FINANCIAL RISKS AND FINANCIAL PERFORMANCE OF COMMERCIAL BANKS LISTED IN NAIROBI SECURITIES EXCHANGE, KENYA

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ABSTRACT

Despite the implementation of comprehensive risk management systems by commercial banks, the banking sector incurs financial losses. Commercial banks listed on the Nairobi Security Exchange are experiencing declining financial performance. Financial risk management is regarded as a metric for assessing the performance or failure of a financial organization. It has been neglected in recent a long time. The main objective of the study is to ascertain the effect of financial risk on the financial performance of commercial banks listed on the Nairobi Securities Exchange in Kenya and will be measured by return on equity. This study was based on Merton's Default Risk Model, Agency Theory, Shiftability Liquidity Model, and Risk Management Theory. Explanatory research design was used for study. The sample is 11 listed commercial banks being focused from the year 2018 to 2023. The data collecting sheet was employed to amass the secondary data. The ethical considerations were observed to. The variables were analysed using IBM SPSS Version 25. Tests for multicollinearity, heteroscedasticity, correlation, regression as well as the Hausman test were established. The findings on credit risk indicated that the mean Non-Performing Loans Ratio is 11.062% which show moderate negative correlation between credit risk and financial performance of listed bank at (r=0.324; p=0.0016). Operational risk results indicated a strong positive and significant association between operational risk and financial performance(r=0.758 and p=0.00168) while liquidity risk showed that the mean of loan to deposit ratio is 72.847% and a weak positive correlation relationship between liquidity risk and financial performance (that r=0.0652 and p=0.003).From the finding the study conclude that credit risk, operational risk and liquidity risk has significant influence on financial performance of listed commercial banks. The study recommends that banks should engage in continuous monitoring of credit portfolios, invest in capacity building for enhanced risk management capabilities. Banks should conduct regular comprehensive risk assessments, invest substantially in technology for robust IT systems, and engage in scenario planning to anticipate and address potential operational risks. In addition, the listed banks should diversify funding sources, employ advanced risk modelling for robust liquidity risk management.

Keywords: Commercial Banks, Financial Performance, Financial Risk.

INTRODUCTION

Background of the Study

There is a lot of unpredictability and volatility in the financial market. Therefore, the economic outlook remains dismal. The banking sector is threatened by a variety of macro and micro factors. The banking industry faces serious risks to its survival and financial success due to the exposure of risks. Having to declare insolvency is a red flag for imminent money problems and any company constantly risk losing money as a result of complicated issues because of the strong and ever-changing competition may find itself declaring insolvency. Organisational weakness and incompetence are mostly caused by a lack of speed and an inability to foresee financial risk, according to Mondongo, Muathe, and Mwangi (2020).

Based on the research by Ginoglou, Agorastos, and Hatzigagios (2020), financial risk develops as a result of the accumulation and amplification of financial activity. A company's finances might potentially come to an end as a result of this. The concept of financial risk regulates the dangers that businesses face, and its cyclical form is determined by a rule that is subject to management's whims. Financial risks must be identified in order to keep a firm competitive. According to Drimitropolous, Asteriou and Koumanakos (2017), the risks associated with funding, rates of interest, and international currency exchange rates are likely causes of fluctuating revenue of financial institutions.

Risk associated with credit is the probability that an individual will not pay back a loan, resulting in the lender suffering a loss. Lenders face the potential risk of experiencing disruptions in their cash flow, incurring losses in both principle and interest, and incurring additional expenses in the form of collection charges if they are need to initiate collection proceedings. According to Cecchetti and Schoenholtz (2017), "interest rate risk" is the possibility that a company's financial assets and liabilities may shift in the future. Also describes the degree of uncertainty around the returns on a convertible asset. Interest rate risk refers to the possibility that an investment's value may fall because of fluctuations in interest rates. This risk is especially prevalent in fixed-rate bonds (Mwende 2019).

Financial Performance of Banking Sector

According to Mwende (2019), Return on Asset which is measured by comparing the profit against total assets "measures the efficiency with which an organisation turns its assets into cash." A high ROA is indicative of efficient resource use. ROE and ROA are the two most popular ratios used in analysing how a bank is performing in its industry. A ROE between 15% and 30% and a superior ROA of at least 1% are also indicative of financial success. Return on Net Worth is the best measure of a bank's willingness to reinvest its earnings, according to Kwakwa (2019). In this study, corporate wellbeing was evaluated using Return on Net Worth of a commercial bank.

A common metric employed to assess a bank's success is the growth in the value of its shareholders and investors relative to where they were at the beginning of the term. According to Barry et al.,

(2021), comparisons from statements, such as the statement of total profits and financial situation, and securities prices are often used to compute the growth of the shareholders value. Deloitte Centre for Financial Services estimates that $318 billion (3.2% of loans) would need to be reserved by US banks to cover potential net loan losses between 2020 and 2022. In the second quarter of 2020, the top hundred bankers in the US have provisions of $103.4 billion, compared to $62.5 billion and $68.8 billion for the top hundred bankers in Europe and Asia-Pacific, respectively. By 2020, the best hundred banks in the Americas, Europe, and Asia Pacific (APAC) might see a nearly three-point decline in their average return on equity (ROE), falling to 6.8%. (Shilling & Celner, 2021).
In 2022, Ali, Ariff, and Cheng Fan-Fah analysed the results of Japanese commercial banks. Commercial bank performance was demonstrated to be inversely associated with capital adequacy, credit risk, and liquidity, but favourably correlated with management efficiency, financing availability, and asset quality. Total assets held by local banks in Kuwait rose to KD 71,021.3 mln at the end of 2019 from KD 66,537.6 mln at the end of 2018 (Central Bank of Kuwait, 2019), a rise of KD 3,126.9 mln, or 4.9%.

