Impact of Financial Risk on Profitability: Evidence from Nigerian Deposit Money Banks

Musa Muhammad Bello[1]*
Nasiru Isah[2]
Awaisu Adamu Salihi[1]

[1]Department of Accountancy, Kano State Polytechnic, Kano, Nigeria
[2]Department of Accountancy, Hassan Usman Katsina Polytechnic, Katsina State, Nigeria
*Correspondence Email : musambello01@kanopoly.edu.ng

Abstract

The paper assesses the influence of financial risk on profitability of listed Nigerian Deposit money banks (DMBs). Profitability was proxied with return on assets (ROA), whereas financial risk as a predictor is measured with Liquidity Risk (LQR), Interest Rate Risk (IRR) and Operational Risk (OPR). The population of the study is all fourteen (14) Nigerian DMBs as at 31St December 2022 out of which twelve (12) DMBs were used for the analysis. Correlational research design was used, and data were generated from secondary sources, basically from the annual reports and accounts of twelve listed deposit money banks from 2013 to 2022. Descriptive statistics, correlation analysis as well as panel corrected standard error regression were utilized as tools of analysis for the study. The findings reveal that Liquidity risk and Operational risk has a positive and significant relationship with profitability measured by ROA of listed deposit money banks in Nigeria, while interest rate risk has a positive and insignificant relationship with profitability of listed deposit money banks in Nigeria. The positive and significant effect of liquidity risk on profitability means that listed DMBs are able to meet their obligations as at when due. Also, the result of operational risk on profitability indicates that increase in operational risk decreases profitability of listed DMBs. The positive effect of interest risk on profitability means that increase in interest rate increase profitability.

Keywords: Return on Assets, Liquidity risk, Interest rate risk, Operational risk.

1.   Introduction

The Nigerian banking system before the financial crises (FC) was an organization which is about to collapse completely due to frequent devastation and insolvency as result of poor capitalization and working ineffectiveness (Olumayokun & Adekoya, 2020). Therefore, global financial crisis became one of the major area in the aftermath of financial risk (FR) amid business mediators, also FR dwells on the unceasing financial situation of business.

The FR are usually referred to as chances that a firm's cash flow will demonstrate insufficiency in attaining its compulsions. Thus, Deposit money banks (DMB) have FR as a result of several macroeconomic influences, interest rate fluctuations and nonpayment of credits (Achimugu et al., 2021). In addition, Stephen and Akele, (2014) stated that banking crises in Nigeria have shown that not only do banks often take excessive risks, but the risk differs among banks.

Furthermore, the quarterly review by CBN of first quarter of 2021 on the status of Nigeria's banking industry at the backdrop of the adverse effect of new normal pandemic on the overall economy has indicated sound fundamentals, but the apex financial regulatory authority also hinted of some downside risks (credit risk, operational risk and foreign exchange risk) and weak links in the banking industry. Due to drop in revenue and profitability of most banks in Nigeria during the COVID-19 pandemic, the Monetary Policy Committee (MPC) of the CBN could not give a total clean bill of health but has given a

near-clean bill of health to the industry, not without pointing to some red flags in the first quarter of 2021 such as excess liquidity putting pressure on forex and moderate declines in both return on equity and assets of banks in Nigeria (CBN bulletin, 2021).

In addition, Yimka et al. (2015) stated that variety of risks which financial institutions especially banks are exposed to include; market, liquidity, operational, credit, interest rate risk, foreign exchange, and political risks. Therefore, banks should be up and doing in taking measures to avert these risks as it may lead to deterioration on their performance.

The challenges faced by deposit money banks in terms of decline in profitability, increase in non-performing loans, increase in inflation, fluctuation in both foreign exchange and interest rate and decrease in deposit from government agencies as a result of introduction of Treasury Single Account (TSA) is one of the motivation of this study. Most studies on risk and profitability in Nigeria, were studied separately (Kurawa & Garba, 2013; Marshal & Oyekachi, 2014), while this study examined the component of risks such as interest rate, liquidity and operational risks together, the current research seeks to observe the influence of FR on profitability of DMB quoted in Nigerian stock exchange (NSX).

