP) in 1986. Since then, multiple techniques have been implemented to stabilize the Naira, reflecting continuous efforts by monetary authorities to address ongoing depreciation and volatility in the currency's value (Abubakar 2020). Foreign exchange fluctuations impact all areas of an open economy, particularly financial sectors. The appreciation under a floating exchange rate system can reduce export competitiveness and negatively influence stock markets in export-heavy economies. For import-dependent nations like Nigeria, exchange rate shifts can destabilize prices level of good and services due to reliance on imported raw materials, capital goods, and consumer goods. Therefore, managing the foreign exchange market is essential, as exchange rate stability remains backbone for economic activity, influencing prices, resource allocation, and investment (Alagbe et al., 2021)

Deposit money banks in Nigeria uphold an essential role in nation's economic development, mainly by transferring funds from depositors to investors. Upon their intermediation function, their financial performance significantly affects economic growth. If banks perform well financially, they provide returns to shareholders, encouraging investment and enhance economic progress. Before the banks to maintain sustainable intermediation and yield satisfactory returns for shareholders, profitability is essential. Profitable banks generate the necessary revenue to

cover operational expenses, whereas poor performance can lead to crises or bank failures, which negatively impact economic growth.

In this study bank profitability, is determined by net profit margin (NPM), is influenced by a range of factors. These factors are categorized as internal and external, with internal factors being specific to individual banks and shaped by management and board decisions. These internal factors encompass a bank's unique operational practices and policies. Equally, the External factors include broader macroeconomic variables, which are beyond the bank's control and pertain to industry or countrywide economic conditions. Among external factors, exchange rate is mainly influential on bank profitability, affecting it both directly and indirectly. Directly, exchange rate changes impact foreign currency-denominated assets and liabilities, and even non-asset-based services. If the assets and liabilities are in foreign currencies, fluctuations in exchange rates adjust their values in domestic currency, resulting in either gains or losses. If a bank's foreign currency assets and liabilities are equal, the direct influence of exchange rate changes on financial statements is minimal. However, mismatched foreign currency assets and liabilities result in direct financial effects from exchange rate variations (Oshim&Nze (2024). Indirect effects of exchange rate fluctuations on bank profitability emerge through their influence on loan demand, competition, and other market dynamics. The changes in exchange rates may affect the prices of domestic goods, imports, exports, and foreign direct investment (FDI), thereby influencing banks' loan portfolios and operational strategies.

Numerous studies have examined various dimensions of exchange rate volatility, resulting mixed effects on financial performance. Studies such as Oshim and Nze (2024) and Akinyemi et al. (2022), found negative impacts while others reported positive effects, including Owolabi and Olukilede (2024), Osho and Fagbamila (2022), and Ali and Sukana (2022). Despite employing diverse methodologies and financial performance indicators, many of these studies utilized return on assets (ROA) as a main determinant of financial performance. The need for additional research in this area remains evident, as existing findings continue to vary, and there is a limited body of research specifically addressing the effects of exchange rate volatility on the financial performance of deposit money banks in Nigeria. Moreover, studies focused on the unique implications of exchange rate fluctuations on these banks are sparse, stressing the necessity for further investigation in this area. Therefore, this study seeks to address this gap by examining how exchange rate volatility impacts the financial performance of deposit money banks in Nigeria, contributing to a more comprehensive academic literature, banks management and decision makers, regulatory bodies, shareholders, business and corporation and even general public.

Research Objectives

The objective of the study is to examine impact of exchange rate volatility (proxied annualized standard deviation) on Financial Performance of Listed Deposit Money Banks in Nigeria (proxied as Net Profit Margin).

Conceptual Review

Exchange rate is the value of one currency in relation to another, determined during currency conversion, and can fluctuate it significantly impacts domestic prices, trade profitability, resource allocation, and investment decisions. A stable exchange rate is essential for economic activities which emphasized that exchange rate is fundamental but challenging economic tool for policy adjustment (Ali & Sukana2022).

Exchange Rate Volatility

Exchange rate volatility refers to fluctuations in a country's currency value against another's; it complicates international trade and investment by increasing foreign exchange risk. High volatility often discourages investment, leading to reduced transactions like savings and borrowing, which may negatively impact banks. However, exchange rate volatility is the risk tied to unpredictable currency value changes (Ali & Sukana 2022).