Jain and Metri Rao (2019) examined the elements that lead to commercial banks' performance in India. Individual measures, such as non-performing asset profit per employee, operational profitability as a percentage of total assets, and capital adequacy ratio, indicate private sector banks outperformed public sector banks.

Regionally, when compared to the economies of other developed countries, South Africa's financial sector is amongst the most advanced in the world. In spite of its oligopolistic structure, South Africa's banking sector (ABSA, First Rand, Nedbank, and Standard are the country's four largest banks; Skerritt, 2019). According to audited financial statements from 14 South African commercial banks, small banks are significantly and more strongly impacted than large banks by performing loans, capital adequacy ratios, leverage ratios, lend money-to-deposit ratios, and bank age.

Non-performing loans had little impact on large banks' return on assets from 2008 to 2017 (Babatunde, Mishelle, & Sarpong, 2019). South Sudan's banking system is dominated by regional Kenyan banks that have triumphed over their indigenous rivals (FSNG, 2019). According to Reuters (2020), recent main challenges include the growth of the banking industry in the DRC and the introduction of risk-management measures that improves banks' poor performance.

According to the State of the Banking Sector (SBI) Report (2020) published by the Kenya Bankers Association (KBA), the banking sector had total assets of Sh. 4.8 trillion at the end of 2019, of which Sh. 2.7 trillion were loans and advances. The steady increase in NPLs slowed the pace of asset growth to 9.2 percent per year in the business sector. The percentage of bad loans to total loans has consistently climbed over the last four years, rising from 9.4% in 2016 to 12.3% in 2017, then somewhat to 12.7% and 12.6% at the end of 2018 and 2019, respectively. Non-performing loans made up between 4 and 8 percent of the market from 2009 to 2013, but they now account for more than thirteen percent of the market. As a result of the deteriorating economic situation

and the ensuing tightening of credit accessible to borrowers, the number of gross non-performing loans has increased.

Financial Risk in Banks

Several theories have been proposed to elucidate the correlation between financial risk and the financial success of commercial banks. One hypothesis, known as the agency theory, posits that the value of a shareholder may be maximized by mitigating the conflicts that arise between the agent (representing the shareholder) and the principle (the shareholder themselves) (Kutlu, Mamatzakis & Tsionas, 2022). Achou and Tenguh (2008) found a strong correlation between bank performance and credit, interest, foreign currency, and liquidity risk. Enhanced risk management leads to improved bank performance. Therefore, it is crucial for banks to implement cautious risk management practices in order to protect and preserve the banks' assets and equity, as well as secure the interests of investors.

Commercial Banks in Kenya

All commercial banks conducting business in Kenya are required to adhere to the Commercial Banks Act of Kenya, Cap. 491, Banking Act, Cap. 488, as well as other suitable risk management requirements. In 1995, restrictions on private banking and foreign exchange were abolished by the government. Following completion of the necessary registration procedures, ten banks were recently given approval to list on the NSE, demonstrating the effectiveness of prudential safeguards in shielding banks from liquidity stress that could otherwise result in financial instability and a decline in the banking industry's economic growth. In order to foster economic development, licenses are issued to both up-and-coming financial institutions and long-standing industry mainstays. Kenyan commercial banks must submit yearly audited reports to the CBK detailing their performance and financial concerns such credit risk management and liquidity risk. Commercial banks must monitor and evaluate risks to discover, assess, regulate, and respond to credit hazards. Bank staff routinely contact borrowers after making loans to verify that they are in fact adhering to the loan's credit conditions and complying with any applicable regulations (CBK, 2019). Commercial banks such as NCBA, Equity, NBK, Standard Chartered Bank and DTB are all traded on the NSE (CMA, 2019). The Banking sector in Kenya over the years has had some challenges which saw the Chase Bank and Dubai Bank go bankrupt in August 2015 and April 2020, respectively (Mwangi & Jagongo, 2021). This Occurrence led the CBK t pay a closer look at banks and put in measures that would caution the investors from losing their money. However, banks have continually improved their performance according to a report by (KPMG 2023) they observed a 15.21 percent growth in the asset base of the listed commercial banks analysed Appendix I. This was mainly a result of growth in loans and advances as well as completion of mergers and acquisitions by certain regional banks such as Equity Group and KCB Group. The growth in total assets contributed to an increase in profit before tax of 25.04 percent. Factors such as enhanced digital transformation could also have contributed to the growth. The analysis suggests a 5.63 percent drop in the cost to income ratio compared to the year before. This suggests that the listed commercial banks are functioning with maximum productivity and efficiency, which ultimately leads to improved profitability.

