

**RISK MANAGEMENT AND FINANCIAL PERFORMANCE OF  
COMMERCIAL BANKS IN KENYA**

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THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF  
MASTER OF BUSINESS ADMINISTRATION**


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## DECLARATION AND APPROVAL

### Declaration by the Student;

I declare that this research project is my original work and has not been presented either in part or full in Mount Kenya University or for any other University.

Signature ..... 

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### Approval by Supervisor;

This proposal has been submitted with my approval as the University supervisor.

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## DEDICATION

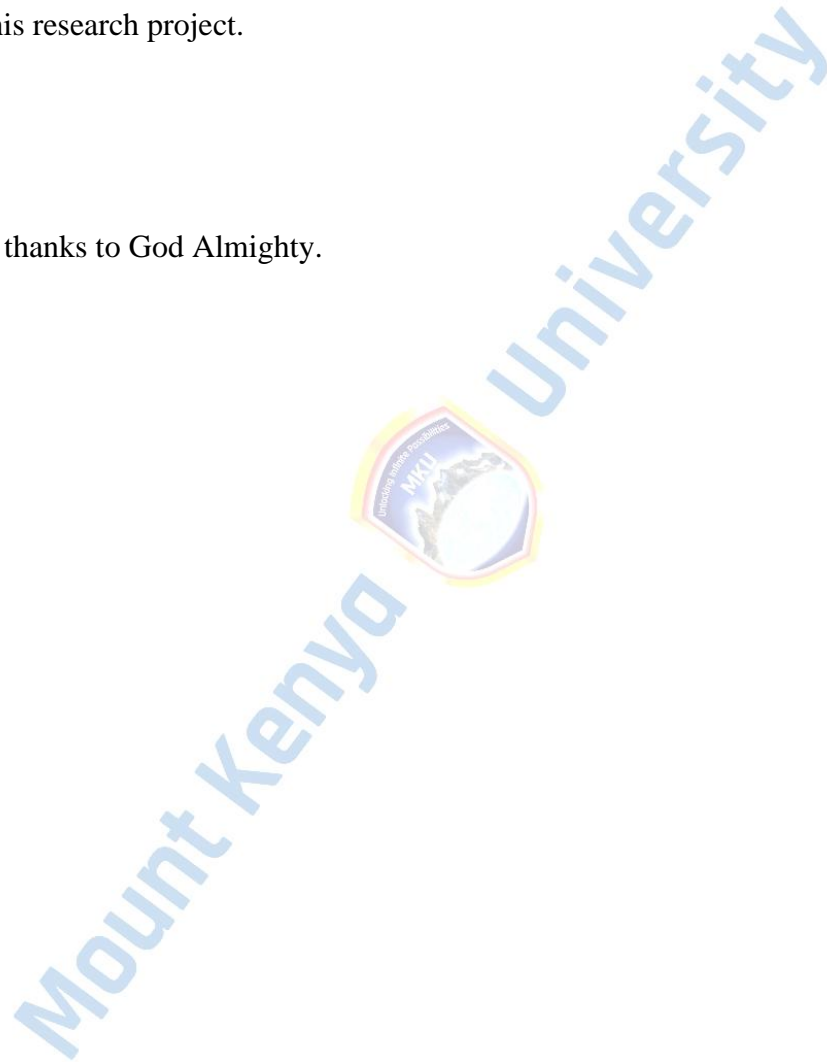
I dedicate this project to the unwavering support and encouragement of my family, whose boundless love has been my steadfast anchor throughout this academic journey. Their sacrifices and belief in my potential have fueled my determination to reach this milestone.



