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Effect of Financial Risk on Financial Performance of Banks Listed at Nairobi Securities Exchange, Kenya

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Abstract

Financial risks associated with the banking industry encompass a range of components, including credit risk, liquidity risk, market risk, and operational risk. These risks have the potential to have a substantial impact on a bank's profitability, stability, and overall performance. Shifting economic conditions make these banks' financial risk more difficult. The purpose of the research was to determine the effect of financial risk on the financial performance of banks listed at the Nairobi Securities Exchange, Kenya. To achieve this aim, the research objectives that guided the study were to assess the extent of exposure to financial risks faced by banks listed at the Nairobi Securities Exchange, Kenya, and to analyze the influence of return on assets on banks listed at the Nairobi Securities Exchange, Kenya. and to determine the effect of financial risk on the financial performance of banks listed at the Nairobi Securities Exchange, Kenya. The study was anchored with the agency theory, modern portfolio theory, and the theory of financial intermediation. This research used a descriptive and correlational research design and a stratified sampling approach to describe both the independent and dependent variables for the study. The financial performance of banks was assessed in terms of return on assets (ROA), where secondary data was gathered using a data collection sheet over five years from 2018 to 2022. With a population of 38 banks, the sample size of 10 listed banks' quarterly financial reports served as the source for the data. Analysis of the data was done using descriptive and correlational research designs. Multiple regression analysis was conducted after diagnostic tests were conducted. The data were coded, entered, cleaned, and analyzed using Statistical Package for Social Sciences (SPSS) Version 23. The study found that liquidity risk has a positive and statistically significant effect on return on assets, and bank size has a positive and statistically significant effect on return on assets. While credit risk has a positive and statistically insignificant effect on return on assets, market risk has a negative but statistically insignificant effect on return on assets. Further, operational risk has a negative coefficient, showing no statistically significant effect on the return on assets. The study recommended that banks at NSE should adopt a proactive approach to liquidity risk management and consider leveraging advancements in technology for better predictive analytics. For market risk, investment in staff training on risk assessment and management can also enhance the decision-making process, leading to improved financial performance, and focus on strategic growth to increase bank size while maintaining prudent risk practices, as size is shown to correlate positively with performance. Also, monitoring operational risk continuously by investing in advanced technologies for operational processes can help mitigate inefficiencies and reduce the risks associated with operational failures. To increase their profitability, banks should prioritize credit risk management with an emphasis on lowering non-performing loan levels and enhancing lending practices.

Keywords: Financial Risks, Credit Risk, Liquidity Risk, Market Risk

1. Introduction

Banks play an essential role as facilitators in today's financial system, transferring funds from units with excess capital to those with deficits. These banks, however, are subject to a range of risks. A wide range of uncertainties in financial risks can affect a bank's overall financial performance, stability, and profitability. Financial risk is the possibility of incurring monetary losses in a financial transaction or investment. Kenya's financial sector, represented by the NSE-listed banks, is crucial for the nation's financial prosperity. According to the Corporate Finance Institute (n.d.), banks are subject to various external and internal financial risks as they navigate the complex regulations of the global financial market. Such risks include, for example, credit, market, liquidity, and operational.

Credit risk is the likelihood that a borrower's failure to make the appropriate installments might result in a loan default. Based on the borrower's capacity to pay off the debt according to its initial conditions, credit risk was determined (Schmit, 2024). Liquidity risk is likely for banks to be unable to pay their depositors or finance property increases when they become due, despite suffering unfavorable pricing or deficits (Kenton, 2023). For instance, this can occur when several depositors withdraw their money almost simultaneously, leaving banks without sufficient funds to fulfill their short-term commitments. Financial entities and organizations are vulnerable to this risk, which could impact their operational and economic stability (Kenton,2023).

Market risk refers to financial losses brought on by changes in market pricing (Yayes,2023). Common market risks include currency risk, which involves the possibility of fluctuations in exchange values, and interest rate risk, which is the possibility of future rate changes. Operational risk is the risk that banks encounter when attempting to carry out their regular business (Yayes,2023). For example, a circumstance in which the bank's system is slowing down, or when activities are slowing down. The bank's capacity for making a profit from its assets and maintain solid financial health is measured by its which is determined by return on assets (ROA). A bank's performance indicates its potential profitability over time. One of the most important financial metrics used to assess a bank's effectiveness and profits is return on assets.

Excessive contact with risk can lead to bank failure and affect millions of individuals because of the bank's size. The Kenyan banking sector regulator classifies banks into big, medium, and small categories based on their market dominance, which is calculated using a weighted composite method. A big bank's weighted composite is 5% or more, medium banks' weighted composite is 1% to 5%, and small banks' weighted composite is 1% less (Central Bank of Kenya [CBK], 2019). Return on Assets, a crucial component of financial performance measurement. It is frequently adopted to measure banks' profitability. A bank's capacity to turn a profit from its total assets could be evaluated using Return on Assets. which gives information on how effectively it generates revenues from its assets.

Kenyan banks' profitability, as indicated by their Return on Assets, is influenced by a number of external and internal variables. Monitoring return on assets is essential to comprehend the operational effectiveness and financial health of these institutions. Banks' return on assets (ROA) could have fluctuated due to changes in the competitive environment, regulatory actions, economic situations, and bank competition. Bank management, regulators, and investors must understand the way risks interact and impact the bank's performance. The research objective is to determine the effect of financial risk on the financial performance of banks at Nairobi Securities Exchange, Kenya. It was intended that the results would offer useful information to the financial industry, Banks, Customers, Investors, and stakeholders, supporting the development of policies, facilitating well-informed decision-making, and strengthening the banks in Kenya's general stability.