Statement of the Problem

Cytton (2020) asserts that NSE-listed commercial banks are experiencing deteriorating financial performance. According to CBK report (2023) profitability of banks decreased by KSh 13.1 billion. The pre-tax annual profit declined by 6.4 percent to KSh 205.0 billion in the fiscal year ending in June 2023, compared to KSh 218.1 billion in the fiscal year ending in June 2022.This was driven by KSh 13.8 billion increase in expenses. Also, asset quality deteriorated with the gross NPLs increasing from KSh 514.4 billion in June 2022 to KSh 576.1 billion in June 2023(CBK,2023). There have been attempts to elucidate the underperformance of these banks, although these efforts have been unproductive. Hence, it is essential for banks to withstand the pressures emanating from both the micro and macro environment in order to achieve profitability. Numerous research has been done on the subject of financial risks and financial success. Lassoued and Mnif (2019) found that the average loan size might impact the credit risk of microfinance institutions (MFIs). Posits that the modest amount of the loans suggests that they are provided to those with the lowest socioeconomic status, thus increasing the credit risk for microfinance institutions (MFIs) due to the limited financial literacy and expertise of impoverished individuals.

Pratheepkanth and Nimalathasan, (2019) states in their study which examines the effects of the various risk components especially credit risk, on the financial success of Deposit Money Banks in Nigeria. The study is spurred by the persistent cases of bank failure and lack of exhaustive research in this area in Nigeria. A substantial correlation was established between the credit risk components and the financial health of banks in Nigeria, as shown by the high r-squared value of 91%. According to the conclusions of this research, it is suggested that both Deposit Money Banks should diversify their risk management strategies. Rather than focusing just on credit risk, they should also prioritize minimizing fraud and other risks. This will help prevent the overexposure of other risks. Liquidity risk has been studied by researchers such as Ogol (2018), Akhtar et al. (2019), and Said and Tumin (2019). All the above have found a significance relation of financial risk affecting the financial performance.

Mutua (2014) researched the impact of Credit Risk Management on the financial success of commercial banks in Kenya. The research suggested that 64% of the participants said that NPLs had an impact on the financial performance methods of commercial banks. Wanjira (2010) examined the correlation between the management methods of non-performing loans and the financial success of commercial banks in Kenya. The research determined that commercial banks should use NPLs management procedures. The study found a direct correlation between the management practices of NPLs and the financial health of commercial banks in Kenya. This suggests that implementing effective NPLs management practices results in enhanced financial success for commercial banks in Kenya.

However, there are significant gaps in the existing literature. These studies mostly analyze individual risk factors without considering how the combination of financial risks affects the general financial health of listed commercial banks in Kenya. Additionally, the investigations only examined non-listed commercial banks rather than other financial organizations. Thus, the study

will seek to determine the effects of financial risks on the financial performance of listed commercial banks in Kenya.

Objective of the Study

The overall objective of the research was to ascertain effect of financial risks on financial performance of commercial banks listed on the NSE, Kenya.

LITERATURE REVIEW

Theoretical Review

Risk Management Theory

Theory developed by Vaughan in 2017, provides a comprehensive framework for understanding and managing risk within organizations. The theory posits that risk consists of three fundamental elements: the individuals or groups exposed to risk, the assets or sources of income vulnerable to loss, and the risk itself. One of the strengths of Vaughan's theory lies in its systematic approach to risk management, which involves steps like identifying, assessing, and mitigating risks to enhance the likelihood of positive outcomes. However, a weakness of the theory may be its generalizability across different organizational contexts, as specific industries or sectors may require tailored risk management strategies. Additionally, the effectiveness of risk management practices may vary depending on factors such as organizational culture and leadership (Vaughan,2017).

One of the strengths of Vaughan's theory is its structured approach to risk management, which has been supported by empirical studies. For instance, research by Koulafetis (2017) underscores the importance of a robust risk management system in facilitating better decision-making by identifying potential risks and their implications. Similarly, Krause & Tse (2018) found that effective risk management practices correlate with improved organizational performance, including enhanced resource utilization, reduced fraud and waste, increased productivity, and more efficient management of employees.

The connection between Vaughan's theory and the variables of credit, liquidity, and operational risk on the financial health of commercial banks lies in the theory's emphasis on identifying and mitigating risks associated with these variables. By systematically managing credit risk, liquidity risk, and operational risk, commercial banks can enhance their financial performance by reducing the likelihood of negative outcomes such as loan defaults, liquidity shortages, and operational disruptions. The theory provides a framework for commercial banks to effectively assess and manage these risks, thereby improving their overall financial stability and performance.

Agency Theory

The Agency theory was postulated by Jensen & Meckling (1976). The Agency Theory posits that when principals (owners) delegate decision-making authority to agents (managers) in organizations, conflicts of interest arise due to differences in goals and risk preferences between the two parties (Jensen & Meckling, 1976). The theory emphasizes that agents may act in their self-

interest, pursuing goals that diverge from those of the principals. As a result, agency costs, such as monitoring expenses, bonding costs, and residual loss, are incurred as principals seek to align the interests of agents with their own and mitigate opportunistic behaviour. To address these conflicts, the theory suggests various mechanisms, including incentive alignment through performance-based compensation, monitoring through oversight mechanisms like boards of directors, and the use of contractual agreements to specify responsibilities and incentives. Ultimately, the goal of the Agency Theory is to minimize agency costs and maximize organizational performance by aligning the interests of principals and agents.

Agency theory offers a conceptual framework for comprehending the management of operational risk and liquidity risk in listed commercial banks in Kenya, particularly in the context of stakeholder-agent relationships. Operational risk, such as internal fraud or system failures, can be influenced by the actions of bank management, who act as agents for shareholders. Agency theory proposes that by implementing suitable incentives and monitoring systems, the alignment of bank management's interests with those of shareholders may effectively reduce operational risks. Similarly, liquidity risk, arising from mismatches between a bank's assets and liabilities, can be managed through effective stakeholder-agent relationships. By incentivizing bank management to prioritize liquidity management and ensuring transparent communication between shareholders and management, agency theory supports the implementation of strategies to mitigate liquidity risk and enhance the resilience of listed commercial banks in Kenya.