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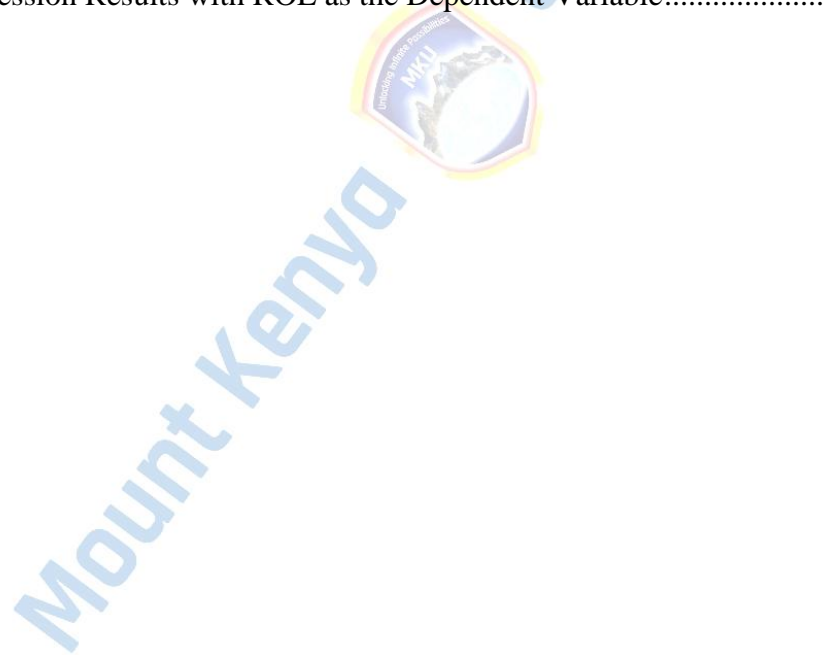
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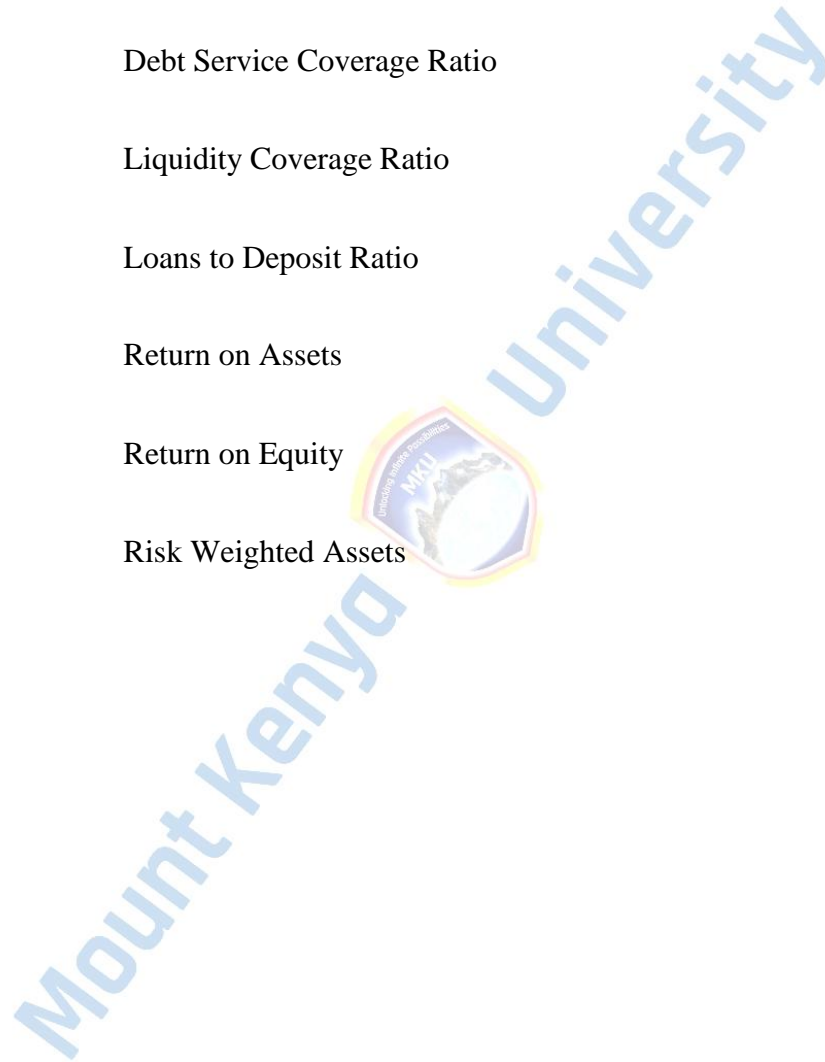
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## LIST OF ABBREVIATIONS

<b>BS</b>	Bank Size
<b>CAR</b>	Capital Adequacy Ratio
<b>CBK</b>	Central Bank of Kenya
<b>DSCR</b>	Debt Service Coverage Ratio
<b>LCR</b>	Liquidity Coverage Ratio
<b>LDR</b>	Loans to Deposit Ratio
<b>ROA</b>	Return on Assets
<b>ROE</b>	Return on Equity
<b>RWA</b>	Risk Weighted Assets