The remaining part of the work is divided to; reviews of related literatures, methods of data collections, discussion and results and lastly the paper was concluded and recommendations for further research was given.

2. Literature Review and Hypotheses Development

This part focuses on review of related literature and empirical studies relevant to the study. It provides a review of related literature relevant to the study with a view of providing empirical evidence and rationale for each of the hypothesis developed in the study.

IRR and Profitability

Using fixed effect regression, Kolapo and Dapo (2015), conducted a research on the impact of interest rate risk on the performance of Nigerian DMBs for the sample of six (6) banks for the ten years (2002-2011). Loan to total asset ratio (LTAR), Average lending ratio (ALR), Risk of interest diversity (ROID) were used as the proxies for independent variable on one hand and ROA as proxy for dependent variable on the other hand. The study concludes that, IRR weakly regulates variations in ROA. Thus, has no significant impact on its performance.

In Kenya, Musiega et al. (2017) examined the impact of IRR on performance of commercial banks between 2006 to 2015 for the sample of thirty-three (33) banks out of a population of forty-four (44) banks. They conclude that, interest income to total loans had a significant positive relationship with performance. Similarly, Nathanel and Krishnan (2022) evaluated the implication of IRR in Indian commercial banks for a period of six (6) years from 2015 to 2020. They also conclude that; credit deposit ratio is decreasing with existence of IRR. Based on this evidence, the study hypothesized that:

H1:   *IRR has no significant influence on profitability of Nigerian DMBs.*

Liquidity Risk and Profitability

Anam et al. (2012) investigated liquidity risk management making a comparative analysis between conventional and Islamic banks of Bangladesh for the period 2006-2010 (five years), using a sample size

of ten (10) banks. NWC, ROA and CAR predict LQR. Multiple regression analysis technique was used for data analysis. The results show that, For Islamic banks, a model estimation to predict the LQR level.

Ferrouhi (2014), surveyed bank's LQR and its FP in the Moroccan Banking industry for the period 2001-2012 (twelve years). Log of total asset, Capital to total asset, Equity to total Assets, Unemployment rate, Inflation rate and Gross Domestic Product were proxies for independent variable, while Return on Assets (ROA), Return on Average Assets (ROAA) and Return on Equity (ROE) were proxies for dependent variable. Multiple regression technique was used for data analysis. The study concludes that, performance of the banks be contingent positively on its size, FDI as well as realization of the financial crisis, it equally be contingent negatively on external funding and on unemployment rate. Ebenezer et al. (2019) explored the influence of LQR and IRR on both performance and valuation of firm across banks of 5 ASEAN Countries for nine years (2009-2017), using a sample of sixty-three (63) banks. The proxies for the independent variable are; Net interest margin, Asset interest yield, Total loan and advances to total deposits and Liquid assets to total assets ratio, while ROA, ROE and Enterprise value to operating value serve as proxies for the dependent variable. The study also controls for Bank size, Firm size, GDP and Consumer Price index (Inflation). The exploration concludes that, loan to deposit ratio is positively and significantly influencing valuation of firm whereas liquid asset ratio, interest rate risk (net interest margin and asset interest yield) is negatively and significantly influencing valuation of firms.

Similarly, Otwoko and Maina (2021), critically analyzed the effect of liquidity risk on the financial performance of DT SACCOs in Kenya. The study used a descriptive survey design and employed regression methods to model the relationship between liquidity risk and financial performance of DT SACCOs. The data were analyzed at a 5% level of significance. The study findings revealed that at a 5% level of significance, liquidity risk had a statistically significant influence on the financial performance of deposit-taking SACCOs. It was recommended based on the findings that DT SACCOs are encouraged to focus on enhancing the mobilization of deposits to ensure that an asset portfolio that minimizes liquidity risk is maintained. Samaila and Bello (2022) evaluated risk parameters and profitability of listed deposit money banks in Nigeria for a period of 12 years (2009-2020), using a sample of 11 deposit money banks listed in the Nigerian exchange group(NGX). The proxies for the independent variable are credit risk and liquidity risk, while the dependent variable was proxied by return on assets (ROA). The tool of analysis is multiple regression. The findings of the study revealed that credit risk has negative and insignificant relationship with ROA, while liquidity risk has a positive and significant relationship with ROA.