Objectives of the Study

i. To assess the extent of exposure to financial risks faced by banks listed at NSE, Kenya.
ii. To analyze the influence of Return on Assets on Banks Listed at NSE, Kenya.
iii. To determine the Effect of Financial Risks on the Financial Performance of Banks Listed at NSE, Kenya

2. Review of Literature

2.1 Empirical Literature Review

Credit Risk and Financial Performance

Onsongo et al. (2020) researched Financial Risk and Financial Performance Evidence and Insights from Services Listed Companies at NSE, Kenya. An explanatory method was used in the study. 14 firms listed under the NSE category were the target population. Secondary panel data for the years 2013–2017 were gathered and included in reports that were released annually. As per the Hausman specification test, the random approach was implemented with the panel regression model. Results proved liquidity risk had a major adverse influence on return on equity and operational risk resulted in a slightly favorable outcome, and credit risk produced a negligible positive influence on return on equity.Strong coefficients found in the outcome analysis indicate that the bank at Nairobi Securities Exchange and service businesses might extend their loans. However, because these firms' current liabilities exceeded their current assets during the research period, the study's negative coefficients show that they faced serious liquidity problems. Consequently, it was determined that these businesses were unable to pay their full debts when they were due. The study used return on equity, while the current study used return on assets.

Mwanzia (2021) researched The Effect of Risk Management on the Financial Performance of Banks in Kenya descriptive method approach was used. Yearly Bank collection, which spanned 5 years from 2016 to 2020, served as the secondary data source. As of December 31, 2020, it included 42 banks. The data analysis was aided using SPSS version 27 and STATA, and the results were presented as regressions, correlations, ANOVAs, and T-tests. Based on the paper, despite being weak and negligible, financial performance and credit risk management were effectively connected, and a favorable association between financial performance and liquidity risk management. Although the link was small, operating risk management was positively correlated with financial success. This study focuses on financial risk as an independent variable and financial performance as a dependent variable. and bank size was the intervening variable. In previous research, Risk Management was considered the independent variable, financial performance was the dependent variable, and bank size was the moderating variable.

Research on Credit Risk and Financial Performance of Quoted Banks in Nigeria was completed by Ukpong and Essien (2022). This study's research method deployed an ex post facto approach. Ten banks in Nigeria in 2021 made up the population. Secondary data from the annual reports of banks and accounts were utilized throughout the study. The research's five-year period was from 2017 to 2021. The research employed descriptive statistics. The research hypotheses were analyzed and regression analysis. conclusions revealed that although no strong connection was seen between exchange rates, interest rates, and financial performance, there was one between liquidity ratios and financial performance. The return on assets decreased when interest rates and exchange rates increased.It concluded that banks perform worse when interest rates are high. It was advised that banks use suitable risk management measures, such as securitization and forwards, futures, swaps, options, and insurance, to reduce credit risks. This study was done in Nigeria, while the current in Kenya.

Liquidity Risk and Financial Performance

According to Ratemo's research (2021) on liquidity risks and financial performance of banks in Kenya. 42 Kenyan banks are the focus of this investigation with the use of a causal research strategy, and secondary data were taken from CBK reports. Data collected covered the years 2011-2017. Stata 14.0 was utilised to examine the data, producing panel models and descriptive findings. As per the findings, the coefficient of bank size influences the financial performance of banks and is favorable. It demonstrated financial performance of banks was affected negatively by the coefficient of asset quality and positively by capital adequacy. The financial performance of banks was firmly and significantly connected with bank operational effectiveness. This study addressed four financial risks: credit, market, operational, and liquidity. Previous research solely searched for the influence of liquidity risk on financial performance.

Fanta and Thakkar's research (2022) about the effect of financial risks on financial performance of private banks in Ethiopia. It employed a regression model and collected data from ten private banks over ten years (2011–2022). A mixed-method research strategy was used in the study, which combined in-depth interviews with no set format with documentary analysis. The E-view9 software package and panel data methodologies were employed in the study's regression analysis. The research included seven independent variables, namely capital adequacy risk, credit, liquidity, interest rate, foreign exchange rate to operational cost risks, loan to deposit risk, and deposit to asset risk, in addition to one dependent variable (ROA).outcomes show that credit, liquidity, and foreign exchange rate risks suffered a substantial loss effect on the performance of Ethiopia's private banks; also, interest rate risk and liquidity risk had an unfavorable but minor effect. The panel's regression findings indicate that loan-to-deposit, operating efficiency, and capital sufficiency all positively and significantly affect financial performance. the deposit-to-asset ratio positively and marginally affects Ethiopia's private banks' performance. The study concluded that Ethiopian private banks' performance is significantly impacted by financial risks. This study used seven independent variables, while the current research was conducted with four independent variables.

Mwania (2023) observed the Financial Risk and Financial Performance of Banks in Kenya. it employed causal analysis methodology. The analysis examined all 39 banks that were operational in Kenya from 2017 to 2021. The data collection sheet was adapted to collect the secondary data. The data were analyzed at a level of significance using a model based on panel regression in STATA. In addition to the Hausman test, tests for multicollinearity, heteroscedasticity, and normality were developed. The data were shown using descriptive statistics. Research found liquidity risk significantly benefited banks' performance while credit risk significantly hurt them. Also, exchange risk increased banks' profitability, but this result was not statistically significant. Lastly, although not statistically significant, interest rate risk had an adverse influence on the monetary outcome of banks. 38 banks made up the ample size, while the current study was 10 banks listed at NSE.