## ABSTRACT

The study aimed to determine the connection between risk management and overall financial performance in commercial banks in Kenya. More specifically, it examined credit risk, liquidity risk, and capital/solvency risk, considering how these risks affect the financial well-being and stability of these institutions. The study used a descriptive research methodology to establish directional links between independent factors and the dependent variable. The study included all 38 licensed commercial banks in Kenya from 2014 to 2023, using panel data from the Central Bank of Kenya, financial statements, and the Kenya National Bureau of Statistics. Using descriptive research design the study examined the relationship between risk management practices using descriptive statistics such as mean values and standard deviations. Additionally, inferential statistics such as correlation and regression analysis were performed to establish the causal relationship between the independent and the dependent variables. From the study, a significant negative correlation was established between credit risk and financial performance ( $r = -0.992$ ,  $P < 0.05$ ). Further, a negative regression coefficient was established between credit risk and financial performance ( $\beta = -0.261$ ). Also, a negative but insignificant correlation was established between liquidity risk and financial performance ( $r = -0.026$ ,  $P < 0.05$ ). Further, a negative regression coefficient was established between credit risk and financial performance ( $\beta = -0.182$ ). Finally, a weak negative correlation was established between capital risk and financial performance ( $r = -0.019$ ,  $P < 0.05$ ). Further, a weak negative regression coefficient was established between credit risk and financial performance ( $\beta = -0.005$ ). On the causal relation between the independent variables and ROE, a significant negative correlation was established between credit risk and ROE ( $r = -0.02$ ,  $P > 0.05$ ). Further, a significant negative regression coefficient was established between credit risk and financial performance ( $\beta = -3.691$ ). Also, a positive significant correlation was established between liquidity risk and financial performance ( $r = 0.145$ ,  $P < 0.05$ ). Further, a negative regression coefficient was established between credit risk and ROE ( $\beta = -0.056$ ). Finally, a moderate negative correlation was established between capital risk and financial performance ( $r = -0.130$ ,  $P < 0.05$ ). Further, a weak positive regression coefficient was established between credit risk and ROE ( $\beta = 0.058$ ). The study therefore concludes that credit risk, liquidity risk and capital risk have a negative impact on the financial performance of banks as measured by ROA. However, with ROE, credit risk and capital risk have a positive relationship with ROE but liquidity risk has a negative relationship with ROE. The study therefore recommends effective risk management among commercial banks in Kenya as this risk can impact commercial banks. Finally, the study recommends stricter regulation and monitoring of risks affecting commercial banks in Kenya to maintain stability in the sector.

## **CHAPTER ONE**

### **INTRODUCTION**

#### **1.1 Introduction**

The banking industry plays a crucial role in any economy, acting as a foundation for financial transactions and economic growth (Monsura et al., 2021). In the ever-changing and intricate financial environment of Kenya, commercial banks are always faced with a variety of risks that could greatly affect their financial performance. As stated by Wangila (2017), efficient risk management has become a decisive factor in establishing the resilience and success of banks. It affects their capacity to handle uncertainty, remain financially sound, and contribute to sustained growth (Acharya, 2020). Effective financial risk management is crucial for enhancing the financial performance of commercial banks. Banks can safeguard their assets and ensure sustainable profitability by identifying, assessing, and mitigating potential financial risks (Musau et al., 2018).

Financial risk management plays a fundamental role in determining the financial performance of commercial banks as they operate in a dynamic environment characterized by credit risks, operational risks, and regulatory uncertainties (Musau et al., 2018). Effective risk management strategies help banks mitigate these risks, thereby enhancing financial stability, profitability, and long-term growth. The relationship between financial risk management and financial performance can be explored through various dimensions, including credit risk management, liquidity risk management, and capital adequacy management.

##### **1.1.1 Credit Risk**

Credit risk is one of the most significant risks faced by commercial banks, as it arises when borrowers fail to meet their financial obligations (Natufe & Evbayiro-Osagie, 2023). Proper credit risk management ensures that banks maintain high-quality loan portfolios, which in turn

enhances profitability. Studies have shown that banks with effective credit risk policies, such as rigorous credit assessments, loan diversification, and enhanced monitoring of borrowers, tend to report higher financial performance indicators such as return on assets (ROA) and return on equity (ROE) (Dube & Kwenda, 2023). Conversely, high levels of non-performing loans (NPLs) can erode profitability and lead to financial distress (Natufe & Evbayiro-Osagie, 2023).

The management of credit risk, a pervasive problem that has an immediate effect on the financial stability and profitability of commercial banks, is at the center of their operations. Credit risk is an inherent component of banking operations, representing the potential loss of funds due to a borrower's failure to meet contractual obligations. The banking industry in Kenya, similar to other countries throughout the world, encounters various credit risks related to lending, investing, and other credit exposures (Musau et al., 2018). Efficient credit risk management is necessary for banks to uphold a stable financial condition, adhere to regulatory obligations, and ensure long-term profitability. Understanding how credit risk management affects Kenyan commercial banks' financial performance is crucial for a number of reasons (Arifaj & Baruti, 2023). The banking industry is always changing, with economic conditions, regulations, and borrower behavior all playing a role. Studying how commercial banks manage and reduce credit risk can offer useful insights into their overall financial performance, ability to withstand challenges, and contribution to economic stability.