Determinant of Exchange Rate Volatility

Exchange rates are influenced by various factors related to the economic correlation between countries. These rates are expressed as a comparison of the two countries' currencies. The several fundamental indicators of exchange rates, which are not ranked by importance, as the significance of these factors can vary (Ali & Sukana 2022).

Inflation Differentials

Countries with lower inflation rates tend to see an appreciation in their currency's value, as their purchasing power increases relative to others. Ali & Sukana (2022) the countries like Japan, Germany, and Switzerland experienced low inflation in the latter half of the 20th century, which boosted their currency values. In contrast, countries with higher inflation typically see their currencies depreciate in which Nigeria inclusive.

Interest Rate Differentials

Interest rates, inflation, and exchange rates are closely connected to the Central banks influence inflation and exchange rates through interest rate adjustments. Higher interest rates attract foreign capital, leading to a rise in the exchange rate, although this effect is pointed if inflation is significantly higher than in other countries. Lower interest rates tend to reduce exchange rates (Ali & Sukana 2022).

Current-Account Deficits

The current account measures the trade balance, including goods, services, interest, and dividends between a country and its trading partners. A deficit indicates that a country is spending more on imports than it is earning from exports, requiring foreign borrowing to make up the difference. This demand for foreign currency leads to a depreciation of the country's exchange rate (Ali & Sukana 2022).

Public Debt

Countries with large public debts often face by reduction in foreign investment due to concerns about inflation and the risk of default. Inflation indicate that the value of debt, and in extreme cases, governments may possibly to print money to pay debts, which increases inflation. Large public debts may also lower a country's debt rating, further discouraging foreign investment and depreciating the currency (Ali & Sukana 2022).

Terms of Trade

The terms of trade means that the ratio of export prices to import prices. If the price of a country's exports increases at a greater rate than its imports, the terms of trade improve, leading to superior demand for the currency and a rise in its value. Equally, if export prices increase more gently than import prices, the currency depreciates (Ali & Sukana 2022).

Political Stability and Economic Performance

Foreign investors most likely favor countries with political stability and strong economic performance, as they offer lower investment risks. Political instability, on the other side, it can undermine confidence in a country's currency, causing capital to flow to more stable economies (Ali & Sukana 2022).

Determinant of financial performance

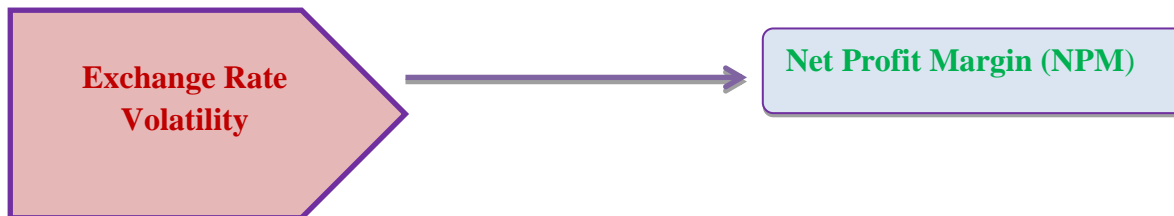
Financial performance in banking sector means the assessment and measurement of a financial institution's complete effectiveness in managing its resources to generate profits, and achieving sustainable growth and development. It involves the overall appraisal of various financial indicators, including but not limited to profitability, liquidity, solvency, efficiency, and asset quality. Financial performance in banking extends beyond profitability metrics, encompassing risk management, operational efficiency, and the maintenance of a sound financial position (Fatihudin et al., 2018).