Merton's Default Risk Model

In 1974, Robert C. Merton introduced the Merton model into evaluate a company's structural credit risk. Later on, Fischer Black and Myron Scholes expanded Merton's model. The Model posits that default risk can be understood by assessing the link between a firm's assets and its liabilities. The model suggests that default results from a firm's obligations when its asset value above a particular threshold level. In simpler terms, the probability of default is assessed by comparing the value of a company's assets against its obligations. By quantifying this relationship using techniques from option pricing theory, the model offers a method to calculate the likelihood of default and the possible financial loss in the case of default for corporate bonds. Overall, the model offers a structured approach to evaluating and managing credit risk by focusing on the underlying financial health of a firm (Raul,2024). The theory gives loss interim on default for all secured loans (Crosbie & Bohn, 2019) because to the fact that obligations may fail at any time throughout the life of a mortgage, not only at maturity.

Based on Zhang (2018), preventive steps may reduce lenders' exposure to default risk. Risk-based pricing and provisioning, funding costs that vary depending on the mortgagee's creditworthiness, stricter loan criteria (i.e., fewer loans made available to applicants with greater risk), a diversified loan portfolio, and credit insurance are just some of the methods they propose for reducing credit risk. Credit risk may be reduced by the use of security, guarantees, and other procedures that improve the borrower's creditworthiness and the quality of their financial exposure (Hussain et al.,

2019). The hypothesis assumes the company's financial capital structure. A company defaults if its obligations exceed its assets. Credit risk may lead to bank failure. (Varotto, 2017) .
The model supports the variable credit risk. Merton's model provides a quantitative framework for assessing credit risk by estimating the probability of default based on a firm's financial metrics such as asset value, debt level, and equity value. By applying the model to listed commercial banks in Kenya, analysts can gauge the credit risk exposure of these institutions and identify factors influencing their risk profiles. This enables stakeholders to make informed decisions and implement proactive risk management strategies to mitigate the impact of credit risk on bank performance.

Shiftability Theory of Liquidity

Harold (1915) established the shiftability theory of liquidity. The theory posits that the liquidity of an asset depends on its ability to quickly and easily shift into cash or other highly liquid assets without significant loss in value. Shiftability Theory of Liquidity theory emphasizes the importance of assets being readily exchangeable in the market, with minimal transaction costs and price impacts. This theory suggests that assets with higher shiftability are more liquid and can be quickly converted into cash to meet short-term financial obligations or investment opportunities. The Shiftability Theory suggests that commercial banks that own highly liquid assets that can be readily exchanged for cash with little loss in value are not need to substantially depend on assets reaching their maturity. According to this theory, an asset is considered perfectly shiftable if it can be quickly sold without losing money when the bank needs cash. This is especially important for short-term investments like treasury bills, which can be sold immediately to raise funds. However, during a widespread crisis when all banks need cash, the theory suggests that all banks should have assets that can be transferred to the CBK, which acts as the lender of last resort. (Ngwu, 2018).

The Shiftability Theory supports liquidity risk management in listed commercial banks by emphasizing the importance of maintaining assets that can be effortlessly transferred or converted into currency not incurring a substantial reduction in value. The Shiftability Theory supports the notion that maintaining a balance of shiftable assets can contribute to the stability of a bank's financial performance. By ensuring sufficient liquidity through easily convertible assets, banks can minimize the likelihood of liquidity crises, which could otherwise adversely impact profitability, shareholder confidence, and overall financial health.2.2 Empirical Literature Review

Credit Risk and Financial performance

Saeed and Zahid (2019) examined how banks' exposure to credit risk affected their bottom lines.). Data from the five largest UK commercial banks was used in the study. The correlation between ROE and ROA was the primary focus of credit risk analysis. This lasted during the Great Recession, from 2007 to 2015. Even in the depths of the crisis, the research demonstrated a favorable association between financial gains and credit risk indicators. It was argued that after banks had made a profit, they still benefited from interest rates, fees, and commissions. Larger banks are more likely to grow through taking on new debt, according to research by Saeed and Zahid (2019). The study focused on UK commercial banks. This study focused the UK, this being a limitation and

cited how lending money would lead to failure of banks, the study failed to looks at the mitigation or measures those banks would put in place in order to be safe and caution itself from credit risk. This study focuses on the risks and the measures that can be put in place to caution banks.
Oduro, Asiedu, and Gadzo(2019) Analysed financial information from Ghana Stock Exchange-listed banks from 2003 to 2017 to determine how bank credit risk affects business performance and what factors influence it. The SLS research found an adverse relationship between credit risk and capitalization, efficiency, profitability, and net interest margin. According to the Basel Accord, as banks' credit risks increase, businesses see their revenues decline. The authors focused on Ghana Stock Exchange-listed banks from 2003 to 2017. This research addressed the existing gap by specifically examining the commercial banks in Kenya.