Financial performance and credit risk link is intricate, as credit risk directly impacts a company's capability in meeting its financial obligations, affecting its overall stability and profitability (Natufe & Evbayiro-Osagie, 2023). It refers to the potential that borrower might fail to repay a debt, leading to financial losses for the lender. This risk can be assessed through various quantitative and qualitative measures, including credit ratings, financial ratios, and

analysis of the borrower's financial health (Kwashie, Baidoo & Ayesu, 2022). According to Arifaj and Baruti (2023), financial performance, on the other hand, encompasses a firm's capability in generating profits and maintain positive cash flows. A high level of credit risk may result in increased borrowing costs, restricted access to capital, and potential financial distress, all of which can adversely impact a company's financial performance. Effective credit risk management involves thorough analysis, monitoring, and mitigation strategies to ensure a balance between risk and reward in financial decision-making (Dube & Kwenda, 2023).

### **1.1.1 Liquidity Risk**

Liquidity risk, the risk that a bank may not be able to fulfill its short-term financial obligations due to a shortage of liquid assets, is a natural part of banking activity (Dube & Kwenda, 2023). In Kenya, commercial banks encounter distinct liquidity difficulties that are affected by factors such as economic cycles, regulatory demands, and market liquidity conditions (Ngata et al., 2015). Efficient management of liquidity risk is crucial for banks to preserve financial stability, provide seamless operations, and comply with regulations. It is important to understand liquidity risk management impact on Kenyan commercial bank financial performance for various reasons (Fadun & Silwimba, 2023). The capacity to retain sufficient liquidity is indispensable for a bank's everyday activities, which include fulfilling depositor withdrawals, financing loan disbursements, and adhering to regulatory liquidity standards. Analyzing how commercial banks manage liquidity risk can offer insights on their overall financial performance, resilience, and potential to contribute to economic stability (Chelh, 2023).

Liquidity risk is closely tied to a firm's financial performance, as it pertains to the capacity to meet short-term financial obligations deprived of adversely affecting its operations (Isenberg, Sazu & Jahan, 2022). As per Natufe and Evbayiro-Osagie (2023) liquidity risk and financial performance association is crucial, as insufficient liquidity can lead to a cascade of challenges,

such as missed payments, increased borrowing costs, and potential insolvency. Liquidity risk is measured by assessing a company's current ratio, quick ratio, and cash flow adequacy, among other metrics. A low level of liquidity poses a threat to financial stability, impacting the firm's ability to invest, meet operational needs, and capitalize on growth opportunities (Dunyoh et al., 2022). Effective liquidity managing encompasses maintaining a balance between short-term liabilities as well as assets to ensure the company can readily cover its obligations, thereby safeguarding its overall financial performance and resilience (Kumar & Meena, 2022).

### **1.1.3 Capital Risk**

Capital risk, which is sometimes used interchangeably with solvency risk, pertains to the possibility of insufficient capital to offset unforeseen losses or absorb hazards. It is a crucial component of risk management in banking (Isenberg et al., 2022). Commercial banks in Kenya adhere to regulatory capital requirements established by the central bank. Properly managing capital/solvency risk allows banks to handle losses, uphold public trust, and sustain their operations without major interruptions (Kaimu & Muba, 2021). It is important to comprehend capital/solvency risk management impact on the financial performance of commercial banks in Kenya for various reasons. Sufficient capital not only protects depositors and creditors but also helps the bank to explore growth possibilities and endure economic downturns (Mwita, 2022). Analyzing how commercial banks manage capital/solvency risk can offer insights into their overall financial performance, resilience, and ability to contribute to economic stability.

Capital risk, also known as solvency risk, is intricately linked to a firm's financial performance and long-term sustainability. Capital risk denotes the potential inadequacy of a firm's capital to cover its financial commitments and absorb potential losses (Ijaiya et al., 2021). The linking between capital risk and financial performance is pivotal, as insufficient capital may hinder a

firm's ability to withstand economic downturns, invest in growth, and manage unexpected losses. Capital risk is typically measured through key financial ratios like debt-to-equity ratio, leverage ratio, and capital adequacy ratios (Kwashie et al., 2023). A high level of capital risk can result in increased borrowing costs, credit rating downgrades, and challenges in accessing capital markets. Effective capital risk management involves maintaining an appropriate level of capital relative to the company's risk profile, ensuring resilience during adverse market conditions, and supporting sustainable financial performance over the long term (Yeasin, 2022).