Ogunsola (2023) assessed the effect of financial risk on the financial performance of listed insurance firms in Nigeria for a period of ten years from 2015 to 2021. The population of the study is all listed insurance firms in Nigeria, while ten (10) insurance firms were selected using judgmental sampling technique. Panel data method was used for the analysis. The findings revealed that only liquidity risk has negative and significant effect on financial performance, while the effect of credit risk and leverage risk was insignificant on financial performance of sampled insurance firms in Nigeria. Furthermore, Adam and Ayagi (2024) examined the relationship between liquidity and profitability of listed deposit money banks in Nigeria for a period of ten years from 2013 to 2022. The population of the study is thirteen (13) quoted deposit money banks in Nigeria. While judgmental sample was used to arrive at a sample of nine (9) banks. Data was analyzed using descriptive statistics, multiple regression and correlation co-efficient. Return on assets and return on equity was proxy for dependent variable and current assets, cash ratio, and free cash flow were proxy for independent variable. The findings of the study reveals that there is

significant relationship between liquidity and profitability. From the above review, it is hypothesized that:

H2:   LQR has no significant influence on profitability of Nigerian DMBs.

Operational risk and profitability
In Nigeria, Okeke et al. (2018) investigated operational risk management and organizational performance of banks in, Edo State, using Extreme Value Theory as the underpinning theory for the study. Three hundred and eighty- six (386) respondents were drawn as the sample size from a population of one thousand nine hundred and sixty-seven (1,967) respondents. Multiple regression analysis was the technique employed for the data analysis. The study discovered that people risk variables had a negative strong effect on organizational performance of the banks in Edo State. Process risk variables had a negative moderate influence on organizational performance of the banks in Edo State, System and technology risk had a negative significant effect on organizational performance of the banks. External risk variables had a positive weak influence on organizational performance of the banks in Edo State.

Ndi Isoh et al. (2020), analyzed the impact of operational risk management strategies on financial performance of selected mainstream commercial banks in Cameroon. Data was primarily sourced using structured questionnaires from two hundred and fifty (250) employees purposively sampled from National Financial Credit Bank (NFCB), the United Bank for Africa (UBA) and Eco Bank from the centre and littoral regions of Cameroon. Data was analyzed using Structural Equation Modelling (SEM) with the aid of SPSS 23 and Amos 24. The study revealed that internal operational risk management practices, risk monitoring and control, and training and reporting have significant positive impact on financial performance. Similarly, Annannab et al. (2022), examined the operational risk management (ORM) impact on cooperative microfinance performance by identifying specialization as a moderator with respect to the relationship between ORM and cooperative microfinance performance. Survey questionnaires were distributed to 455 respondents, all of whom were senior officers of savings and credit cooperative microfinance service (MSPs) in Thailand, using a quantitative technique. The data were analyzed using Smart PLS and the Structural Equation Model (SEM) method. The findings show that cooperative microfinance is significantly, also specialization moderates the relationship between ORM and cooperative microfinance performance.

Akpan et al (2024) examined the effects of corporate attributes on risk management disclosure of listed insurance firms in Nigeria from 2013 to 2022. Firm size, firm profitability and firm leverage were measures of corporate attribute, while risk management disclosure was the dependent variable. The research design for the study was ex post facto and the population of the study was twenty-three (23) listed insurance firms in Nigeria. Purposive sampling technique was employed to select eight (8) listed insurance firms. Marginal logistic regression was used as the technique of analysis. The finding of the study shows that firm size, firm profitability and firm leverage have significant effect on risk management disclosure of listed insurance firms in Nigeria. Based on the above review, the study hypothesized that:

H3:   OPR has no significant influence on profitability of Nigerian DMBs.