1. Net Profit Margin

There are various determinant of financial performance employed by different researchers, use in diverse researches to determine the financial performance of an organisation. This research study employed Net profit margin (NPM) as proxy of the financial performance. Gitman (2012), the net profit margin reflect the proportion of sales revenue that remains after subtracting total expenses and costs, including interest, taxes, and preferred stock dividends. Consequently, a high net profit margin signifies favorable performance for a company. This metric is calculated using the following formula:

$$\text{Net Profit Margin} = \frac{\text{EAT}}{\text{Net Sales}} \times 100$$

Figure 1: Conceptual Diagram



Note: Author's Compilation (2024)

Theoretical Review

This research is grounded in the Purchasing Power Parity (PPP) theory, which was profound by Menon and Viswanathan (2005), it posits that homogeneous goods should hold equal value across countries when adjusted for currency differences. The theory assumed that, all things being equal, the purchasing power should be the same worldwide, corresponding with exchange rates between nations. Reid & Joshua (2004) suggest that the commodity price ratio should mirror currency values, while Ross et al., (2008) posit that currency value can sometimes deviate, rendering it ineffective for purchasing the same goods domestically. PPP operates under assumptions of no transaction costs, trade barriers, and uniform goods, where the spot exchange rate ensures price uniformity across nations. However, the problems with exchange rate instability are attributed to differences in national price indices. Absolute and relative Purchasing Power Parity (PPP) theories provide different perspectives on these issues: absolute PPP upholds the Law of One Price, while relative PPP accounts for market imperfections and relative changes in exchange rates (Ross et al., 2008). This theory underpinned this research as it is relevant in helping to explain currency values based on purchasing power between countries as the exchange rate is volatile more especially between dollar and naira in Nigeria.

Empirical review

Owoeye & Ogunmakin (2013) investigates the exchange rate volatility and bank performance in Nigeria the two proxies for bank performance, namely loan loss to total advances ratio and capital deposit ratio were used. Government expenditure, interest rate, real gross domestic product were added to exchange rate as independent variables. the secondary data for exchange rate, real gross domestic product were sourced from international monetary fund (IMF) International Financial Statistics while data for interest rate and government expenditure are sourced from Central Bank of Nigeria's Statistical Bulletin and analyzed using Ordinary Least Square Regression. Their findings indicate that the effect of exchange rate volatility on bank performance varies depending on the performance measure used. Specifically, they found that exchange rate fluctuations could increase loan losses, complicating banks' ability to manage loans effectively. However, the capital deposit ratio appeared unaffected by exchange rate changes. However, the study focuses only on two measures of bank performance, ignoring other possible indicators. Its models might also miss important wider economic factors, which could limit the study's relevance and usefulness for policy.

Osundina et al., (2016) examined the effect of exchange rate fluctuation on banks performance in Nigeria covering the period of ten years between 2005 and 2014. They measured exchange rate fluctuation by return average annual values of US dollar to Naira for the ten-year period. They tested exchange rate for volatility (ARCH LM test) proving its fluctuating nature. Hausman Test was conducted for fixed and random effect preferred option. Their findings reveals exchange rates fluctuation had an insignificant effect on banks profitability using ROA as a measure while exchange rates fluctuation had a significant negative effect on banks liquidity using LDR as a measure. Therefore, we concluded that the effect of exchange rates fluctuation on banks performance is subjective on the specific measure of performance used in the research.

Akinyemi et al., (2022)The Effect of Exchange Rate Volatility on the Performance of Deposit Money Bank in Nigeria. Their study employed impulse response analysis, specifically the Cholesky one-standard innovation method, to examine the effects of exchange rate volatility on deposit money banks in Nigeria from 1986 to 2021. Using the Vector Error Correction Model (VECM) and the GARCH (1,1) model. Their findings indicate that exchange rate volatility has a significant negative impact on bank profitability. However, The study effectively identifies direct and indirect exchange rate impacts on banks but lacks clarity on causation mechanisms; VECM and GARCH models add robustness but may require broader data validation.

Osho & Fagbamila (2022) explored the impact of exchange rate fluctuations and economic factors on the financial performance of multinational oil and gas companies in Nigeria. Focusing on data spanning 2006 to 2020, the study utilized a purposive sampling technique he data was sourced from audited annual reports of eight selected firms. The main variables of their study included nominal exchange rate, real exchange rate, interest rate, and various economic factors, with financial performance measured by return on assets (ROA). Descriptive and inferential statistics were used, the analysis revealed that nominal exchange rate and interest spread rates positively and significantly affected ROA, while foreign exchange rate fluctuation, real exchange rate, firm size, and financial leverage had negative relationship. However, the study lacks consideration of industry-specific factors and broader economic contexts, limiting generalizability and practical application of findings.