Market Risk and Financial Performance

Maniagi (2018) looked into the Influence of Financial Risk on Financial Performance of Banks in Kenya. 44 banks made up the population and employed primary and secondary data. A positive research philosophy and a descriptive survey research methodology were employed. Panel data were acquired from CBK and bank websites from thirty banks over ten years, between 2006 and 2015.220 respondents made up the population for the primary data, which included a general manager, credit manager, operations manager, and risk manager. There was a self-administered survey employed. For secondary data, the E-views software was used to conduct descriptive statistics, correlation analysis, and random and fixed effects. For primary data, SPSS version 22 was used to perform factor evaluation, regression, and descriptive and inferential analysis. there is an inverse correlation between credit risk and performance, as market risk and interest rate risk show strong beneficial connections with performance. The findings were based on an extended period that captured various business periods. This study employs a survey that spans only ten years and uses primary and secondary data; however, the present data collection sheets were used to collect data over five years, and secondary data as sources of information.

Juma's (2018) research on Risk Analysis and Performance of Banks in Kenya. It employed secondary data derived over six years, from 2010 to 2015, from 42 banks. Information was obtained from the banks' annual reports and financial statements. and the Central Bank of Kenya, using an explanatory research. A statistical panel data model was then applied for analysis. To ensure objectivity, diagnostic tests like heteroscedasticity, autocorrelation, and multicollinearity were run. The study found a valuable and substantial relationship between return on assets and liquidity. Results showed there was

an adverse and remarkable relationship between return on assets and credit risk, a strong and favorable connection between interest rate and return on assets, and an adverse and noticeable relationship between foreign exchange risk and return on assets. findings demonstrate that, although credit risk and currency risk had a noteworthy influence on performance, liquidity risk and interest rate have desirable and substantial impacts on the performance of banks in Kenya. It utilizes the years 2010–2016 with an explanatory research design. In contrast, this employed a descriptive methodology that covered the years 2018 through 2022.

According to Mpora et al. (2020) research on Financial Risk Management and Financial Performance of Selected Banks in South Kivu, DRC. The study confirms the poor financial performance of Congolese banks from 2014 to 2017. According to the study, currency rate, interest rate, and credit risk had crucial effects on the financial performance of banks in South Kivu during the research. The combined regression outcomes indicate a satisfying collaboration between financial risk management and financial success. Results show interest rate risk management appears to possess a positive effect on the financial performance of banks in South Kivu, with credit risk having a favorable and major effect on the bank's financial performance. It suggests financial performance of South Kivu banks was positively impacted by exchange rate risk. The research focuses on selected banks in South Kivu, not on all the whole banks working in DR Congo. The current one focuses on Kenya with 10 banks listed at Nairobi securities exchanges from 2018-2022.

Operational Risk and Financial Performance

Baraza (2020) researched on Effect of Financial Risk on Financial Performance of Banks Listed on Nairobi Securities Exchange in Kenya. Eleven listed banks' secondary data were used in this research. employing a descriptive methodology. The data was gathered from the NSE, the Capital Markets Authority, and the bank's financial statement. The research was conducted from 2010 to 2019 over ten years. The study found financial performance of banks listed with the NSE strongly correlates with liquidity, credit, market, and operational exposure risks. The financial performance of Kenya's listed banks was shown to be negatively correlated with liquidity risk. and it has a significant and adverse correlation with credit risk. There was a substantial and negative correlation with market risk. Finally, a negative but slight connection was found for operational risk. The gap was ten years from 2010 to 2019, while this study considered five years.

Ali (2022) conducted research regarding operational risk and Financial Stability of Banks in Kenya. A census had been allowed, and a correlational research design was used that focused on 39 Kenyan banks. Secondary sources for the five years from 2017 to 2021. The study used SPSS. And was completed under the direction of means and standard deviations, regression analysis, correlation analysis, and table presentation. The research discovered that operational risk is an important indicator of the financial stability of banks in Kenya when bank size and liquidity are controlled. Findings indicate that operational risk and the financial stability of banks are notably inversely correlated. The population is where this study differs from the last one, which included 38 banks; the current study will only have 10 listed banks on the NE.

Tamakloe et al. (2023) employed secondary data from the annual financial statements and a qualitative methodology. It was conducted to offer additional insights into the Impact of Risk Management on the Performance of Banks in Ghana: A Panel Regression. A purposeful sample of eight banks was used. To ascertain how risk management affected the performance of financial institutions, panel data methodologies were used. The research findings demonstrated that operational risk significantly affected bank performance out of the four risk categories that were examined: credit risk, operational risk, liquidity, and market risk. It was discovered that credit, liquidity, and market risk management explained a significantly smaller amount of the variation in bank performance. The contextual gap was that the data used in this study was restricted to the years from 2008–2018. The previous investigation was done in Ghana, while the present research was completed in Kenya from 2018-2022.

Bank Size and Financial Performance

Njiur's (2020) study looks at how financial risk affects Kenyan banks' financial performance. The target population included 42 banks in Kenya. Data came from 37 of the 42, which proved sufficient for the research. The research ran from 2015 to 2019 for 5 years. A descriptive method was used. Annual reports and bank financial statements were the sources of secondary data. The study used descriptive models, multiple regression, and correlation. Also, the study revealed that compared to capital sufficiency, which is favorably and statistically important to performance, credit risk and interest rate risk separately had an unpleasant statistical impact on financial performance. The performance of the other factors (bank size, operating risk, and liquidity risk was statistically insignificant. Data came from 37 of the 42 banks, while 10 listed banks out of the 38 were the sources of data for the current study.