The significance of risk management in the banking sector cannot be emphasized enough, especially in growing economies such as Kenya, where the financial industry plays a crucial role in driving economic activities (Dunyoh et al., 2022). Given the various risks that banks in Kenya encounter, such as credit, capital, liquidity, and other operational and regulatory issues, it is crucial to comprehend the complex connection between risk management techniques and overall financial performance (Kiptoo et al, 2021). This research endeavors to explore the complex dynamics of risk management in Kenyan commercial banks, with the goal of understanding how effective risk management frameworks impact their operational and financial performance.

Studying the connection between risk management and overall financial performance in the banking industry of Kenya is crucial due to the integral role banks play in economic development (Kwashie et al., 2022). Efficient risk management is essential for the strength and success of these institutions, especially in the face of the ever-changing and intricate financial environments (Magadi, 2021). Understanding how credit risk, liquidity risk, and capital/solvency risk impact the financial well-being and stability of commercial banks in

Kenya is vital for developing effective strategies to navigate challenges and enhance overall economic resilience.

Despite its importance in the banking sector, there is a noticeable gap in comprehensive studies that specifically analyze the Kenyan commercial banking landscape (Dube & Kwenda, 2023). While existing research may touch upon elements of risk management, a focused investigation into the interconnectedness of credit risk, liquidity risk, and capital/solvency risk, and their collective impact on performance in the context of Kenyan commercial banks, remains limited. This study aims to contribute valuable insights that build upon and go beyond existing literature, providing a more nuanced understanding of risk management dynamics in the unique financial environment of Kenya.

From a global perspective, the study not only addresses a specific need within the Kenyan banking sector but also adds to the broader discourse on risk management in emerging economies. As economies worldwide are becoming increasingly interconnected, understanding how risk management practices influence financial performance in a diverse range of contexts becomes imperative for global policymakers and researchers (Dordevic et al., 2021). The findings from this study could offer valuable lessons applicable to other developing economies facing similar challenges in their banking sectors, contributing to a more holistic and universally applicable understanding of risk management in the global financial landscape.

#### **1.1.4 Commercial Banks in Kenya**

Kenyan commercial banks serve a fundamental role in the country, contributing significantly to its economic development. The Kenyan banking sector in Kenya is characterized by a mix of large established banks and smaller, more specialized institutions. Key players include well-

known entities such as Equity Bank, KCB Bank, and Cooperative Bank, among others (Kori et al., 2020). These banks provide various financial services, including retail and corporate banking, mobile banking, and various credit products. Kenya has embraced technological innovations in banking, with mobile money platforms like M-Pesa revolutionizing financial inclusion (Mwawasaa & Ali, 2020). The sector regulation by the Central Bank of Kenya, and efforts are continually made to enhance financial stability, promote innovation, and ensure compliance with international standards. The resilience and adaptability of Kenyan commercial banks have contributed to the country's robust financial system, supporting economic growth and fostering financial inclusion (Mohamed, 2020).

The development of the banking industry in Kenya can be drawn to the colonial period when the first commercial bank was established in 1896. Over time, the industry has experienced important changes, characterized by growth, technological progress, and changes in regulations. Currently, Kenya has a varied banking sector that includes both local and international banks. Each of these banks contributes to the liveliness and competitiveness of the financial market. In Kenya, commercial banks are regulated by CBK. At present, in Kenya 38 commercial banks are operational. Out of these, 24 are controlled by local entities, while 14 are owned by foreign entities and have branches in the nation (CBK, 2020). Commercial banks have a significant influence in allocating economic resources (Bowa, 2015).

Commercial banks consistently transfer funds from depositors to investors. Bowa (2015) claims that they produce liquidity in order to bring in the required revenue, which enables them to cover their operating expenses. They gather funds, extend loans to businesses and individuals, promote global trade, and provide a variety of financial services. Commercial banks' stability and financial performance are closely connected to the overall

well-being of the economy, making them essential for achieving national development objectives.

Basel Core Principles for Effective Banking Supervision's Risk Management Processes category requires banks and banking organizations to have comprehensive risk management procedures (Garcia & de Mendonça, 2023). All significant risks should be identified, evaluated, monitored, and managed or reduced as part of these procedures. Furthermore, banks need to assess their total capital adequacy on risk profile basis they have (Dordevic et al., 2021). It is expected that these risk management processes would be used appropriately given the size and complexity of the financial institution (Acharya, 2020). The management of various risks that might impair their financial performance and well-being is one of the major challenges facing Kenya's commercial banks in their business environment. Among the primary risk categories that need to be carefully managed to minimise adverse effects and strengthen these organisations overall are credit risk, liquidity risk, and capital/solvency risk (Ijaiya et al., 2021).