Ali & Sukana, (2022) examine the effect of exchange rate volatility on DMBs' return on assets in Nigeria from 1999 to 2018, covering all 22 DMBs operating as of June 30, 2019. The secondary source of data was utilized. The unit root, co-integration, and Autoregressive Distributed Lag (ARDL) analyses were employed, the study found a significant positive impact of exchange rate volatility on DMBs' returns. However, The study effectively highlights exchange rate volatility's impact on Nigerian banks' profitability but lacks detailed analysis on external economic factors and practical policy implications. The sole reliance on secondary data limits contextual understanding.

Oshim & Nze (2024) investigates the impact of foreign exchange income on the financial performance of deposit money banks in Nigeria, the variables were; nominal exchange rate, real exchange rate, and overall exchange rate on the banks' return on assets (ROA). An ex-post facto research design was utilized, the scope covers from 2011 to 2020, with secondary source of data obtained from the audited annual reports of selected banks. Multiple regression techniques were employed to test the hypotheses. The findings reveal that the nominal exchange rate negatively impacts ROA, while the real exchange rates positively affect it. Conversely, the overall exchange rate shows an insignificant negative effect on ROA. However, the study effectively identifies critical variables affecting ROA; however, others economic factors underexplored such interest rate, technological factors inflation rate; limit the generalization of the findings.

Owolabi & Olukilede (2024) investigates the impact of foreign exchange rates on the profitability of Nigerian banks from 2013 to 2022, with a case study on First Bank Plc's Lagos and Ondo branches. The study examines factors such as the relative currency rate, bank size, inflation rate, profitability, and interest rates. Descriptive analysis and cross-sectional design were employed, the research analyzed data gathered through a structured 5-point Likert scale questionnaire. A sample of 146 was selected from a target population of 250, using the Taro-Yamane formula. Pearson correlation was utilized for data analysis. The hypothesis testing results indicated significant relationships and impacts, with p-values below 0.05. However, the study provides significant contributions into the impact of foreign exchange rates on Nigerian banks' profitability. Hence, the use of a single case study (First Bank Plc) may limit generalizability, and reliance on a questionnaire could introduce respondent bias. Additionally, the cross-sectional design does not account for long-term trends or causality.

Methodology

This is quantitative research study it employed an ex-post facto research design, this study employed secondary source of data collected from the audited financial statements of selected banks in Nigeria and Oanda FX Data Services official website for EVR spanning from 2019 to 2023. This timeframe was chosen due to the significant change of exchange rates and audited financial statement of the banks is published annually in Nigeria.

The study's population consists of 10 banks listed on the Nigerian Exchange Group as of December 18th October, 2024, selected based on their classification as Deposit Money Banks by the Central Bank of Nigeria these are Access Bank, Eco Bank, FCMB, Fidelity Bank, GT bank, First bank, Stanbic IBTC, Sterling Bank, UBA and Zenith Bank. The sample is filtered that any bank that merged/acquired or does not have available data within the period of this study were removed from the population of this study these are Access Bank, Fidelity Bank, GT bank, Sterling Bank, UBA and Zenith Bank. This method of sampling is purposive sampling technique. Technique of Data Analysis: The descriptive statistics and regression analysis were done using SPSS 10.

Model Specification

The Multiple Regression Model (MRM), as utilized by Zik-Rullahi&Adeoye (2024), was adopted to assess exchange volatility rate (EVR) in relation to financial performance, proxied by Net Profit Margin (NPM) of deposit money banks in Nigeria. This relationship can be expressed as:

$$NPM = \beta_0 + \beta_1EVR + \epsilon \quad \text{Where:}$$

NPM = Net Profit Margin

EVR = Exchange Volatility Rate

β_0 = Intercept

β_1 = Coefficient of EVR

ϵ = Error term

Variable Measurement:

This research study adopts a variable measurement used by Okereke&Ogechukwu, 2024, this is as follows:

Table 1

Variables	Acronym	Measurement
Dependent Variable		
Net Profit Margin	NPM	NPM = Net Profit/Total revenue x100
Independent Variable		
Exchange Rate Volatility	ERV	ERV = (STDEV.P(Range of Daily Exchange Rates) * √252)

Note: Author’s computations

Results: Descriptive Statistics

	Mean	Std. Deviation	N
NPM	39.9197	25.91371	30
ERV	.1036	.08017	30

Note: SPSS Output (2024)

The average net profit margin (NPM) of the 30 observations is 39.92, with a standard deviation of 25.91. This indicates that there a significant variation in the NPM values. While the exchange volatility rate (EVR), the average is 0.1036, with a standard deviation of 0.08017, implying that EVR values shows a lower degree of variability around the central value.

