Analyzing the Effect of Market Risks on Financial Performance of Listed Deposit Money Banks in Nigeria

AKPORIEN Olum Fidelis (Ph.D.)[1], AKPOYIBO Godspower (Ph.D.)[2], EGWARE Nelson Oke (Ph.D.) [3], & OTUYA Sunday (Ph.D.) [4*]

[1]Department of Accounting,
Faculty of Business Administration,
University of Uyo, Akwa Ibom State

[2]Department of Business Administration,
Faculty of Management Sciences,
Delta State University, Abraka.
ORCID ID: 0000-0001-8992-5322

[3]Department of Accounting,
Faculty of Management Sciences,
University of Benin, Benin City

[4]Department of Accounting and Finance,
Edwin Clark University, Kiagbodo
Delta State, Nigeria
ORCID ID: 0000-0002-3987-2442

Email of corresponding author: otuya.sunday@gmail.com
DOI: 10.56201/wjfir.v9.no1.2025.pg80.89

Abstract

The study examines market risks as factors that could influence the financial performance of the DMBs in Nigeria. The study was based on the Value at Risks (VaR) theory and adopted the cross-sectional and longitudinal research design. The population of the study consisted of all Deposit Money Banks (DMBs) in Nigeria. Data were collected from financial statements of the sampled banks. Findings of the study revealed that exchange rate risk has a significant negative effect on Return on Assets while interest rate risk was found to be positive but not significant. The study concludes that market risks affect the financial performance of DMBs in Nigeria, and recommends that bank managers should follow monetary policies when creating risk management plans, and policymakers should take into account the banking sector's recent financial performance, including interest rates and exchange rates, since the banking sector's success is a good indicator of economic performance.

KEYWORDS:

Exchange Rate Risk; Interest Rate Risk, Financial Performance; Return on Assets, Value at Risks.

1. `Introduction

The demand for a more effective strategy to reduce risk exposure in every economy's financial system originates from the expansion of financial risk and its impact due to the globalisation of financial systems and the existence of international financial market mechanisms. The financial system periodically requires a comprehensive evaluation of the mechanisms and structure of risk management strategies and frameworks in order to assess whether the systems, rules, and procedures are appropriate for managing risks and complying with current best practices. Risk management is a critical aspect of the financial sector, aiming to mitigate potential losses and ensure stability in operations. According to the International Monetary Fund (IMF, 2023), political unpredictability, economic volatility, and underdeveloped financial markets are just a few of the many dynamic issues that define financial environment in developing economies. These elements emphasise how important it is to have strong risk management systems in place to protect the solvency of financial institutions and promote long-term economic growth. Epor et al. (2023) contend that banks in developing economies such as Nigeria face unique risks compared to their counterparts in more developed economies. These risks range from credit and market risks to operational and regulatory risks and could have an impact on the liquidity, profitability and long term survival of financial institutions in the region.

Market risk which is regarded as one of the fundamental risks of banks is the "risk of loss of shareholder's fund due to the bank's financial operation as a result of volatility in prices of equity, interest rates, commodity prices, exchange rates, and other variables. The Central Bank of Nigeria introduced a guideline for the "Development of Risk Management Frameworks for Individual Risk Elements" and obligated every commercial bank operating in the country to fashion out suitable risk management strategies which must be approved by the top executives of the banks for the management and mitigation of their risk exposures. As a result, Nigerian banks adopted risk management frameworks to try to reduce risk exposures and, consequently, their level of losses in the industry. Another risk management strategy in Nigerian banks was the establishment of the Asset Management Corporation of Nigeria (AMCON) to address and mitigate the problems of non-performing loans.

By providing financial intermediation, Deposit Money Banks (DMBs) in Nigeria significantly contribute to the advancement of economic growth. They function as a stimulant for economic growth by helping to transfer money from those with surplus to those in deficit for investment reasons, increasing the country's GDP. Nonetheless, the profitability of Deposit Money Banks (DMBs) in Nigeria has a significant impact on the efficacy and efficiency of their operations and management. A Deposit Money Bank's (DMB) financial performance is frequently correlated with

its strength or success. Financial performance is an outcome that results from efficient management and the best use of available resources, which raises the return on invested money. The drive to increase profits is one of the key reasons banks are constantly under extreme pressure to take on a large amount of risk. The best way to reduce losses from the uncertainties in financial institutions has become a topic of discussion due to a number of important challenges, including the high rate of failures, financial scandals, and the growing amount of toxic assets. For example, the financial sector in Nigeria was overwhelmed by the declining value of credit assets, which was expected to be caused by a significant decrease in market risks, unusual fluctuations in interest rates and inflation, as well as an unanticipated devaluation of the Nigerian Naira in comparison to exchanges in major developed economies (Yua & Temitope, 2024). Overall, effective risk management is crucial for the optimum performance, stability and growth of financial institutions in developing economies which underscores the importance of this research.