The underpinning theory of the study is Bank Risk Management Theory. This theory was used by David Pyle in his works titled 'why risk management is needed'. This theory indicates that the survival of banks was direct or indirectly affected by credit, liquidity and market risk. The reason for the adaptation for

this study is because the researcher expects the independent variables risk to influence the dependent variable which is banks profitability.

3. Methodology

Correlational research design is employed for this study as the appropriate design. This is because it is more adequate in determining the relationship between two or more variables. The population of this study is all the fourteen (14) deposit money banks listed on the floor of the Nigerian Exchange Group (NGX) as at 31St December, 2022. The study covered the period from 2013 to 2022. The sampling technique of this study is purposive sampling technique. The study sample size was selected based on the criteria that: the bank must have been listed on the NGX before 1St January 2013 and the bank must be publishing financial statements from the year 2013- 2022. However, First Bank Plc was left out for not having complete data for the period of 2021 and 2022, while Jaiz Bank Plc was left out of the sample as a result of not meeting the criteria of been listed on the NGX before 1St January 2013. The study utilizes the secondary source of data. Data for the current study was collected from Nigerian Exchange Group covering the period of ten years from 2013 to 2022.

Variables and their Measurements

This study used profitability as the dependent variable and was proxied by return on asset. The explanatory variables comprise the independent and control variables. The independent variable is the financial risk proxied by interest rate risk liquidity risk and operational risk which was measured as follows:

Table 1: Measurement and Operational Definitions of the Variables

S/N	Variable	Type	Acronym	Measurement	Source
1	Return on assets	Dependent	ROA	Net profit / Total asset x 100	Otieno et al. (2016); Altarawneh, (2016) and Abubakar et. al, (2019).
2.	Interest Rate Risk	Independent	IRR	interest income/Total asset x 100	Kolapo and Dapo (2015); Museiga et al (2017) and Ebenezer et al (2019).
3.	Liquidity Risk	Independent	LQR	loan and advances/Deposits x 100	Banks, (2005); Yousfi, (2014), Altarawneh, (2017); Chowdhury & Zaman, (2018) and Ebenezer et al. (2019).
4.	Operational Risk	Independent	OPR	operating expenses/Total assets x 100	Lyambiko, (2015); Altarawneh, (2016) and Gweyi,(2018).
5.	Firm Size	Control	FSZ	Log of Total assets	Tafri et al (2009); Akhtar et al (2010) and Ebenezer et al (2019).
6	Firm Age	Control	FAG	Number of years since listed	Ahmed et al (2010); Amran & Che-Ahmed (2010) and Kurawa & Garba (2014).
7	Firm Growth	Control	FGR	Change in total assets	Total assets (Current year minus preceding year divided by the Preceding year).

Source: Empirical Researches by the author.

Model Specification
The model that examines the hypothesis of the study is specified as follows:
$$ROA = \beta_0 + \beta_1 IRR_{it} + \beta_2 LQR_{it} + \beta_3 OPR_{it} + \beta_4 FSZ_{it} + \beta_5 FGR_{it} + \beta_6 FAG_{it} + \varepsilon_{it} \quad \text{...............................} \quad (1)$$

Where:
ROA   =   Return on asset
I RR   =   Interest Rate Risk
LQR   =   Liquidity risk
OPR   =   Operational Risk
FSZ   =   Firm Size
FGR   =   Firm growth
FAG   =   Firm age.