Based on Alex's (2023) study about the impact of bank size on Kenyan banks' financial performance. survey design was used and descriptive. With target audience consisted of all Kenyan banks. It analyzed secondary data from financial reports published between 2015 and 2019 from the CBK and the Kenya National Bureau of Statistics. Diagnostic tests were performed, including time series stationarity, heteroskedasticity, autocorrelation, multicollinearity, and normality. The study's analysis showed a favorable association between bank size and bank financial performance. It was discovered that the following variables had a statistical impact on financial performance: gross domestic product, total net asset bank capital, and customer deposits. Results demonstrated a favorable association between bank capital, total net assets, on return on equity, and customer deposits. The analysis concludes that banks with large net assets, large bank capital, and large client deposits performed well financially. The above research was conducted during the years between 2015 and 2019, and the current research was conducted between 2018-2022.

A study done by Oudat et al. (2024) researched about effect of financial risks on the performance of Islamic and banks in the UAE. They focused mostly on the years 2015–2022. The data was derived from Islamic banks' annual reports, which were sourced from the social media accounts of Abu Dhabi Securities Exchange and the Dubai Stock Market. ROE and ROA are the financial performance measures deployed for evaluating the performance of a Findings show a highly substantial and assured correlation between capital risk and ROA and ROE. It demonstrated, therefore, that none of the financial performance metrics were substantially impacted by operational or liquidity risk. Additionally, a bank's size has a beneficial influence on return on assets. cover seven years, and looked at 10 active Islamic banks in the United Arab Emirates banking industry. However, the focus of the current study was 10 listed banks at NSE throughout five years from 2018 – 2022.

2.2 Theoretical Literature

Modern Portfolio Theory (MPT)

Developed by Markowitz (1952) developed the theory assumes that investing in assets that offer the highest returns and the lowest variance is how diversification is accomplished. Additionally, Markowitz asserts that the securities with the least variation are not always those with the highest projected returns. As a result, every portfolio displays every risk and return feature of each asset that went into creating it. Any investor seeking an ideal portfolio will have to deal with a collection of investments that do not guarantee the best returns or the lowest risk.

Modern Portfolio Theory was used to examine how risk and return are traded off in a bank's investments. How banks manage their investment portfolios to maximize returns while considering related financial risks. As it offers guidance on how a bank should manage its exposures to operational, credit, market, and liquidity risks, the Portfolio Theory is associated with the research. Some of the principles of portfolio analysis can be put into practice if comparable credit report ratings are provided and if it is feasible to assess how each auto loan's rating will be affected by expected future events. Diversification is essential to reducing risk in MPT. To match the ideal risk-return profile, banks must make sure they diversify their financial exposure. Businesses and investment activities considerably raised ROA, according to an analysis of bank performance and portfolio selection.

While current portfolio theory can help investors build optimized portfolios, it does not come without Critique. As stated by Curry and Baldridge (2023) critique of the theory is that all the estimations are based on historical data, which may not apply to markets in the present or future. Projected values from Historical information are not an accurate indicator of today's situation. Another major Critique of the theory is that its risk metric ignores downside risk. Two portfolios may display the same level of risk or standard deviation, but the factors contributing to that risk may be quite different.

Another Critique by Taleb (2007) argues that MPT cannot consider the possibility of "black swans," or random, unpredictably occurring events that can significantly impact the financial situation of markets. MPT overestimates the advantages of diversification while underestimating the likelihood and severity of severe losses. Since it provides instructions for the way a bank must handle its exposure to operational, credit, market, and liquidity risk, the Portfolio Theory is relevant to the research. Also, more restricted assumptions about which high-quality aspects of the portfolio are more significant might result in steps to influence exposure and rate decisions, and discoveries about what risk-return ratios are acceptable can be examined.

The Theory of Financial Intermediation

Developed by Diamond (1984) expanded the hypothesis of financial intermediation. The theory examines how financial firms, including mutual funds, banks, and insurance companies, function as intermediaries between savers and borrowers and how they can lower the costs associated with contracting, monitoring, and information sharing in the financial markets (Allen & Santomero,1998). Financial intermediaries are assumed to be able to diversify risks by pooling funds from various savers and lending to multiple borrowers, which reduces the overall risk for individual investors.

According to Mayowa (2020) the intermediaries are the bloodline that aids the money creation and money-destroying mechanisms within households, firms, and the government itself. First, by combining money from numerous savers and diversifying the loan and investment portfolio, it lowers the transaction costs and risks associated with lending and borrowing. Financial intermediation theory states that larger banks frequently have economies of scale, reduced expenses, and enhanced risk management, all of which may lessen the influence of size on risk events.

Critique of the theory assumes that there is a well-regulated financial system in place. Regulatory failures, however, have the potential to exacerbate financial risks. Additionally, theoretically, diversification frequently reduces risk. However, in practice, banks could wind up bearing an excessive amount of risk in specific sectors or areas, which can lead to major performance issues during recessions.

Allen and Santomero (1998) argue that theories of intermediation should take into consideration the fact that the banking systems in many nations have undergone major changes in the last thirty years. During this time, some established financial markets have grown, and new ones have emerged. Although financial intermediaries are shown as effective in lowering transaction costs and controlling risks, critics contend that this isn't always the case. Their function may be compromised by instances of fraud, poor management, or failure. Behavioural biases and the psychology of borrowers and investors, which can have a big impact on financial decisions, are not taken into consideration by the theory.