The paper is organized as follows: Section 2 devoted to literature review on exchange rate volatility, bank credit growth, and non-performing loans. The third section presents the data and variables used for the model estimation. The fourth section provides the interpretation of the model results and the final section is concluding remarks.

2. Literature Review and Hypotheses Development

Firm Financial Performance

Corporate financial performance is a measure used to determine how successful and profitable a firm is at generating money. It is a summary of the financial status report of the firm for a given time (Assidi et al., 2016). The assessment of a company's financial performance has been employed as a means to evaluate its capacity in attaining its economic objectives. Several proxies have been employed to calculate the financial dimension of a company's performance. The literature has classified these proxies into two main categories: the accounting-based proxies and the market-based proxies. The accounting-based measures focus on evaluating a company's present financial performance, while market-based measures concentrate on assessing investor perceptions regarding the future potential performance of the company.

Return on Assets is a form of return on investment (ROI) metric that gauges how profitable a company is in proportion to its total assets. By contrasting the profit (net income) a business generates with the capital it has invested in assets, this ratio shows how well the business is doing. This is the measure adopted for this study.

Market Risks

Market risk is the possibility that unfavourable changes in market prices would result in losses on the balance sheet and off-balance sheet positions. Market risk, as viewed by regulators, originates from all holdings in banks' trading books as well as from foreign exchange and commodities risk positions throughout the entire balance sheet. Trading book portfolios are typically made up of liquid positions that are simple to trade or hedge. Nevertheless, changes in bank portfolios have resulted in a rise in credit risk and illiquid positions that are inappropriate for the initial market capital structure.

According to Basel II Report (2008), market risk is the chance that an investor will lose money as a result of variables influencing the overall performance of the financial market in which he participates. Although it can be hedged against, market risk, also known as "systematic risk," cannot be completely reduced through diversification. Recessions, political unrest, interest rate changes, natural disasters, and terrorist attacks are some of the factors that might cause market risk.

According to Koch and MacDonald (2014), market risks can be broadly divided into three groups based on how they affect the banking sector: stock price risk, interest rate risk, and foreign exchange risk. According to Wachiaya (2011), market risk occurs when banks take financial instruments that are subject to volatility or price swings in the market as collateral or security for loans. Changes to these will therefore have an impact on the banks' financial performance in one way or another.

Exchange Rate Risks

The specific value of one currency in relation to another is referred to as the exchange rate. Because it is acquired through the conversion or exchange of one currency for another, its value may rise or fall (O'Sullivan & Sheffrin, 2013). Because it has a direct impact on domestic prices, the profitability of traded goods and services, resource allocation, and investment decisions, the exchange rate is becoming more and more important in any economy. The foundation of all economic activity is the exchange rate's stability (Owoeye & Ogunmakin, 2013).

When a financial transaction is denominated in a currency other than the company's home currency, exchange rate risk—also referred to as FX risk, foreign exchange risk, or currency risk—occurs. According to Yua and Temitope (2024), exchange risk is the possibility of an adverse shift in the exchange rate between the home currency and the denominated currency prior to the transaction's completion date.

Interest Rate Risks

Interest rate risk is the risk that bondholders face as a result of changing interest rates. A bond's level of interest rate risk is determined by how responsive its price is to market fluctuations in interest rates. The bond's coupon rate and time to maturity are the two factors that determine the sensitivity. The possibility of investment losses brought on by an increase in the going rates for new debt instruments is known as interest rate risk. For example, a bond or other fixed-income investment in the secondary market will lose value if interest rates increase (Kasman et al., 2011; Wachiaya, 2011).

According to Mbutor (2010), the likelihood that an asset's value would drop as a result of unforeseen changes in interest rates is also known as interest rate risk. Bonds and other fixed-income assets are more likely to be subject to interest rate risk than equity investments. One of the main factors influencing the price of a bond is the interest rate.