4.   Results and Discussion
Table 2: Descriptive Statistics of the variables

Variables	Obs	Mean	Std. Dev.	Min	Max
Roa	120	0.050	0.129	-0.055	1.195
Lqr	120	0.760	0.861	0.000	6.305
Irr	120	0.094	0.168	0.001	0.951
Opr	120	0.055	0.133	0.001	0.850
Fsz	120	12.046	0.578	11.029	13.126
Fag	120	20.167	10.513	7.000	52.000
Fgr	120	0.358	1.713	-1.000	10.545

Source: Generated by the researcher from the annual reports of the sampled banks using Stata

From Table 2 it can be seen that return on asset (ROA) has an average of 0.0503 and a standard deviation of 0.1289 with minimum and maximum value of -0.0545 and 1.1952 indicating lack of substantial variation. On the other hand, internal rate risk (IRR) has a mean of 0.0943 and a standard deviation of 0.1681 with minimum and maximum value of 0.0006 and 0.9505 which also indicate lack of substantial variation. Similarly, operational risk (OPR) has an average of 0.0547 and a standard deviation of 0.1333 with minimum and maximum value of 0.0005 and 0.8498. Overall, LQR has the highest standard deviation, while ROA and OPR have the lowest. The higher the standard deviation of the independent variable (LQR and OPR) in relation to the dependent variable (ROA), the higher the risk exposure of the profitability of the listed deposit money banks. To ascertain whether there is multi- collinearity or not among the variables and to establish the nature of correlation between the dependent and independent variables table 3 is computed for this purpose.

Table 3: Correlation Matrix of Variables

	Roa	Lqr	Irr	Opr	Fsz	Fag	Fgr	VIF
Roa	1.000							
Lqr	0.174	1.000						1.05
Irr	0.654	0.135	1.000					4.08
Opr	0.706	0.095	0.863	1.000				4.20
Fsz	-0.489	-0.141	-0.438	-0.430	1.000			1.59
Fag	0.180	0.027	0.118	0.206	0.090	1.000		1.10
Fgr	0.423	-0.025	0.283	0.271	-0.485	-0.045	1.000	1.34

Source: Generated by the researcher from the annual reports of the sampled banks using Stata.

It can be seen in Table 3 that the values on the diagonals are all 1.00 indicating that each variable is perfectly correlated with itself. IRR is positively correlated with ROA, meaning that an increase in IRR will lead to an increase in profitability of listed deposit money banks in Nigeria. On the other hand, OPR is positively correlated with ROA indicating that an increase in the value of OPR, profitability measured by ROA of listed deposit money banks will increase. On part of the control variables, Firm size (FSZ) is negatively correlated with ROA, while firm age (FAG) and firm growth (FGR) are positively correlated with ROA. Furthermore, the correlation matrix shows the presence of multicollinearity problem as two of the correlation coefficient exceeds the threshold of 0.5 as suggested by Gujarati (2004). However, the result of variance factor(VIF) test carried out proved otherwise as the individual VIF are below the threshold of 0.5; thus, the data are free from multicollinearity problem.

Table 4: Panel corrected Standard Error Regression Result

Variable	Coef.	Z-stat	P-value
Lqr	0.025	1.91	0.056**
Irr	0.050	1.01	0.314
Opr	0.483	4.67	0.000***
Fsz	-0.013	-1.83	0.067**
Fag	0.001	1.47	0.142
Fgr	0.016	3.43	0.001***
Cons	0.150	1.63	0.103
R-square 0.589			
P-value 0.000			
Hausman 0.009			
F-statistics 238.37			
Modified Wald test 0.0000			

Source: Generated by the researcher from the annual reports of the sampled banks using Stata

Table 4 shows the Panel Corrected Standard Error (PCSEs) for the model. The results of profitability in relation to return on asset (ROA) shows that Hausman specification test to choose between GLS random effect and fixed effect was significant at 5% hence, the choice of fixed effect result as it was more efficient, but the heteroscedasticity shows that coefficient of the error term is not constant for the explanatory variables because it is also significant. Therefore, it was corrected through Panel Corrected Standard Error regression.