Correlations

		NPM	ERV
Pearson Correlation	NPM	1.000	.399
	ERV	.399	1.000
Sig. (1-tailed)	NPM	.	.015
	ERV	.015	.
N	NPM	30	30
	ERV	30	30

Note: SPSS Output (2024)

The Pearson correlation coefficient between NPM and ERV is 0.399, indicating a moderate positive correlation. The one-tailed p-value of 0.015 means this correlation is statistically significant at the 0.05 level, indicating that there is a significant positive relationship between ERV and NPM. This suggests that a unit of increase in ERV, increase NPM of Deposit Money Banks in Nigeria, though the increase is not statistically significant.

Variables Entered/Removed ^a				Model Summary ^b				
Model	Variables Entered	Variables Removed	Method	Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	ERV ^b	.	Enter	1	.399 ^a	.159	.129	24.18652

a. Dependent Variable: NPM
b. All requested variables entered.

a. Predictors: (Constant), ERV
b. Dependent Variable: NPM

Note: SPSS Output (2024)

The R-value of 0.399 indicates the relationship between the actual and expected NPM values, consistent with the correlation findings. The R² value of 0.159 indicates that ERV clarifies that about 15.9% of the variation in NPM, leaving a large portion unexplained. This suggests that other factors may likely play essential role in influential NPM. The adjusted R² of 0.129 shows that ERV has some explanatory ability, however, including more predictors could improve the model.

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3094.443	1	3094.443	5.290	.029 ^b
	Residual	16379.650	28	584.988		
	Total	19474.093	29			

a. Dependent Variable: NPM
b. Predictors: (Constant), ERV

Note: SPSS Output (2024)

The ANOVA results show that the regression model is statistically significant, with an F-value of 5.290 and a p-value of 0.029. This confirms that ERV significantly predicts NPM at the 0.05 level, though the moderate F-value indicates that ERV isn't a very strong predictor by itself.

Coefficients ^a														
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations			Collinearity Statistics		
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF	
1	(Constant)	26.570	7.293		3.643	.001	11.631	41.509						
	ERV	128.857	56.026	.399	2.300	.029	14.093	243.621	.399	.399	.399	1.000	1.000	

a. Dependent Variable: NPM

Note: SPSS Output (2024)

However, the model is significant, but it explains only a limited amount of variance. The unstandardized coefficient (B) for ERV is 128.857, revealing that a unit increase in ERV, increases NPM by 128.857, assuming other factors remain untouched. The standardized beta coefficients of 0.399 suggest average positive effect of ERV on NPM. The t-value for ERV is 2.300, with a p-value of 0.029, indicating statistical significance at the 0.05 level. The 95% confidence interval for ERV ranges from 14.093 to 243.621, showing variability in the effect size but confirming the positive trend.

Collinearity Diagnostics^a

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions	
				(Constant)	ERV
1	1	1.796	1.000	.10	.10
	2	.204	2.966	.90	.90

a. Dependent Variable: NPM

Note: SPSS Output (2024)

The tolerance of 1.000 suggest that there are no multicollinearity issues in this model since there is only one predictor variable. These indices that 1.000 and 2.966 are within acceptable limits, implying that the contribution of EVR is stable and not affected by other variables.