As a result, every organization must develop a thorough RMP that is custom-made to its unique requirements and operating environment. To supervise the entire risk management procedure, the organization needs also create a Risk Management Function. Commercial banks' risk management have been significantly impacted by the CBK risk management strategies (Magadi, 2021). Banks have often established a Risk Department under the direction of an independent manager in order to take a active and thorough tactic in their risk management procedures. This manager adheres to a declared risk management policy and reports to the board of directors.

## **1.2 Statement of the Problem**

Financial risk management plays a crucial role in determining the financial performance of

commercial banks. Despite significant improvements in financial performance over the years, Kenyan commercial banks recorded a decline in profitability from KES 159.1 billion to KES 112.1 billion in 2021 (CBK, 2021). This decline suggests that banks continue to face significant financial risks, including credit risk, liquidity risk, and capital risk. The profit reported in 2021 was lower than in 2018, when banks earned KES 133.2 billion, and in 2019, when profits stood at KES 152.7 billion. Additionally, some banks, such as National Bank, Chase Bank, and Imperial Bank, experienced financial distress, leading to their closure (CBK, 2021). The rising ratio of non-performing loans (NPLs) further signals risk management challenges, as the sector's NPL ratio increased from 13.6% in June 2021 to 14.7% in June 2022 (CBK, 2022). These trends indicate persistent vulnerabilities despite regulatory efforts to enhance financial stability.

The exposure of commercial banks to financial risks has been well-documented in literature. Kwashie et al. (2022) argue that credit risk, liquidity risk, and capital risk significantly influence the financial performance of banks. While regulatory authorities have implemented measures to strengthen risk management frameworks, some banks still struggle to balance risk-taking with profitability and financial stability (Dube & Kwenda, 2023). Managing these risks effectively is crucial, as poor risk control can lead to financial distress, reduced investor confidence, and even bank failures.

Several studies have examined the relationship between risk management and financial performance. Mwangi (2012) explored the effect of credit risk on the profitability of Kenyan commercial banks, concluding that a rise in NPLs leads to lower returns on assets (ROA). Similarly, Mureithi (2016) examined liquidity risk management in Kenyan banks and found that liquidity constraints often result in financial distress, particularly during economic

downturns. Muigai (2018) analyzed the role of capital adequacy in banking stability, establishing that well-capitalized banks are more resilient to economic shocks. While these studies provide valuable insights, they focus on individual risk factors rather than examining the combined effect of credit risk, liquidity risk, and capital risk on financial performance.

International studies also provide relevant perspectives on financial risk management. Ahmed et al. (2021) investigated financial risk in Nigerian banks and found that capital risk had a more significant impact on financial performance than credit risk. Similarly, Ozili (2022) studied South African banks and concluded that weak credit risk management leads to declining profitability and increased loan defaults. In Ghana, Mensah and Adams (2023) examined liquidity risk in commercial banks and determined that poor liquidity management results in operational inefficiencies and higher borrowing costs. These studies highlight the importance of robust risk management strategies but also indicate that the impact of these risks may vary across different economic environments.

Despite these insights, there remain significant research gaps in understanding how financial risks collectively influence bank performance in a developing country context such as Kenya. While many studies have explored credit risk, liquidity risk, and capital risk separately (Ozili, 2022; Mensah & Adams, 2023; Mureithi, 2016), limited research has examined their combined impact on financial performance. Additionally, most existing studies focus on developed financial markets, whereas the Kenyan banking sector faces unique challenges such as regulatory constraints, economic volatility, and structural inefficiencies that may influence risk management effectiveness.

Moreover, while regulatory authorities have introduced policies to strengthen risk management, there is limited empirical evidence on the extent to which Kenyan banks implement these

frameworks and their effectiveness in mitigating financial risks. Understanding how commercial banks integrate risk management strategies with financial performance objectives is essential for formulating policies that enhance banking stability and profitability.

Given these research gaps, this study sought to examine the concurrent impact of credit risk, liquidity risk, and capital risk on the financial performance of commercial banks in Kenya. By providing empirical evidence on risk management practices, the study will offer valuable insights for policymakers, regulators, and banking institutions. Understanding the interplay between these financial risks and bank performance is crucial for ensuring financial stability and sustainable growth in the banking sector

### **1.3 Purpose of the Study**

The study's overall objective was to determine the effect of risk management on financial performance of commercial banks in Kenya.