The coefficient of determination R^2 show a value of 0.58 indicating that the variables considered in the model account for about 58% change in the dependent variables that is profitability, while about 42% change may be as a result of other variables not addressed by this model. In general, the overall probability is positively significant at 1%. However, LQR is having a positive and significant relationship with profitability measured by ROA. This implies that an increase in liquidity risk increases profitability of listed deposit money banks in Nigeria. This can be seen from the coefficient in table 4 which shows that an increase in liquidity rate risk by 1% profitability measured by ROA will increase by 0.03%. Therefore, hypothesis one which stated that liquidity risk has no significant impact on profitability of listed deposit money bank in Nigeria is rejected. The study is consistent with the study of Otwoko and Maina (2021), who found that liquidity risk had a statistically significant influence on the financial performance of deposit-taking SACCOs in Kenya. It is also in line with the study of Samaila and Bello (2022), who found a positive and significant relationship between liquidity risk and profitability of listed deposit money banks in Nigeria.

Furthermore, interest rate risk has a positive and insignificant relationship with profitability measured by ROA. This means that operational risk moves in the same direction with ROA. An increase in interest rate risk increases profitability measured by ROA. This is evident from the positive coefficient of 0.0504 and a p-value of 0.314 (>0.05), meaning that an increase in interest rate risk by 1%, ROA will increase by 0.05%. Therefore, the hypothesis which stated that interest rate risk has no significant impact on profitability of listed deposit money bank in Nigeria is accepted. The study is consistent with Odeke and Odongo (2014) who found that overall analysis of interest rate risk exposure and financial performance measured by ROA showed a positive relationship in commercial banks in Uganda.

Operational risk has a positive and significant relationship with profitability measured by ROA. This means that an increase in operational risk increases profitability measured by ROA. This is evident from the positive coefficient of 0.4833 and a p-value of 0.000 (<0.05), meaning that an increase in operational risk by 1%, ROA will increase by 0.48%. Therefore, the hypothesis which stated that operational risk has no significant impact on profitability of listed deposit money bank in Nigeria is rejected. This finding is consistent with the findings of Lymbiko (2015) who founds that operational risk management positively influence returns of commercial banks in Tanzania. The finding is also consistent with Epetimehin and Obafemi (2015) and Simiyu et.al (2017). On the other hand, the study contradicts the findings of (Azamat, 2014; Tamimi, 2015; Muriithi & Waweru, 2017 and Okeke et al. 2018) who documented a negative relationship between operational risk and profitability. On the part of control variables, FSZ has a negative and significant relationship with ROA, while FGR has a positive and insignificant relationship with ROA. On the other hand, FAG have a positive and significant relationship with ROA.

5.   Conclusion and Recommendations

The study investigated the influence of financial risk on profitability of listed Nigerian DMBs. The study concluded that LQR and OPR are positively and significantly influencing profitability of listed Nigerian DMBs, whereas IRR is positively but insignificantly influencing profitability of listed Nigerian DMBs. Going by these conclusions from the findings, the research recommends the following:

i.   Listed deposit money banks in Nigeria should have great concentration on how they manage LQR, so as enhance shareholders' wealth hence it their key aim of establishing a business.

ii.   The administration of quoted DMBs should be caution in increasing the rates charged on loans. The DMBs should charge moderate rate of interest on their loans because if it is too high some microenterprises may not be able to take up the loans and those who may take the loans may default in the repayment and this will lead to loan losses.

iii.   Since OPR is inherent in all financial product, actions and processes as well as the entire system. Therefore, an effective administration of OPR is very important for the boards and administration of Nigerian DMBs. Thus, the research suggests that management of Nigerian DMBs ought to ensure adoption and implementation of rigorous operational risk management practices. That is, bank management should strengthen their internal control system by employing qualified and trustworthy personnel to work in their firm so as to reduce fraud and other failed internal processes.

References

Abubakar, A., Sulaiman, S. A., Usman, B., & Mohammed, M. U. (2019). Credit Risk Management and Financial performance of quoted deposit money banks in Nigeria. *University of Port Harcourt Journal of Management,4(1)*, 178-192.

Achimugu, A., Ocheni, S. I., Adah, A., Adediran, S. A., & Abdullahi, S. R. (2021). EEfect of Financial Risk on Profitability of Quoted Deposit Money Banks in Nigeria. *International Journal of Public Administration Research, 6(2),*, 100-118.