Operation risk and the Financial Performance

Masenene (2015) analysed five banks' procedures for managing operational risk in Dar es Salaam, Tanzania. A total of 84 people were selected at random from the five highlighted banks in the region, therefore the findings are reflective of the whole banking sector in Tanzania. In the end, it all comes down to a simple question: "Who are you?" Despite the prevalence of poor management, the financial industry has laws, processes, and mechanisms in place to deal with operational risk. Poor operational risk management practices were applied again. Bank personnel often lacked a complete understanding of operational risk. The majority of respondents to this survey believe that Tanzanian financial institutions are not doing enough to manage operational risk. It concluded that the management of operational risks was hampered by ineffective risk control departments, loose standards, a lack of regulatory implementation, and payment bias. The study was done in Tanzania. Nevertheless, the research included just 5 bank processes as the metric for evaluating the bank's performance. This study employed ROE as a metric to assess the financial success of the institutions.

Liquidity Risk and Financial performance

Muriithi and Waweru (2017) examined how liquidity risk impacted the bottom lines of 43 Kenyan banks between 2005 and 2014. Kenyan commercial banks' Central Bank of Kenya-required financial statements included secondary data. ROE measured financial success, whereas liquidity coverage and net stable funding ratios assessed liquidity risk. Liquidity risk was assessed by examining the bank's asset-liability gap. A liquidity mismatch or gap causes liquidity risk, according to study.

Ochieng, Moses and Margret (2018) analysed the liquidity risk and financial health of DT Saccos in Kenya. The participants in this research were Kenyans who had deposits with Saccos in the 2016 fiscal year (ending December 31). The recovery and use of Sacco's audited financial records to back 135 deposits accounted for 82% of the performance rate. Adverse impacts of liquidity risk on a business's bottom line are significant. The focused on SACCOs.

RESEARCH METHODOLOGY

This study adopted explanatory research design. Explanatory research is undertaken to determine the nature and breadth of cause-and-effect relationships.

The sample consisted of the eleven listed banks at Nairobi Securities Exchange between 2018 and 2023. The period of 2018-2023 was chosen for the study to evaluate the financial risks and performance of commercial banks listed on the NSE, Kenya, taking into account the country's changing operating environment and key developments. This timeframe encompasses significant shifts such as increased digitization and the adoption of modern technologies within the banking sector, reflecting the industry's evolution towards digital banking services. Moreover, the study period includes the disruptive impact of the COVID-19 pandemic, which has reshaped consumer behaviour, risk management practices, and operational strategies within the banking sector. Additionally, the study captures emerging risks and global developments that have influenced Kenya's banking landscape, such as changing geopolitical dynamics and technological advancements. Importantly, Kenya's banking sector regulatory framework has continued to evolve during this period, with regulatory reforms aimed at enhancing stability, transparency, and consumer protection. The research seeks to provide a thorough examination of the financial risks and performance of Kenyan commercial banks in light of a dynamic and developing operating environment, taking into account these aspects.
The researcher got data for the years 2018 through 2023 in the supervisory reports and annual reports posted on the CBK and listed commercial banks' websites. A data collecting tool was utilized to gather information

RESEARCH FINDINGS AND DISCUSSION

Descriptive Analysis

The summary of the descriptive statistics of financial performance, credit risk, operational risk and Liquidity risk are shown in Table 1.

Table 1: Descriptive Statistics

	Obs	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Financial Performance(ROA)	54	.008	.072	.02739	.011158	1.201	.325	3.877	.639
Credit Risk(NPLR)	54	.039	.380	.11062	.048678	3.346	.325	17.246	.639

Operation Risk(CIR)	54	.027	.386	.09623	.050489	3.643	.325	20.162	.639
Liquidity Risk(LDTR)	54	.000	.984	.72847	.172253	-1.589	.325	4.700	.639
Valid N (listwise)	54								

Source: Study Data (2023)

The findings on credit risk indicated that the mean Non-Performing Loans (NPL) Ratio is 11.062%, representing the average proportion of NPLs relative to total loans. Positive skewness (3.346) indicates a potential concentration of institutions with higher NPL ratios, reflecting variations in credit risk. The high kurtosis value of 17.246 suggests a distribution with heavy tails, implying potential extreme values in credit risk. This finding highlights the diverse risk profiles of institutions, with some potentially facing challenges in specific sectors or exhibiting different risk tolerance levels.Listed banks, with their economies of scale and operational efficiency, may exhibit lower operational costs as a percentage of income. The positive skewness indicates potential outliers, suggesting that while most listed banks maintain efficient operations, some may incur higher costs, possibly due to strategic investments or expansion efforts. The high kurtosis highlights the potential for extreme values in operational risk.

The results on operation risk showed that mean cost to income ratio is 9.623%, reflecting the percentage of income spent on operational costs. Positive skewness (3.643) indicated at potential outliers with higher cost to income ratios, indicating variations in operational efficiency. The kurtosis of 20.162 suggests a distribution with heavy tails, pointing to potential extreme values in operational risk. This observation suggests that while the average operational efficiency is relatively low, there are institutions with higher operational costs, possibly due to strategic investments or expansion efforts.

In addition, the findings on liquidity risk showed that mean loan to Deposit Ratio is 72.847%, offering insights into lending practices and liquidity management. Negative skewness (-1.589) implies a potential concentration of institutions with lower loan to deposit ratios, suggesting a more conservative approach to lending or liquidity management. The kurtosis of 4.700 indicates a distribution with heavy tails, suggesting potential extreme values in liquidity risk. This finding suggests varying lending strategies among institutions, with some prioritizing higher liquidity or adopting a conservative approach to lending. The results imply that listed banks typically have a strong liquidity position due to their size and established customer trust. The negative skewness might suggest a concentration of listed banks with a conservative approach to lending or a preference for maintaining higher liquidity ratios. The kurtosis implies potential extreme values, indicating that while most listed banks manage liquidity prudently, there may be outliers with more aggressive lending strategies.