Also, van Wensveen and Scholtens (2000) argue that the existing theory of financial intermediation places an undue emphasis on aspects of financial institution operations, like transaction cost reduction and asymmetric knowledge, that are no longer essential in developed financial systems. They suggest that risk management has emerged as the primary domain of intermediary activity and that the idea of input costs is not essential to the theory.

2.3 Conceptual Framework

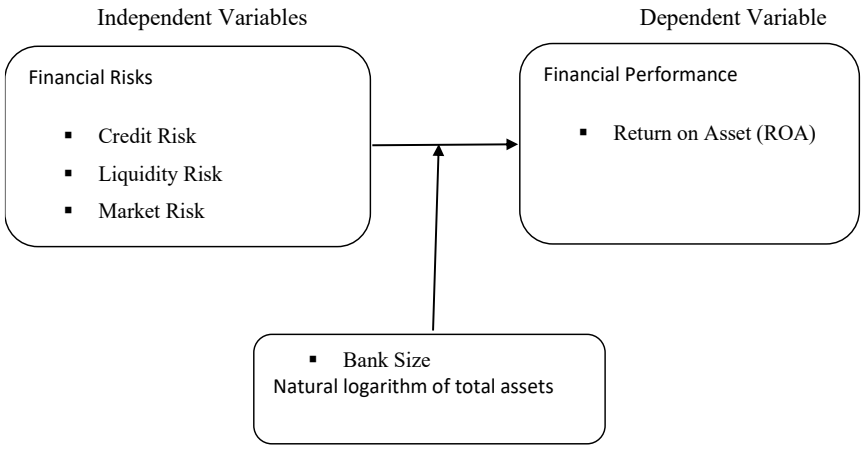

Figure 1: Conceptual Framework

3. Research Methodology and Model Specification

This research employed descriptive and correlational research to address the objectives and questions. A descriptive research design focuses on methodically obtaining data without changing any factors to describe current situations, behaviours, or features (Jansen,2023). A correlational research design examines relationships between variables rather than putting the researcher in charge of or modifying them (Bhandari,2021). 38 banks that are listed on the Central Bank of Kenya website serve as the research population for this study (CBK,2023). The study used a stratified sampling approach as it makes sure that subgroups are represented in their sample for the study, a data collection sheet was employed to collect secondary data from the quarterly financial statements of ten banks spanning five years, from 2018 to 2022.

4 Presentation and Discussion of Results

4.1 Descriptive Analysis

Descriptive statistics provide a clear and clear presentation of a dataset by presenting and highlighting its major features. Descriptive statistics include the independent and dependent variables' mean, minimum, maximum, and standard deviation. Table 4 displays the results of the descriptive analysis. Using SPSS software, outcomes of each variable were collected annually over five years between 2018–2022.

Table 1: Descriptive analysis

	N	Minimum	Maximum	Mean	Std. Deviation
Return on Assets	200	-3.000000000	3.900000000	.5258000000	1.168537874
Credit Risk	200	.0000000000	22687.69840	120.7837705	1605.579295
Liquidity Risk	200	.0000000000	77.00000000	25.77079999	25.87836014
Market Risk	200	-136690141.0	155993415.0	-2006458.930	34366645.85
Operational Risk	200	-32.9000000	32.10000000	.2110000000	3.296900000
Bank Size	200	.000000000	8.994673418	4.315571624	4.248531127
Valid N (listwise)	200				

Note: N = 200 observations. Source: (Research Data ,2024)

Table 1 display a descriptive analysis of several financial metrics. These were collected from 10 listed banks at the Nairobi Securities Exchange, Kenya. According to the data, the financial performance was measured by Return on assets (ROA): Minimum: -3.00, indicating that at least one observation reported a negative return on assets, which means that the entity incurred a loss relative to its total assets. with a Maximum: 3.90, suggesting that one observation achieved a relatively high return on assets, indicating strong net earnings compared to total assets. The mean value of 0.5258 suggests a low average profitability state for banks, suggesting good profitability. The high standard deviation of 1.16 indicates substantial variability in profitability.

The credit risk varies significantly, with a considerable maximum value of 22687, suggesting that a few banks may have extremely high credit risk. The mean of 120 indicates a relatively low average credit risk among banks, but the high

standard deviation of 1605 suggests that most banks may be clustered around lower credit risk levels, while a few have very high risk. Minimum: 0.000, indicating a very low level of credit risk for one observation.

Liquidity Risk has ranged between a minimum of 0.00 and a maximum of 77, indicating that all banks have some liquidity. The mean 25 indicates that, on average, liquidity risk is moderate, though the standard deviation of 25 suggests a fair amount of variability in liquidity positions across banks. Market risk has a substantial range and shows that some banks face incredibly high negative and positive risks. Minimum, -136,690,141.0, which indicates a very high negative market risk that most likely reflects serious financial trouble. Maximum: 155,993,415.0, indicating that one observation had a significant positive value, which may be a sign of positive market circumstances. With mean of -2006458 being negative suggests that, on average, banks in this study had poor market risk performance, and the high standard deviation indicates considerable variability in these risks.