Exchange Rate Risks and Financial Performance of DMBS

According to Gachua (2011), who studied the impact of foreign exchange exposure on a company's financial performance, if foreign exchange volatility is not controlled, it can reduce a company's financial gains. This may lower the amount of money that can be invested and used for transactions. To make investment decisions at any given time in the bank, it is always necessary to keep an eye on the current foreign exchange rate. A significant loss of investment income could arise from improper valuation. This demonstrates how foreign exchange risk brought on by exchange volatility can have a detrimental impact on banks' profitability, resulting in subpar or declining performance. Similar to this, Manyo (2014) investigated how foreign currency transactions affected Nigerian banks' profitability between 2010 and 2014 and found that foreign exchange income had a negligible and adverse impact on those banks' profitability during that time. Conversely, Wong and Leung (2008) investigated Chinese banks' foreign exchange exposure and found no meaningful correlation between foreign exchange risk and profitability. The impact of exchange rate changes on Nigeria's manufacturing sector was examined by Opaluwa et al. (2010), who discovered a statistically significant correlation between exchange rate volatility and performance.

Owoeye and Ogunmakin (2013) investigated the relationship between Nigerian banks' performance and exchange rate volatility in a related study. Using the loan loss to total advances ratio and the capital deposit ratio as two proxies for bank performance, this study examined the effect of the fluctuating exchange rate on bank performance in Nigeria. As independent factors, the exchange rate was supplemented with government spending, interest rates, and real gross domestic product. The study's use of the Vector Auto-regression (VAR) technique showed that the type of proxy used for bank performance affects how the exchange rate affects bank performance. While the capital deposit ratio is not significantly impacted by exchange rates, the loan loss to total advance ratio indicates that lenders' ability to manage loans may be impacted by shifting currency rates, leading to a high percentage of bad loans. Keshtgar et al. (2020) examined the impact of exchange rate volatility as a determinant of banks' performance using panel data by random effects indicated that exchange rate volatility has a negative and statistically significant effect on banks' capital return ratio. Abubakar et al. (2022) assess the impact of exchange rate volatility on return on asset of Deposit Money Banks (DMBs) in Nigeria for the period of 1999 to 2018. In analysing the data, Unit root test, Co-integration and Autoregressive Distributed Lag (ARDL) were adopted in the study and it was found that exchange rate volatility has a significant positive effect on return on Assets of Deposit Money Banks (DMBs) in Nigeria**.** On the basis of the aforementioned, our first hypothesis is that exchange rate risk has no discernible impact on financial performance.

Interest Rate Risks and Value of DMBS

In assessing how interest rate risk affects banks' profitability, Ongore and Kusa (2013) noted that because interest rates are a key factor in calculating interest income, banks that deal with this kind of market risk maintain a high level of exposure to them. When these risks predominate, there is

typically an income gap that, if ignored, might result in lost revenue and, thus, lower organisational profitability. The net interest margin (NIM) further impacts the impact of interest rate risk on profitability. According to Badawi (2017), a decline in NIM indicates that the bank was unable to adequately manage the impact of interest rate risk on its operations, whereas an increase in NIM will show that the bank is less exposed to interest rate volatility or high-interest rate risk. As a result, the exposures may have a negative effect on interest income, which implies that its degree of profitability would decrease. In order to ascertain the relationship between the Indonesian and Singaporean markets as well as the impact of stock market volatility on the markets, Lee et al. (2011) used the smooth transition conditional correlation GARCH (STCC-GARCH). The findings indicate that stock market volatility has an impact on the relationship between the two markets.

In light of the COVID-19 epidemic, Reabetswe et al. (2022) examined the effect of interest rate volatility on stock returns in the banking industry in South Africa. The relationship between the variables was analysed using the GARCH and OLS techniques. Four of the five banks displayed positive coefficients in the OLS estimator, indicating a positive and substantial link between interest rates and bank stock returns. Our second hypothesis, which is based on the variety of findings, is that interest rate risks have no discernible impact on the financial performance of DMBs in Nigeria.

Theoretical Framework

The Value at Risk (VaR) theory, which was developed in the late 1980s in response to the 1987 stock market disaster, serves as the foundation for the study. The degree of financial risk in a company or investment portfolio over a given period of time is measured and quantified using this statistical technique. Commercial and investment banks most frequently utilise this metric to assess the magnitude and occurrence ratio of possible losses in their institutional portfolios. VaR is a tool used by risk managers to quantify and regulate the degree of risk exposure.
VaR modelling calculates the likelihood of occurrence for the specified loss as well as the potential for loss in the entity being evaluated. VaR is calculated by evaluating the possible loss amount, the likelihood that the loss amount will occur, and the time horizon. Because autonomous trading desks may inadvertently expose the company to too highly correlated assets, investment banks frequently use VaR modelling to assess firm-wide risk. It is possible to calculate the cumulative risks from the combined positions held by various trading desks and divisions within the organisation by using a firm-wide VaR evaluation. Financial institutions can use the data from VaR modelling to assess if they have enough capital reserves to absorb losses or if they need to reduce concentrated holdings due to higher-than-acceptable risks (Nassim, 2009).