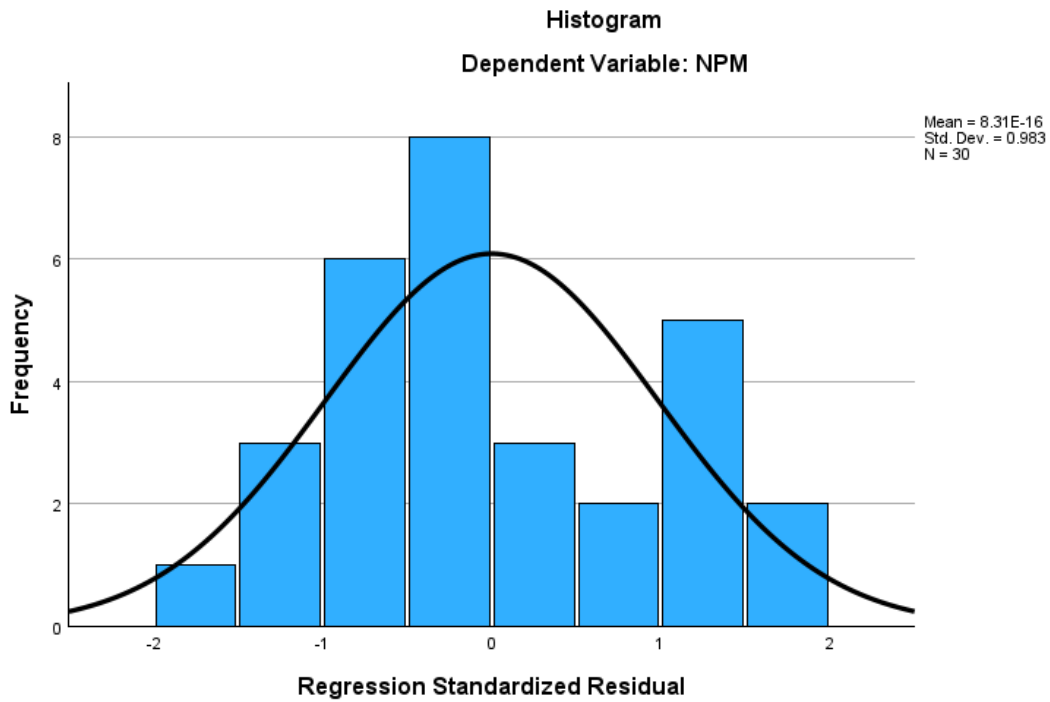
Residuals Statistics^a

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	30.2240	59.3530	39.9197	10.32981	30
Residual	-45.52619	42.27348	.00000	23.76585	30
Std. Predicted Value	-.939	1.881	.000	1.000	30
Std. Residual	-1.882	1.748	.000	.983	30

a. Dependent Variable: NPM

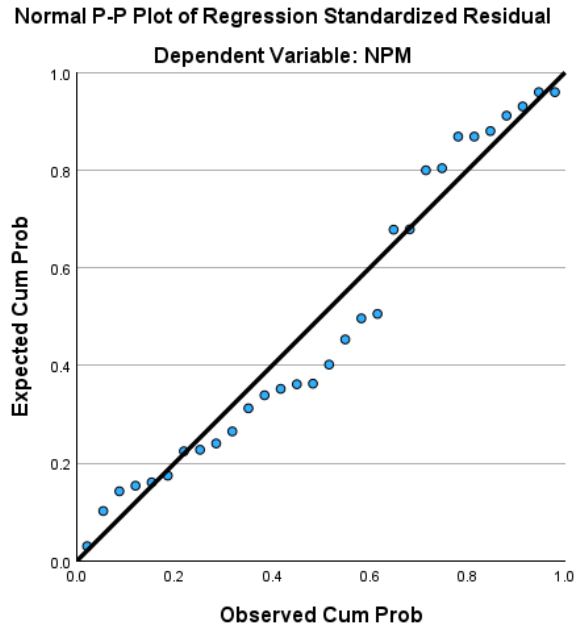
Note: SPSS Output (2024)

The statistical residual indicates that the expected NPM values range from 30.2240 to 59.3530, which nearly centered on the average NPM of 39.9197. Residuals range from -45.52619 to 42.27348, with a mean of zero, shows that errors are evenly distributed around the predicted NPM values. Standardized residuals fall between -1.882 and 1.748, shows no significant variations and that the model's assumptions about the distribution of errors are mostly met.