Operational risk has a range from negative to positive values, indicating different levels of risk from operational failures or inefficiencies. The mean 0.211 value is slightly positive, suggesting that, on average, banks might be experiencing mild operational risk exposures. Maximum: 32.1, the highest value is slightly lower, and Standard Deviation: 3.2969, while Minimum: -32.9, the lowest observed operational risk value is significantly negative. Bank size varies significantly in with a Minimum: 0.0 and a maximum value being 8.99, suggesting that some banks are significantly larger than others. The mean 4.31 indicates that the majority of banks tend to be moderately large, with considerable variability as evidenced by the high standard deviation of 4.24.

4.2 Diagnostic Tests

Diagnostic tests were performed on the gathered data. The study used a 95% confidence interval or a significance level of 5% to use the authorized data to create variable inferences. The tests helped determine if the data was true or not. Therefore, it is assumed that the data utilized is more accurate the closer the confidence interval is to 100%. Many diagnostic tests were conducted before the analysis to ascertain whether the data collected were appropriate for linear regression.

Multicollinearity Test

The researchers employed a multicollinearity test to ensure that multicollinearity did not impact the regression analysis. The variance inflation factor (VIF) was utilised in this instance, and the variables' mean VIF shouldn't exceed 5. while the tolerance values below 0.1 to 0.2 indicate collinearity. For multicollinearity to be considered absent, tolerance must be more than 0.2, and VIF must be less than five.

Table 2: Multicollinearity Test

Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	Credit Risk	.985	1.015
	Liquidity Risk	.663	1.509
	Market risk	.986	1.015
	Operational Risk	.985	1.015
	Bank Size	.664	1.506

Source: Research Data (2024).

Looking at Table 2, the degree of multicollinearity in the regression model is shown by the VIF values for the independent variables. The variable's VIF value and tolerance were used; values less than 5 for the VIF and greater than 0.2 for the tolerance indicate no multicollinearity. All variables had tolerance values over 0.1 and VIF values below 2, indicating no multicollinearity.

Normality Test

A normality test determines if a regression model's residuals have a normal distribution. Kolmogorov-Smirnov and Shapiro-Wilk tests were used to test for normalcy. A significance criterion of 5% was established for the investigation. The findings are shown in Table 3.

Table 3: Normality Test

	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	df	Sig	Statistic	df	Sig
Return on Assets	.459	200	.000	.595	200	.000
Credit Risk	.502	200	.000	.048	200	.000
Liquidity Risk	.280	200	.000	.836	200	.000
Market Risk	.355	200	.000	.644	200	.000
Operational Risk	.376	200	.000	.182	200	.000
Bank Size	.335	200	.000	.670	200	.000

Source: Research Data (2024).

Table 3 shows the Shapiro-Wilk test and the Kolmogorov-Smirnov test provided significant findings for the variables (return on assets, credit risk, liquidity risk, market risk, operational risk, and Bank size), showing significant departures from normality, as evidenced by p-values < 0.05.

Heteroscedasticity Test

To ascertain if heteroscedasticity exists in a regression model, the Breusch-Pagan test was performed. The residuals are considered homoscedastic if their variance is constant, meaning that each disturbance (error) term's variance is unaffected by the explanatory variables. When the p-value is smaller than the level of importance, heteroscedasticity is present.

Table 4: Breusch-Pagan Test for Heteroscedasticity

Chi-Square	df	Sig.
17.159	1	.000

Source: Research Data (2024).

Table 4 shows the chi-squared value is 17.159 and the p-value is 0.00, which is < .001, which is highly significant. As the p-value is below the standard alpha level of 0.05 (and even below 0.01), the null hypothesis of homoscedasticity is rejected, which states that homoskedasticity (constant variance of errors) was present. This suggests that the regression model has signs of heteroscedasticity is present.

4.3 Correlation analysis

Correlation analysis determines if two variables are related. The study assesses the relationship between Return on Assets and financial risk using the Pearson correlation. Table 5 outlines the correlation analysis's Results.

Table 5: Correlation analysis

		Return on Assets	Credit Risk	Liquidity Risk	Market Risk	Operational Risk	Bank Size
Return on Assets	Pearson Correlation	1					
	Sig. (2-tailed)						
Credit Risk	Pearson Correlation	.145*	1				
	Sig. (2-tailed)	.040					
Liquidity Risk	Pearson Correlation	.444**	.108	1			
	Sig. (2-tailed)	.000	.129				
Market Risk	Pearson Correlation	-.027	.004	.040	1		
	Sig. (2-tailed)	.705	.954	.572			
Operational Risk	Pearson Correlation	-.066	-.050	.006	-.090	1	
	Sig. (2-tailed)	.354	.482	.928	.204		
Bank Size	Pearson Correlation	.419**	.074	.574**	-.037	.063	1
	Sig. (2-tailed)	.000	.297	.000	.600	.377	
	N	200	200	200	200	200	200

*. Correlation is significant at the 0.05 level (2-tailed).
**. Correlation is significant at the 0.01 level (2-tailed).

Source: Research Data (2024).

Table 5 presents the Pearson correlation coefficients among the variables. It indicates that N = 200 observations serve as the sample size for each variable. This was significant because the sample size affects the trustworthiness of the correlations; larger samples often yield more accurate estimates. From the correlation analysis, it was found that all the correlation coefficients of the independent variables used influenced the financial performance metric, return on assets.