3. Methodology

Design and Data

This study adopted both cross-sectional and longitudinal research designs. The population of the study consists of all the 15 listed Deposit Money Banks as at 31st December, 2023. Census sampling was used since the entire population is considered for the study. Data for the study were

collected from secondary sources through content analysis of corporate financial statements of the sampled DMBs for the period 2017 to 2023 giving a total of 105 year end observations.

Empirical Specification of Model

Given that this study adopted a cross-sectional and longitudinal research designs relying on the use of already existing secondary data, the relationship between market risks and the financial performance of Deposit Money Banks (DMBs) from 2017 to 2023 is specified using functional and econometric equations. This model's theoretical foundation is the Value-at-Risk (VaR) theory, which holds that investors make their investment decisions based on the rate of return and the risk to which they are exposed; therefore, they will select portfolios with high returns and low risk based on the average and variance of profitability. The model is presented as follows:

Financial performance = f (Market Risks) ------- *(i)*

Given that the financial performance of the banks under study is measured by the Return on Assets (ROA) and the measuring proxies for market risks are exchange rate (EXCR), and interest rates (INTR), the functional and econometric relationship earlier stated in Equation 1, is restated as follows:

$$FPER_{it} = \beta_0 + \beta_1 EXCR_{it} + \beta_2 INTR_{it} + e_t \quad \text{---------- } (ii)$$

Where:

FPER = Financial Performance; EXCR = Exchange rate risk; INTR= Interest Rate Risk ; i =DMBs t = represent the time dimension β_0 = Intercept; $\beta_1 - \beta_2$, = Parameter to be estimated, and e = Stochastic or Disturbance term.

Operationalisation and measurement of Variables

Table 1: Operationalisation of Variables

SN	Variable	Acronym	Measurement	Source	APriori Expectation
1	Financial Performance	FPER	Financial performance was measured using Return on Assets which is given as profit after tax scaled by total assets	Otuya and Osiegbu (2020)	
2	Exchange Rate Risk	EXTR	Exchange rate looses divided by total losses reported for the period.	Abubakar et al. (2022	+
3	Interest Rate Risk	INTR	Interest income earned divided by total performing loans for the period	Reabetswe et al. (2022)	+

4. Estimation Results and Discussion of Findings

The hypothesis testing results of the panel data estimation are reported in Table 2.

Table 2: Hypothesis Testing Results

Description	e	p	Decision
Ho_1: Exchange Rate Risk and Performance ($EXCR_{it} = \beta_0+\beta_1 FPER_{it}$)	+0.067	0.000	Accepted
Ho_2: Interest Rate Risk and Performance ($INTR_{it} = \beta_0+\beta_2 FPER_{it}$)	0.126	0.421	Rejected

e = co-efficient; p = probability at 0.05 significant level

Results from the hypothesis testing and discussed thus:

First, the relationship between exchange rate risk and financial performance is found to be negative and significant at 5% significant level ($\beta_1 EXCR_{it} = 0.067$, $p=0.000$). The implication is that higher exchange rate risk or fluctuations reduces the financial performance of the firm. The result meets our *a priori* expectation and is consistent with prior studies such as Keshtgar et al. (2020) Owoeye and Ogunmakin (2013) that reported an inverse relationship between exchange rate risks and corporate performance of firms. However, Abubakar et al. (2022), and Opaluwa et al. (2010) findings showed that exchange rate risk impacted positively on firm value.
In addition, the coefficient of the variable interest rate risks and financial performance is observed to be positive but not significant ($\beta 2INTRit = 0.126$, $P=0.421$). This indicates that the level of financial performance of DMBs is not significantly influenced by interest rate risk. The result did not meet our *a priori* expectation but is consistent with previous studies such as Reabetswe et al. (2022), and Badawi (2017). We had anticipated that high volatility in interest rate will significantly and negatively influence financial performance based on the fact that fluctuating interest income will reduce overall financial performance of the bank.

5. Conclusion and Recommendations

The study examines market risks as factors that could influence the financial performance of the DMBs in Nigeria. The market risks measure investigated include exchange rate risks and interest rate risks. Findings of the study revealed that foreign exchange rate risks has a significant negative effect on Return on Assets while interest rate risk was found to be positive but not significant effect. The study concludes that market risks affect the financial performance of DMBs in Nigeria. Arising from the findings, the study recommends that bank managers should follow monetary policies when creating risk management plans, and policymakers should take into account the banking sector's recent financial performance, including interest rates and exchange rates, since the banking sector's success is a good indicator of economic performance.