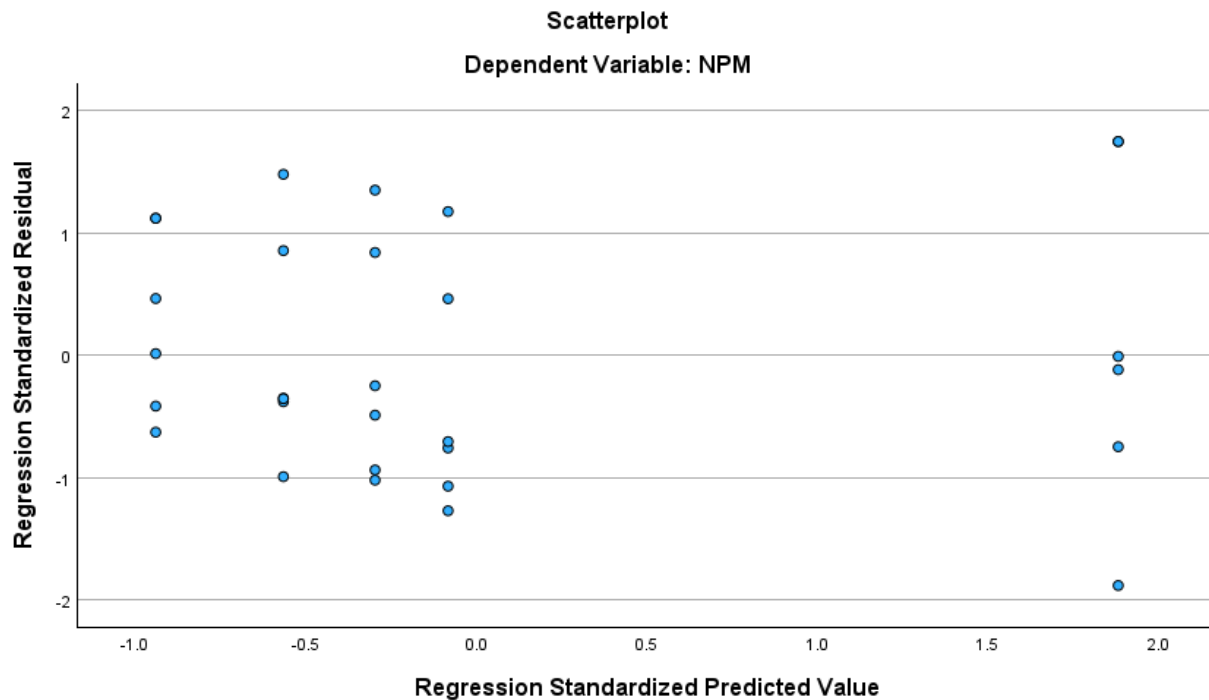
Note: SPSS Output (2024)

The histogram of the standardized residuals for the dependent variable NPM shows a roughly normal distribution, centered nearly zero, indicating that the residuals are symmetrically distributed. The standard deviation is close to 1, suggesting a good fit for a linear regression model. This supports the assumption of normality in regression residuals.



Note: SPSS Output (2024)

The PP plot of the standardized residuals for the dependent variable NPM shows a roughly normal distribution, centered close to zero, suggesting that the residuals are symmetrically distributed. The standard deviation is close to 1, suggesting a good fit for a linear regression model. This supports the assumption of normality in regression residuals.



Note: SPSS Output (2024)

The scatterplot of standardized residuals versus standardized predicted values shows a random distribution, with no clear pattern or trend. This suggests homoscedasticity, meaning the variance of the residuals is constant across predicted values, which is a key assumption for a reliable linear regression model.

Results Discussion

The results reveal a moderate positive correlation ($r = 0.399$) between exchange rate volatility (EVR) and net profit margin (NPM) for the selected listed deposit money banks in Nigeria, which is statistically significant at the 0.05 level ($p = 0.015$). This suggests that higher exchange rate volatility is associated with increased profitability, though the relationship is not strong enough to account for substantial changes in NPM. The model explains 15.9% of the variance in NPM ($R^2 = 0.159$), indicating that other factors likely influence NPM. The adjusted R^2 value of 0.129 suggests that including additional variables could enhance the model's explanatory power. The regression model itself is statistically significant ($F = 5.290$, $p = 0.029$), with an unstandardized coefficient ($B = 128.857$) indicating that a unit increase in EVR corresponds to an average increase in NPM by 128.857. However, the moderate F-value suggests that EVR alone is not a strong predictor of NPM. The model's assumptions, including normal distribution of residuals, absence of multicollinearity, and homoscedasticity, were met, ensuring the reliability of the results.