Credit Risk: (r = 0.145, p =0.040). had a weak but positive correlation between return on assets and credit risk that was statistically significant at the 0.05 level. This implies that as Credit Risk increases, Return on Assets tends to increase slightly. Liquidity Risk: (r = 0.444, p =0.000). demonstrated a moderate but positive correlation between Return on Assets and Liquidity Risk, statistically significant at the 0.01 level. This indicates that higher liquidity is associated with better returns on assets, suggesting that banks with better liquidity management tend to perform better in terms of profitability. Market Risk: (r = -0.027, p = 0.705). showed essentially no correlation between Return on Assets and Market Risk, as

indicated by a very small but negative correlation coefficient and a high p-value, not significant. This suggests that changes in Return on Assets are not predicted by variations in market risk. while, Operational Risk: (r = -0.066, p = 0.354). displayed no statistically significant correlation with return on assets; the negative connection points to a very weak effect wherein increases in operational risk may be linked to declines in return on assets.
Bank Size: (r = 0.419, p = 0.000). There was a moderate but positive correlation between Return on Assets and Bank Size, significant at the 0.01 level. Larger banks tend to exhibit better returns on assets, suggesting that bank size could have a beneficial impact on profitability because of economies of scale or diversified risk. In general, the most notable positive influences on Return on Assets are Liquidity Risk and Bank Size, both statistically significant at the 1% level. Credit Risk has a weaker but still significant effect on Return on Assets. while Market and Operational Risks do not appear to significantly affect Return on Assets.

4.4 Multiple Regression Analysis

Multiple regression analysis was utilised to ascertain the effect of financial risk on the performance of Kenya's banks. The model summary evaluates the model's performance, the analysis of variance, and the model coefficients that ascertain how financial risk affects the performance of banks listed on the Kenyan National Stock Exchange all are included in this part. Table 6 below displays the outcomes of the regression model summary.

Table 6: Model Summary

Model	R	R Square	Adjusted R Square	Std.Error of the Estimate	Durbin-Watson
1	.504[a]	.254	.235	1.021972358	1.925

Source: Research Data (2024).

Based on Table 6, the study's independent variables and financial performance were strongly correlated, illustrated by the correlation coefficient (R2) value of 0.504. and, the model's R-squared value was 0.254, which indicates that the predictors (Bank Size, Operational Risk, Liquidity Risk, Credit Risk, and Market Risk) account for around 25.4% of the variation in Return on Asset.it also implies that a sizable amount (74.6%) of the variance cannot be explained, suggesting that Return on Assets may be influenced by other factors not covered by the model. Although some variance remains unexplained, the adjusted R-squared of 0.235 implies that the model explains a significant portion of the variance.
The standard error of around 1.022 indicates that there is a tendency for the expected Return on Assets values to differ by roughly 1.022 units from the actual values. The Durbin-Watson statistic was utilized to determine whether autocorrelation exists in the regression analysis's residuals. Figures vary from 0 to 4, with a value of about 2 denoting no autocorrelation. Positive autocorrelation was shown by values less than 1, while negative autocorrelation was indicated by values more than 3. The validity of the regression results was strengthened by the fact that a value of 1.925 is sufficiently near 2 to demonstrate that the residuals weren't showing any significant autocorrelation.

Analysis of Variance (ANOVA)

ANOVA compares the group means to see if they differ in a way that is statistically significant. If the variance between group means is noticeably greater than the variation within groups, there may be a considerable difference between the group means. Table 7 provides a detailed analysis of the independent variables to determine whether the differences are widely separated.

Table 7: Analysis of variance Output (ANOVA)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	69.112	5	13.822	13.234	.000[b]
	Residual	202.619	194	1.044		
	Total	271.731	199			

a. Dependent Variable: Return on Assets
b. Predictors: (Constant), Credit Risk, Liquidity Risk, Market Risk, Operational Risk, Bank Size.

Source: Research Data (2024).

The outcomes in Table 10 display the F-statistic of 13.234 with a p-value of 0.000, demonstrating statistical significance because the p-value was < 0.05. At the 5% level, the correlation was considered statistically significant.

Model Coefficients

The results from an analysis of regression on the variables affecting return on assets are displayed in Table 8. The coefficients of the independent variables and the associated statistical significance are apparent in the table below.

Table 8: Model Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	T	Sig.
1	(Constant)	-.115	.110		-1.051	.295
	Credit Risk	6.657	.000	.091	1.465	.145
	Liquidity Risk	.013	.003	.294	3.866	.000
	Market Risk	-1.269	.000	-.037	-.598	.551
	Operational Risk	-.029	.022	-.082	-1.315	.190
	Bank Size	.068	.021	.248	3.254	.001

Source: Research Data (2024).

As a result, the regression equation below was calculated:

Y= -0.115+ 6.657X1 + 0.013X2 - 1.269X3 -0.029X4 +0.068 X5

Table 8 presents the regression model, in which the financial performance (constant) was not statistically significant (p = 0.295). This implies that when all predictor variables are equal to zero, the return on assets expected value is -0.115. The coefficient for credit risk implies that each unit increase in credit risk is associated with an increase of 6.657 units in return on assets. However, with a significance level of 0.145 (p > 0.05), this relationship was not statistically significant, suggesting that Return on assets cannot be accurately predicted by credit risk.

With a statistically significant p-value of 0.000 (p < 0.001), liquidity risk had a positive effect on the Return on Assets. For each unit increase in liquidity risk, the return on assets was expected to increase by 0.013 units. The standardized coefficient indicates that liquidity risk has a relatively strong effect compared to other variables. The negative coefficient -1.269 indicates that as market risk increases, the return on assets decreases. However, a significance level of 0.551 (p > 0.05) indicates this relationship was not statistically significant, implying that Market Risk may not have a reliable effect on the returns on assets.