Finally, the results on financial performance showed mean the Return on Assets (ROA) for the sampled financial institutions is 2.739%, indicating that, on average, they generate returns equivalent to approximately 2.74% of their total assets. The positive skewness (1.201) suggests potential variations, with some institutions achieving higher ROA values. The kurtosis of 3.877 implies a relatively peaked distribution, hinting at potential outliers on the higher end. This finding underscores the diversity in financial performance among the institutions, with some potentially employing innovative strategies or demonstrating exceptional profitability. Listed banks, being large and established, may exhibit relatively stable and efficient financial performance due to their strong market position, diverse revenue streams, and effective management strategies. The positive skewness could be attributed to some listed banks outperforming others, possibly through innovative products or superior asset management.

Diagnostic Test Findings

Multicollinearity Test Result

A multicollinearity test was performed to investigate the correlations among the variables and spot outliers. Wherever there is a proportional (or roughly proportional) connection between two or more variables, this phenomenon will appear. Multicollinearity as examined using the variance of inflation (VIF). Table 2 shows the outcome of variance of inflation.

Table 2: Multicollinearity Test

Collinearity Statistics		
	Tolerance	**VIF**
Credit Risk	0.957	1.045
Operation Risk	0.974	1.027
Liquidity Risk	0.970	1.031

Source: Study Data (2023)

The results in table 2 showed that the tolerance values are all close to 1, with the highest being 0.974. Additionally, the corresponding VIF values are also close to 1, with the highest being 1.045. The findings suggest that there is no substantial multicollinearity amongst the independent variables (Credit Risk, Operation Risk, and Liquidity Risk) in the regression model. In the context of multicollinearity tests, Tolerance values close to 1 and VIF values close to 1 suggest that each independent variable in the model is not highly correlated with the others. This is a positive outcome as it indicates that the variables provide unique information and do not suffer from redundancy or excessive correlation.

Based on the Tolerance and VIF values, there is no evidence of problematic multicollinearity among the variables in the regression model. The model appears to have a well-balanced set of independent variables, contributing distinct information to the analysis without excessive correlation.

Heteroscedasticity

The Breusch-Pagan test was employed to ascertain the presence or absence of heteroscedasticity within a regression model. This test helps researchers and analysts determine if the variability of errors in the regression model is consistent or exhibits systematic patterns.The test uses the following null and alternative hypotheses:

Null Hypothesis (H0): Homoscedasticity is present (the residuals are distributed with equal variance)

Alternative Hypothesis (HA): Heteroscedasticity is present (the residuals are not distributed with equal variance)

If the p-value obtained from the test is below a chosen significance level, such as $\alpha = 0.05$, it leads to the rejection of the null hypothesis. If the p-value is less than 0.05, we infer that there is evidence supporting the existence of heteroscedasticity in the regression model. The results are exhibited in Table 3.

Table 3: Breusch-Pagan Test

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.000	3	.000	.113	.952[b]
	Residual	.000	50	.000		
	Total	.000	53			

Source: Study Data (2023)

a. Dependent Variable: Res_Squared
b. Predictors: (Constant), Liquidity Risk, Credit Risk, Operation Risk

The output in Table 3 showed that p-value (Sig.) was 0.952. Since the p-value is considerably greater than the typical significance level of 0.05, there is insufficient evidence to reject the null hypothesis. Based on these results, it can be inferred that there is no substantial heteroscedasticity in the regression model. The residuals appear to exhibit consistent variance, supporting the assumption of homoscedasticity.

Correlation Analysis

This section provides the results of the correlation analysis. Correlation analysis is a statistical method employed to assess the magnitude and direction of the association between two or more variables. The process entails computing correlation coefficients, such as the Pearson correlation coefficient, to measure the extent to which variations in one variable align with variations in another. The coefficient varies between -1 and 1, where -1 signifies a complete negative correlation, 1 signifies a complete positive correlation, and 0 characterizes no connection. This study offers valuable insights into the linear correlation between variables, aiding researchers and analysts in

comprehending the patterns and possible interdependencies within the data. Table 4 indicates the results.

Table 4: Correlation Analysis

Correlations

		Credit Risk	Operation Risk	Liquidity Risk	Financial Performance
Credit Risk	Pearson Correlation	1	-.002	-.324*	-.324*
	Sig. (2-tailed)		.999	.0168	.0168
	N	54	54	54	54
Operation Risk	Pearson Correlation	.002*	1	-0.002. *	.758*
	Sig. (2-tailed)	.991		.888	.000
	N	54	54	54	54
Liquidity Risk	Pearson Correlation	-.020*	-.162*	1	.652*
	Sig. (2-tailed)	.888	.242		.00001
	N	54	54	54	54
Financial Performance	Pearson Correlation	-.324*	.758*	.652*	1
	Sig. (2-tailed)	.017	.000	0 .00001	
	N	54	54	54	54

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

Source: Study Data (2023)

The research examined a correlation analysis between credit risk on the financial performance of listed in Banks in Kenya. The findings suggests that r= -0.324 and p=0.0168. The correlation coefficient of -0.324 suggests a moderate negative correlation between credit risk and financial success. As credit risk increases, there is a tendency for financial performance to decrease.