### **1.4 Specific Objectives**

- i. To establish the effect credit risk management on financial performance of commercial banks in Kenya
- ii. To determine the effect of liquidity risk management on financial performance of commercial banks in Kenya
- iii. To investigate the effect of capital/solvency risk management on financial performance of commercial banks in Kenya

### **1.5 Research Questions**

The following questions guided this study:

- i. What is the effect of credit risk management on financial performance of commercial banks in Kenya?

- ii. How does liquidity risk management affect financial performance of commercial banks in Kenya?
- iii. What is the effect of capital risk management on financial performance of commercial banks in Kenya?

### **1.6 Significance of the Study**

This research is an important aspect of the financial industry, since risk management practices are important for maintaining financial stability, thus protecting the various stakeholders' interests and achieving sustainable growth. Numerous groups will benefit from this study's conclusions regarding risk management impact on financial performance of Kenyan commercial banks. These groups contain various kinds of experts in the fields of finance and banking as well as national and international researchers and policymakers. This study is warranted because it will pinpoint various ways of managing risks in the banking system today, and how this affects the overall performance. The Kenyan commercial banks will benefit from the research conclusions by gaining an understanding on how effective risk management practices can impact their overall financial performance. This knowledge will inform strategic decisions and risk management policies within individual banks.

The research will too assist to identify the issues and opportunities associated with implementing risk management practices in Kenyan banking system, and provide insights for policymakers on how to address these challenges. The study findings can also be important to local and international investors to access the risk profiles of the Kenyan commercial banks. Good risk management practices and financial performance link may increase the confidence therefore influencing the investments decisions.

The study findings will be relevant as they contribute to the existing literature. The study will

provide empirical evidence that can inform and enhance existing theories on commercial banks administration and risk management. The study will also help to identify gaps in the literature and provide directions for future research in this area. This is because many studies in the existing literature may focus extensively on the developed countries. Due to this reason, the significance of this study lies in its capacity to provide insights into risk management practices in a developing economy, such as Kenya which is applicable to similar economic contexts.

### **1.7 Scope of the Study**

The data in this research was collected on an annual basis. This research study utilized data from the authorized 38 Kenyan commercial banks. The study utilized panel data from 2014 to 2023 as it was readily accessible and properly calibrated. CBK data was obtained, different financial statements of commercial banks, and the KNBS.

### **1.8 Limitations of the Study**

While the utilizing secondary data from published financial reports offers a comprehensive and cost-effective approach for analyzing credit risk, liquidity risk, and capital risk effect on the financial performance of commercial banks in Kenya, there are notable limitations to consider. Firstly, the accuracy and consistency of the data across all 38 commercial banks may vary. Differences in accounting practices, reporting standards, and disclosure policies could introduce inconsistencies or biases in the dataset. It's crucial to acknowledge that while efforts will be made to standardize the information, variations in reporting methodologies might still pose a challenge to the study's internal validity.

Secondly, the study's reliance on historical financial data spanning a 10-year period (2014 to 2023) assumes a certain level of stability in economic conditions and regulatory frameworks. However, unforeseen events, such as economic crises, regulatory changes, or global financial

shocks, could significantly impact the risk profiles and financial performance of commercial banks. The research may face limitations in capturing the effects of sudden and unpredictable events, potentially affecting the generalizability of findings to real-time scenarios.

### **1.9 Delimitations of the Study**

Delimitations in this study refer to intentional exclusions or boundaries set by the researchers to narrow the scope and focus of the investigation. Firstly, this research is delimited to the analysis of credit risk, liquidity risk, and capital risk, without extensively exploring other potential factors prompting the financial performance of commercial banks in Kenya. While these risks are pivotal, factors like the efficiency of management, regulatory changes, and macroeconomic indicators are deliberately excluded, allowing for a more in-depth examination of the specified risks.

Secondly, the study's delimitation pertains to the geographical scope, specifically focusing on the commercial banks operating in Kenya. The exclusion of banks from other regions or international institutions may limit the generalizability of findings beyond the Kenyan context. However, this geographical delimitation is intentional to provide a specific and contextually relevant analysis for the Kenyan banking industry. It is essential for researchers and policymakers to recognize the contextual nature of the study's findings and exercise caution when extrapolating them to different banking environments or regions with distinct economic and regulatory landscapes.