Summary and Recommendations

The study found a moderate positive correlation (0.399) between exchange rate volatility (ERV) and net profit margin (NPM) for deposit money banks in Nigeria. The regression model indicated that ERV explains 15.9% of the variation in NPM, with statistical significance ($p = 0.029$). While the relationship is positive, other factors likely contribute to the variation in NPM. The model assumptions were largely met, showing a good fit with normal distribution of residuals and no multicollinearity issues. The study recommends that further research should include

additional variables to improve model explanatory power. Banks should monitor exchange rate fluctuations and incorporate them into their financial strategies, though they should consider other factors that impact profitability.

References

- Abubakar, U. Y. (2020). Effects of exchange rate volatility on financial performance of deposit money banks in Nigeria. *Edo Journal of Arts, Management and Social Sciences*, 2(1), 121–139.
- Akinsola Akinyemi, V., Ogboada, E., & Bala, Y. I. (2022). The effect of exchange rate volatility on the performance of deposit money banks in Nigeria. *International Journal of Advanced Research in Statistics and Management Finances*, 3(1), 1-15. <https://doi.org/10.1234/ijarsmf.2022.1.15>
- Alagbe, E. A., Jimoh, S. O., & Jimoh, B. A. (2021). Effect of exchange rate changes on financial performance of listed oil and gas companies in Nigeria. *African Multidisciplinary Journal of Development*, 10(3).
- Ali, A., & Sukana, D. T. (2022). Exchange rate volatility and return on assets of deposit money banks in Nigeria. *FUW-International Journal of Management and Social Sciences*, 7(1), July, 2022. ISSN: 2384-6224 (Print), 2635-3539 (Online).
- Fatihudin, D., Jusni, & Mochklas, M. (2018). How measuring financial performance. *Internationa Journal of Civil Engineering and Technology (IJCIET)*, 9(6), 553–557. Article ID: IJCIET_09_06_063.
- Gitman, I. (2012). Principles of managerial finance 13th edition. Massachusetts: Addison-Wesley Publishing Company
- Menon, S. & Viswanathan, K. G. (2005). Foreign currency risk management practices in U.S. multinationals. *The Journal of International Business and Law*, 4(1), 57-67
- Oshim, J. C., & Nze, O. N. (2024). Foreign exchange income and financial performance of deposit money banks in Nigeria. *European Journal of Accounting, Auditing and Finance Research*, 12(2), 34-50. <https://www.eajournals.org/>
- Osho, A. E., & Fagbamila, O. A. (2022). Exchange rate fluctuations, economic factors, and financial performance evaluation of multinational companies in Nigeria. *AUDOE*, 18(5), 160-181.
- Osundina, C. K., Osundina, J. A., Jayeoba, O. O., & Olayinka, I. M. (2016). Exchange rate volatility and banks performance: Evidence from Nigeria. *International Journal of Economics and Business Management*, 2(4), 1–13. <https://www.iiardpub.org>
- Owoeye, T., & Ogunmakin, A. A. (2013). Exchange rate volatility and bank performance in Nigeria. *Asian Economic and Financial Review*, 3(11), 1375-1387. <http://aessweb.com/journal-detail.php?id=5002>
- Owoeye, T., & Ogunmakin, A. A. (2013). Exchange rate volatility and bank performance in Nigeria. *Asian Economic and Financial Review*, 3(2), 178–185.
- Owolabi, O. Y., & Olukilede, B. N. (2024). Impact of foreign exchange rates on banks' profitability in Nigeria (A case study of First Bank PLC, Lagos and Ondo branches). *ESP International Journal of Science, Humanities and Management Studies*, 2(2), 28–40. <https://doi.org/10.56472/25839756/IJSHMS-V2I2P104>
- Ross, S., Westerfield R., Jaffe J., & Jordan B. (2008) Modern Financial Management, 8th Ed, McGraw-Hill Irwin