Operational Risk has a negative coefficient -0.029, indicating a negative relationship with return on assets. However, with a significance level of 0.190 (p > 0.05), this effect points out that operational risk has no statistically significant effect on return on assets. The coefficient for bank size was positive and statistically significant (p = 0.001). For every one unit increase in Bank Size, the return on assets is expected to rise by 0.068 units. This suggests that larger banks are associated with an increase in return on assets, indicating that size may have a positive influence on financial performance.

5 Conclusion and Recommendations

5.1 Conclusion

In line with the stated study objectives, the model coefficients provide a basis for comprehending the connection between financial risks and these banks' performance. The correlation analysis's findings in Table 11 indicate that, for the constant, when all of the independent variables, credit risk, liquidity risk, market risk, operational risk, and bank size are equal to zero, the return on assets was statistically significant since the p-value was below the significance level.

Results indicated that Credit Risk has a weak Positive and statistically insignificant effect on Return on assets, as indicated by the p-value, which is substantially higher than the significance level. This study's findings support those of research by Teimet et al. (2019), who found liquidity risk had no significant impact on bank performance. In a different research, findings made by Mwanzia (2021) showed a positive relationship between financial performance and liquidity risk, though the relationship was weak and insignificant. Contrary to Fentaw and Thakkar (2022) who discovered that liquidity risk had statistically significant positive effects on the financial performance of private commercial banks in Ethiopia. Mwania (2023) also found that liquidity risk had a significant positive effect. This finding is further supported by Ukpong and Essien (2022) whose results revealed a significant relationship between liquidity risks and the financial performance of banks in Nigeria, as well as Ayieko and Aluoch (2025) who found that credit risk had significantly increased the profitability of banks.

Liquidity risk had a positive and statistically significant effect on Return on assets, as indicated by the p-value higher than the significance level. The higher liquidity risk, potentially reflecting issues fulfilling short-term obligations, is associated with a higher likelihood of the Return on assets. A positive relationship indicates that higher liquidity risk is associated with higher returns or performance. This might be because banks with lower liquidity hold more long-term, higher-yield investments. This finding is in line with Mwanzia's (2021) who found a positive relationship between financial performance and liquidity risk, though the relationship was weak and insignificant. Contrary to Teimet et al. (2019), who found liquidity risk had no significant impact on bank performance. And Njiru (2020) found that liquidity risk had a statistically insignificant impact on Return on Assets. However, according to Mwakiboko and Mwikamba (2025) liquidity risk had a negative and insignificant impact on the financial performance of Kenyan listed commercial banks.

Market risk had a negative but statistically insignificant effect on Return on assets, as indicated by the p-value, which was

significantly higher than the significance level. With a negative coefficient, market risk indicates an inverse relationship, meaning increases in market risk are associated with decreases in the Return on assets. Market risk, such as interest rate or foreign exchange fluctuations, generally reduces performance due to its volatility. However, the lack of significance suggests that its effect is weak or inconsistent, possibly hedged or not impactful during the period studied. That result is consistent with Baraza (2020) who observed that Market risk had a negative and significant relationship with the financial performance of listed commercial banks in Kenya, and Tamakloe et al (2023) showed that market risk had no significant effect on bank performance. The result Contrary to Maniagi (2018) discovered that market risk had a significant positive relationship with return on assets.

Operational risk has a negative coefficient, suggesting that higher operational risk is associated with a reduction in the Return on assets. This may imply that operational issues, such as inefficiencies, internal failures, and fraud, have an adverse impact on results. but the relationship is not statistically significant. The p-value, which is substantially higher than the significance level, indicates that operational risk was not statistically significant in predicting return on assets, possibly due to effective risk controls or limited data on operational losses. This result aligns with Njiru (2020) who found that operating risk had a statistically insignificant impact on Return on Assets. outcome is inconsistent with Mwanzia (2021) who found that Operating risk had a positive relationship with financial performance, though it was insignificant. Oudat et al. (2024) revealed that operational risk had a statistically significant impact on the financial performance. Mwakiboko and Mwikamba (2025). Results showed that operating risk had a negative and significant effect on the financial performance of commercial banks in Kenya.

Analysis shows that Bank size has a positive and statistically significant effect on Return on assets. Larger banks tend to have higher Return on assets, possibly due to economies of scale, better resource utilization, better market access, or lower per-unit costs, greater market power, and diversification, which can enhance performance or stability. The strong significance confirms that size positively influences the Return on assets. This result is in line with the findings by Teimet et al. (2019); Appah and Tebepah (2021); Alex (2023); and Oudat et al. (2024) who found that the bank's size had a significant relationship between bank size and return on assets.

5.2 Recommendations

The study recommended banks should adopt a proactive approach to liquidity risk management and consider leveraging advancements in technology for better predictive analytics. Investment in staff training on risk assessment and management can also enhance the decision-making process, leading to improved financial performance, and focus on strategic growth to increase bank size while maintaining prudent risk practices, as size is shown to correlate positively with performance.

Also, continue monitoring and managing Credit, Market, and Operational Risks, even if not currently significant, as market conditions can shift. Monitor Operational Risks Continuously by investing in advanced technologies for operational processes can help mitigate inefficiencies and reduce the risks associated with operational failures. To increase their profitability, banks should prioritize credit risk management with an emphasis on lowering non-performing loan levels and enhancing lending practices

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Ethical considerations

The article followed all ethical standards appropriate for this kind of research.

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