Adam, U. S., & Ayagi, S. R. (2024). Liquidity and Profitability of Listed Deposit Money Banks in Nigeria. *FUDMA Journal of Accounting and Finance Research 2(2)*, 71-80.

Ahmed, N., Ahmed, Z., & Ahmed, I. (2010). Determinants of Capital Structure: A case of life insurance sector of Pakistan. *European Journal of Economics, Finance and Administrative Sciences,24*, 7-12.

Akhtar, M. F., Ali, K., & Sadaqat, S. (2010). Factors influencing the profitability of Islamic banks of Pakistan. *International Research Journal of Finance and Economics, 66*, 126-132.

Akpan, D. C., Odokwo, R. A., & Akinninyi, P. E. (2024). Corporate Attribute and Risk Management Disclosure of Listed Insurance Companies in Nigeria. *FUDMA Journal of Accounting and Finance Research 2(1)*, 40-57.

Altarawneh, M. H. (2017). Risks and Bank Performance in Jordan. *Unpublished M.Sc.(International Accounting) dissertation, Universiti Utara, Malaysia.*

Amran, N. A., & Che- Ahmad, A. (2010). Corporate governance mechanism and performance: Analysis of Malaysian family and non-family controlled companies . *Journal of Modern Accounting and Auditing, 6(2)*, 1.

Anam, S., Bin Hassan, S., Enamul Huda, H. A., Uddin, A., & Hossain, M. H. (2012). Liquidity risk management: A comparative study between conventional and islamic banks of Bangladesh. *Research Journal of Economics, Business and ICT,5*, 1-5.

Annannab, H., Bakar, A. A., & Mohd Khan, S. J. (2022). Operational risk management and performance of Cooperative Microfinance in Thailand. *International journal of Social Science and Economic Review 4(1)* , 17-24.

Azamat, A. (2014). Banking Sector Operational Losses and macro economic environment. *JEL classification C22 C23 G21.*

Banks, E. (2004). *Alternative Risk Transfer: Integrated Risk Management through Insurance, Re-insurance and the capital markets.* John Wiley & sons ltd.

Chowdhury, M. M., & Zaman, S. (2018). Effect of Liquidity Risk on Performance of Islamic Banks in Bangladesh. *IOSR Journal of Economics and Finance (IOSR-JEF),9(4)*, 1-9.

Ebenezer, O. O., Islam, M. M., Yusoff, W. S., & Rahman, S. (2019). The effect of liquidity risk and interest rate risk on profitability and firm value among ASEAN- 5 Countries. *Journal of Reviews on Global Economics, 8*, 337-349.

Epetimehin, F. M., & Obafemi, F. (2015). Operational risk management and financial sector development: An over view . *International Journal of Economics, Commerce and management. United Kingdom,11(3).*

Ferrouhi, E. (2014). Bank liquidity and financial performance: Evidence from Moroccan Banking industry. *Verslas: Teorisa ir praktika/ Business: Theory and Practice, 15(4)*, 351-361.

Gujurati, D. N. (2004). *Basic Econometrics (Fourth Ed).* USA: Mc Graw Hill.

Gweyi, M. O. (2018). *Influence of Financial Risk on Financial performance of Deposit Taking Saving and Credit co-operative Societies in Kenya.* Unpublished PhD (Business Administration), University of Nairobi, Kenya.

Kanagaretnam, K., Lim, C. Y., & Lobo, G. J. (2014). Effects of international institutional factors on earnings quality of banks. *Journal of Banking & Finance 39(1)*, 87- 106.

Kolapo, F. T., & Dapo, F. (2015). The influence of interest rate risk on the performance of deposit money banks in Nigeria. *International Journal Economics, Commerce and Management.3(5)*, 1218-1227.

Kurawa, J. M., & Garba, S. (2014). An Evaluation of the effects of credit risk management on the profitability of Nigerian Banks. *Journal of Modern Accounting and Auditing,10(1)*, 104-115.

Kyaw, K., Olugbode, M., & Petracci, B. (2015). Does genda diverse board less earnings management? *Finance Research Letters, 14*, 135-141.