Additionally, the study also conducted a correlation analysis between operation risk on the financial health of listed in Banks in Kenya. The results indicated that r=0.758 and p=0.0168. The strong positive correlation of 0.758 indicates a significant connection between operational risk and financial success. Institutions with higher operational risk tend to have better financial performance. This relationship is statistically significant at the 0.01 level.

The research aimed to ascertain the correlation between liquidity risk and the financial health of banks listed in Kenya. The findings revealed a correlation coefficient of 0.652 and a p-value of 0.003. The correlation value of 0.0652 indicates a little positive link between liquidity risk and financial success. The statistical analysis reveals that there is a significant link between liquidity risk and financial performance at a significance level of 0.05. This suggests a slight relationship between the two variables.

Regression Model Summary

The research utilized regression analysis to determine the magnitude of the correlation between the study variables, as shown in Table 5.

Table 5: Regression Model Summary

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.519[a]	.270	.210	.00025

Source: Study Data (2023)

a. Predictors: (Constant), Liquidity Risk, Credit Risk, Financial Performance, Operation Risk

The results suggest that the financial results of Listed Banks may be attributed to 27% of the independent variables included in this research. The remaining 19.4% of the variance in financial success can be attributed to factors that were not included in this study.

ANOVA

Table 6 exhibits the results of the Analysis of Variance (ANOVA) for the regression model

Table 6: ANOVA of the Regression Model

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.000	4	.000	4.525	.003[b]
	Residual	.000	49	.000		
	Total	.000	53			

Source: Study Data (2023)

a. Dependent Variable: Financial Performance

b. Predictors: (Constant), Liquidity Risk, Credit Risk, Financial Performance, Operation Risk

In the ANOVA table 6, F-Statistic is 4.525, and the associated p-value is 0.003 which is a p-value less than 0.05.This infers that at least one of the predictor variables in the model is significantly related to Financial Performance. The overall regression model, including Liquidity Risk, Credit Risk, Financial Performance, and Operation Risk as predictors, is statistically significant in explaining the variance in Financial Performance. Therefore, the predictors collectively contribute to explaining the variability in Financial Performance.

Regression Coefficients

Table 7 exhibits the regression coefficients for the variables included in the regression model, providing detailed information about the strength and direction of the relationships between the study variable.

Table 7: Regression Coefficients

Coefficients[a]

Model		Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	T	Sig.
1	(Constant)	.028	0.009		3.204	.002
	Credit Risk	-.016	0.032	-.071	-.515	.011
	Operation Risk	-.033	0.031	-.147	-1.048	.006
	Liquidity Risk	.006	0.009	.097	.694	.009

Source: Study Data (2023)

a. Dependent Variable: Financial Performance

Generally, the indicated results in Table 7 were in tandem with the following regression model.

$Y = \beta 0 + \beta 1tX1 + \beta 2tX2 + \beta 3tX3 + \varepsilon$

The results indicated the suitability of the regression model which was interpreted as follows;

$Y = 0.028 - 0.016X1 - 10.33 + 0.X3 + 0.009$

The results shown above implied that a change of one-unit increase in Credit Risk is associated with an estimated decrease of 0.016 units in "Financial Performance." The negative Beta value suggests that Credit Risk has a negative impact on Financial Success. A one-unit increase in Operation Risk is associated with an estimated decrease of 0.033 units in Financial Performance. The negative Beta value suggests that Operation Risk has a negative impact on Financial Performance. Finally, one-unit increase in Liquidity Risk is associated with an estimated increase of 0.006 units in "Financial Performance." The positive Beta value suggests that Liquidity Risk has a positive impact on Financial Performance.

The findings indicate that on credit risk on financial performance are in line with a study by study by Catherine (2020) indicated credit risk is a negative impact of bank performance. There is a direct correlation between a bank's level of exposure to credit risk and its likelihood of experiencing a financial crisis.

Hypotheses Testing

H01: Credit risk has no significant influence on performance of listed commercial banks in Kenya

The research sought to test the hypothesis that: H_{01}: Credit Risk has no significant influence on performance of listed commercial banks in Kenya. From the findings in Table 4.8 the p-value was 0.011 which was less the 0.05 significant level. Thus, according to the principle of significance, the study rejects the null hypothesis (H_{01}) and resolved that credit Risk has significant influence on performance of listed commercial banks in Kenya.

H_{02}: Operation risk has no significant influence on performance of listed commercial banks in Kenya

The research sought to test the hypothesis that: H_{02}: Operation Risk has no significant influence on success of listed commercial banks in Kenya.The results in Table 4.8 showed that the p-value was

0.006 which was less the 0.05 significant levels. Thus, according to the principle of significance, the study rejects the null hypothesis (H_{02}) and resolved that operation risk has significant influence on performance of listed commercial banks in Kenya. The findings imply that operational risk management is crucial for the performance of listed commercial banks in Kenya. Operational risks include various factors such as internal processes, systems, human error, and external events that can impact a bank's operations and ultimately its financial performance. Banks need to effectively identify, assess, and mitigate these risks to maintain stable operations and financial health. There could be several reasons why operational risk influences bank performance in Kenya. These may include inadequate internal controls, technological deficiencies, regulatory compliance issues, fraud, or disruptions in the business environment. Banks that effectively manage operational risks are better equipped to protect their assets, maintain customer trust, and sustain profitability over the long term.

H_{03}: Liquidity risk has no significant influence on performance of listed commercial bank in Kenya.