References

Amer N. Bani Yousef[1], Roshaiza Taha[1♣],
Siti Nurain Muhmad[1] and Ahmad Firdhauz Zainul Abidin

Abubakar, A., Sukana, D.T., & Manga, I. U. (2022). Exchange rate volatility and return on assets of deposit money banks in Nigeria. *International Journal of Management and Social Sciences*, 7(1), 38-49

Amer, N., Roshaiza, T., Siti, N.M., & Ahmad, F.Z. (2023). Impact of market risk exposure on banks financial performance. Evidence from MENA Regiion. *Management and Accounting Review*, 22(2), 230 -247

Assidi, S., Khaoula, A., & Mohamed, A. (2016). Tax optimization and the firm's value: Evidence from the Tunisian context, *Borsa Istanbul Review*, 16(3), 177-184,

Ayinuola, T. F. & Gumel, B. I. (2023). The nexus between liquidity and credit risks and their impact on bank stability. *Asian Journal of Economics, Business and Accounting*, 23(11), 15-27

Badawi, A. (2017). Effect of credit risk, liquidity risk, and market risk on profitability of banks (Study on Devised Banks in Indonesia StockExchange). *European Journal of Business Management*, 9 (2), 1-8.

Basel Committee on Banking Supervision (2008). Principles for Sound Liquidity Risk Management and Supervision. The BIS Press and Communication, Basel, Switzerland. 321-334.

Epor, O. S., Ibenta, S., Yua, H., & Ityavyar, D. V. (2023). Money market and private investment activities: Any empirical evidences of causation and causality from the Nigerian banking sector? *Journal of Global Interdependence and Economic Sustainability*, 2(2), 12-28.

International Monetary Fund. (2023). Economic outlook.

Keshtgar, N., Pahlavani, M., & Mirjalili, S. H. (2020). The impact of exchange rate volatility on banking performance (case of Iran), *International Journal of Business and Development Studies*, University of Sistan and Baluchestan, Zahedan, 12(1), 39-56, https://doi.org/10.22111/ijbds.2020.5436 ,

Koch, T., & MacDonald, S. (2014). *Bank Management*. New Jersey; Nelson Education. 155 167

Lee, C.H., Doong, S.C., & Chou, P.I. (2011). Dynamic correlation between stock prices and exchange rates. *Applied Financial Economics*, 21(11), 789-800.

Manyo, S., Sabina, E., & Ugochukwu, S. (2014). The effect of foreign exchange transaction on the performance of Nigerian banks. *IJRDO-Journal of Business Management*, 7(2), 1-14

Mbutor O. M. (2010). Exchange rate volatility, stock price fluctuations and the lending behaviour of banks in Nigeria. *Journal of Economics and International Finance*, 2(11), 251-260.

Opaluwa, H., Umeh, O., & Ameh, A. (2010). The effect of exchange rate fluctuations on the Nigerian manufacturing sector. *Journal African Finance*, 3(1), 145-156

Odubuasi, A., Uduak, D., & Ifurueze, M. (2020). Effect of market risks on the financial performance of firms in Nigeria. *European Journal of Accounting, Auditing and Finance Research*, 8(6), 28-45

Ongore, V. O., & Kusa, G. B. (2013). Determinants of financial performance of commercial banks in Kenya. *International Journal of Economics and Financial Issues*, 3(1), 237-252

Onyegiri, P.K., Ibenta, S.N., & Okaro, C. (2024). Market risk and financial performance of deposit money banks in Nigeria (1994–2022). *African Banking and Finance Review Journal*, 3(8), 121-131

O'Sullivan, A., & Sheffrin, S. M. (2013). Economics: Principles in Action, 443

Otuya, S. & Osiegbu, P. (2020). Shareholders' wealth and enterprise risk management: a study of deposit money banks in Nigeria. *The Nigerian Accountant*, 51(8), 7-13

Owoeye, A., & Ogunmakin, H. (2013). Exchange rate volatility and bank performance in Nigeria. *Journal of Finance*, 5(3), 206-221

Reabetswe, L., Mokatsanyane, D., Ferreira-Schenk, S., & Johnny. J., & Ruschelle, S. (2022). Analyzing Interest rate and exchange rate volatility on south african banks' stock returns considering the COVID-19 pandemic. *Acta Universitatis Danubius. OEconomica, Danubius University of Galati*, 18(6), 312-329

Yua, H., & Temitope, A. O. (2024). Effect of risk management on financial institutions in Sub Saharann Africa: a critical review of Nigeria and Mozambique. *British International Journal of Applied Economics, Finance and Accounting*, 8(3), 59-78