Lymbiko, M. R. (2015). The Effect Of Operational Risk Management Practices on the financial performance in Commercial Banks in Tanzania, An Unpublished MBA Project, University of Nairobi, Kenya.

Marshal, I., & Onyekachi, O. (2014). Credit Risk and performance of Deposit Money Banks in Nigeria: An Empirical Investigation. *European Journal of Humanities and Social Sciencs, 31(1)*, 1684-1694.

Muriithi , J. G., & Waweru, K. M. (2017). Liquidity risk and financial performance of commercial banks in Kenya. *International Journal of Economics and Finance,9(3)*, 256-265.

Museiga, M., Olweny, T., Mukanzi, C., & Mutua, M. (2017). Influence of interest rate risk on performance of commercial banks in Kenya. *Economics and Finance Review, 5(2)*, 14-23.

Nathanel, N. R., & Krishna, A. R. (2022). Implication of interest rate risk in Indian commercial banks . *Specialusis ugdmas/ special Education 2(43)*, 422-435.

Ndi Isoh, A. V., Ambang, E. M., & Nchang, N. D. (2020). Assessing the impact of operating risk management on financial performance of selected mainstream commercial banks in Cameroon. *International journal of Research in Commerce and Management Studies 2(2)*, 1-16.

Odeke, S., & Odongo, J. (2014). Interest rate risk exposure and financial performance of commercial banks in Uganda. *Research Journal of Finance and Accounting,5(2)*, 167-180.

Ogunsola, A. (2023). Do Financial Risk Affect Financial Performance of Listed Insurance Firms in Nigeria? . *FUDMA Journal of Accounting and Finance Research 1(3)*, 30-39.

Okeke, M. N., Aganoke, C. U., & Onuorah, A. N. (2018). Operational Risk Management and Organizational Performance of Banks in Edo State . *International Journal of Academic Research in Economics and Management Science, 7(4)*, 103-120.

Olumayokun, A. S., & Adekoya, I. S. (2020). Financial Risk Management and the Profitability of Selected Deposit Money BanKs in NIgeria. *European Journal of Business and Management,12(18)*, 111-121.

Oteino, S., Nyagol, M., & Onditi, A. (2016). Empirical Analysis on Relationship between liquidity risk Management and Financial performance of Micro Finance Banks in Kenya. *Research Journal of Finance and Accounting,7(5)* , 129-151.

Otwoko, B. E., & Maina, K. (2021). Effect of liquidity risk on financial performance of deposit taking savings and credit cooperative organisations(SACCOs in Kenya. *International journal of Research in business & social science 10(2)*, 203-211.

Samaila, I. A., & Bello, M. M. (2022). Risk Parameters and Profitability of Listed Deposit Money Banks in Nigeria. *TSU-International Journal of Accounting and Finance 1(3)*, 1-15.

Simiyu, M. P., Clive, M., & Museiga, M. (2016). Influence of operational risk on financial performance of of Deposit taking savings and credit cooperatives in Kakamanga County. *International Journal of Management and Commerce Innovation,4(2)*, 509-518.

Stephen, N., & Akele, A. O. (2014). Risk management and financial performance of banks in Nigeria. *European Journal of Business and Management,6(31)*, 336-343.

Tafri, H. F., Rahman, R. A., & Omar, N. (2009). The Impact of financial risks on Profitability of Malaysian Commercial banks . *International Journal of Social, Behavioural, Educational, Business and Industrial Engineering,3*, 1320-1334.

Tamimi, H. (2015). Financial fisk and Islamic banks performance . *Journal of Islamic Banking and finance,2(1)*.

Yimka, A. S., Taofeek, A., Abimbola, C., & Olusegun, A. (2015). Crsdit Risk Management and Financial Performance of Selected Commercial Banks in Nigeria. *Journal of Economics & Financial Studies, 3(1)*, 1-9.

Yousfi, I. (2014). Risk Management Practices and financial performance in Jordan: Empirical evidence from Islamic banks. *International Shari'ah Research Academy for Islamic Finance*, 1-24.