Finally, the study sought to test the hypothesis that: H_{03}: Liquidity risk has no significant influence on performance of listed commercial bank in Kenya from the findings the p-value was 0.022 which was less the 0.05 significant levels. Thus, according to the principle of significance, the study rejects the null hypothesis (H_{03}) and resolved that liquidity risk has significant influence on performance of listed commercial bank in Kenya. This suggests that factors related to liquidity, such as the capacity to fulfill immediate financial requirements and manage cash flow effectively, play a crucial role in determining the overall performance and stability of these banks in the Kenyan market.

CONCLUSIONS AND RECOMMENDATIONS

Conclusion

This section outlines the study findings based on the objectives. The first study objective was to determine the effect of credit risk on performance of listed commercial banks in Kenya. The study's findings concluded that credit risk has a substantial impact on the profitability of commercial banks listed in Kenya.

The second objective of the study was to ascertain the effect of operation risk on performance of listed commercial banks in Kenya. From the findings the study concluded that that operation risk has significant influence on performance of listed commercial banks in Kenya.

The third objective was to assess to establish the effect of liquidity Risk on performance of listed commercial banks in Kenya. From the findings the study concluded that liquidity risk has significant influence on performance of listed commercial bank in Kenya.

Policy Implications and Recommendations of the Study

The study's first objective aimed to assess the effect of credit risk on the performance of listed commercial banks in Kenya. The findings revealed a significant influence of credit risk on bank performance. The recognition of the impact of credit risk could lead to enhanced risk management practices, fostering a more resilient banking environment. This may involve the implementation of

robust risk mitigation strategies and prudent lending practices, ultimately contributing to the overall stability of the financial system. Equally, negative implications include the potential for economic downturn if banks adopt overly cautious lending practices, impacting businesses and individuals seeking credit for investments. Additionally, increased regulatory scrutiny may pose challenges for banks in terms of compliance and operational adjustments. Given the significant influence of credit risk, continuous monitoring and evaluation of credit portfolios is recommended. This ensures timely identification and mitigation of potential risks. Banks should invest in capacity building, both in terms of human resources and technological infrastructure, to enhance risk management capabilities. This includes training staff on the latest risk assessment techniques and adopting advanced analytics for better risk prediction. The banks should also collaborate with regulators. This can help banks stay informed about evolving regulatory requirements and industry best practices. This proactive approach can assist in navigating potential challenges posed by increased regulatory scrutiny. In addition to mitigate the impact of credit risk, banks should consider diversifying their loan portfolios. This involves spreading lending across different sectors and industries, reducing the concentration risk associated with a specific sector.

The findings also indicted that operational risk has a significant influence on the performance of listed commercial banks in Kenya. This could instigate policy initiatives aimed at strengthening operational resilience within the banking sector by developing comprehensive guidelines and frameworks to ensure the establishment and maintenance of robust operational processes and systems. The recognition of its influence may lead to increased regulatory scrutiny, imposing a greater compliance burden on banks. While the intention behind such scrutiny is to strengthen operational frameworks, the resulting challenges in terms of resource allocation and adaptation to new regulatory requirements could pose difficulties for banks. Striking a balance between ensuring compliance and avoiding excessive burdens is crucial to fostering a regulatory environment that promotes operational resilience without unduly hampering the operational efficiency of the banking institutions. Therefore, it is recommended that Banks conduct comprehensive risk assessments regularly. This involves identifying and evaluating potential operational vulnerabilities, enabling banks to implement effective risk mitigation strategies. To enhance operational resilience, banks should consider substantial investments in technology. This includes upgrading and maintaining robust information technology systems, cybersecurity measures, and data protection protocols to mitigate the risks associated with technological failures and cyber threats. Banks are should engage in scenario planning to anticipate and prepare for potential operational disruptions. This involves simulating various scenarios to test the resilience of operational systems and implementing measures to address identified weaknesses.

Lastly, liquidity risk has significant influence on performance of listed commercial bank in Kenya. Enhancing regulatory oversight for listed commercial banks in Kenya involves reinforcing frameworks to effectively monitor and manage liquidity risk. This includes the regular assessment and updating of liquidity requirements to align with the dynamic nature of the banking industry. Transparent reporting is a key aspect, requiring banks to provide accurate disclosures regarding their liquidity positions. Standardized reporting formats are encouraged to promote comparability

across banks, fostering a clearer understanding of the sector's overall liquidity landscape. The implementation of macroprudential policies is essential to mitigate systemic liquidity risk. This necessitates collaboration with central banks to develop tools for industry-level liquidity management. Stress testing is another critical measure, with banks mandated to conduct regular assessments to evaluate their resilience in adverse liquidity conditions. The results of stress tests should inform regulatory decisions and interventions, enabling a proactive approach to maintaining financial stability within the banking sector. From the findings it is recommended that Listed banks should diversify their funding sources to reduce reliance on short-term funding and promote the development of longer-term funding instruments in the financial markets. There should be robust liquidity risk management practices within banks through the use advanced risk modelling techniques to identify and address potential liquidity issues. The Listed commercial banks should engage with international regulatory bodies to adopt best practices in liquidity risk management. The banks should invest in training programs to enhance the capacity of regulatory bodies and bank management in managing liquidity risk. They should also establish emergency liquidity facilities or arrangements to provide support during periods of severe liquidity stress and clearly communicate the availability and conditions of such facilities to banks.

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