### **1.10 Assumptions of the Study**

The study on the effect of credit risk, liquidity risk, and capital risk on the financial performance of commercial banks in Kenya operates under several key assumptions. Firstly, it assumed that the financial reports and data from the 38 banks in Kenya over the 10-year period (2014 to 2023) were accurate, reliable, and consistently reported. The study assumed that these reports reflect a true and fair representation of the financial positions and risk exposures of the banks during the

specified timeframe. Any discrepancies or variations in accounting practices across the banks were assumed to be minimal, allowing for a meaningful and comparable analysis of credit risk, liquidity risk, and capital risk.

Secondly, the study assumed that external factors, such as regulatory frameworks, economic conditions, and market dynamics, remain relatively stable over the study period. This assumption was crucial as changes in these external factors could significantly impact the risk profiles and financial performances of commercial banks. The study assumed that any alterations in regulations or economic conditions are gradual and do not introduce abrupt shifts that could confound the analysis of the isolated effects of credit risk, liquidity risk, and capital risk. While acknowledging the dynamic nature of the financial sector, these assumptions provide a foundational basis for the study to explore the relationships between risk factors and financial performance within the specified context of the Kenyan banking industry.

### **1.11 Operational Definition of Key Terms**

**Risk management:** Systematic process of identification, assessing, and mitigating various risks that a bank may encounter in its operations (Arifaj & Baruti, 2023).

**Bank financial performance:** Evaluation of a financial institution's ability to achieve its objectives, generate profits, and maintain financial stability (Natufe & Evbayiro-Osagie, 2023).

**Credit risk management:** Is used to describe the procedure for locating, evaluating, and minimizing any possible losses brought on by lending activity (Musau et al., 2018).

**Liquidity risk management:** Involves strategies and measures to ensure that a bank can meet its short-term financial obligations without incurring unacceptable losses (Dube & Kwenda, 2023).

**Capital risk management:** Involves strategies and processes aimed at ensuring that a bank maintains an adequate capital level to cushion against losses and meet regulations (Isenberg et

al., 2022).

### **1.12 Chapter Summary**

The above chapter introduces the study explaining the background to the study and the relationship between financial risk management and financial performance. Additionally, the chapter discusses the statement of the problem based on the expected relationships between the independent and dependent variables and the existing knowledge gaps the study intends to fill. The chapter concluded with the objectives that the study intended to answer and the significance of the study to different stakeholders. The next chapter delves into the theoretical and empirical literature that will further highlight the existing conceptual contextual and methodological gaps that the study intended to fill.



## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

The literature that is pertinent to this research is provided in this chapter. An overview of the theoretical and empirical research on the connection between financial risk management, and the financial performance of commercial banks is given in Sections 2.2 and 2.3. A summary of the reviewed literature is given in Section 2.4.

#### **2.2 Theoretical Literature**

Two theories were used in this research study. These theories are risk management theory as well as contingency planning theory.

##### **2.2.1 Risk Management Theory**

As per Wenk (2005), model includes the methodical procedures of recognizing, evaluating, and ranking risks. Subsequently, it demands the efficient and well-planned allocation of resources in order to lower, monitor, and control the likelihood and/or effects of adverse events. The concept works to maximise opportunities attained simultaneously. The notion of risk management emphasizes the need of identifying and categorizing the many types of risks that banks could encounter. Common dangers include credit, market, liquidity, operational and strategic risks.

Regardless of a company's size or sector, effective risk management may have a major positive impact (Ranong and Phuenggam, 2009). A stronger foundation for strategic planning, better service delivery, increased competitive edge, fewer time spent on crisis management, minimum unforeseen obstacles, a higher likelihood of successful change projects, a more focused internal approach to task completion, improved resource efficiency, decreased

corruption and waste, improved money value, increased innovation, and more contingent and maintenance activities efficient management are some of these benefits (Wenk, 2005). There are also more benefits not listed here. A well-functioning risk management framework facilitates better decision-making by encouraging a comprehensive sympathetic of risks and their potential outcomes. The business's overall effectiveness and financial performance are improved by this organized approach to risk management, which also serves to strengthen governance processes (Moore, 1983).

Dorfman (2007) emphasizes that achieving cost-effective use of risk management in an organization starts with establishing a clearly defined risk management strategy, which is then incorporated into the organizational structure. Financial and capital risk management, operational risk management, governance risk management, credit risk management, liquidity risk management, and strategic risk management are only a few of the topics covered by this all-inclusive risk management paradigm. The study assesses how risk management influences Kenyan commercial banks' financial performance using the risk management theory.

Risk management theory is based on the premise that organizations can systematically identify, assess, and mitigate risks to minimize potential losses. One of its key assumptions is that risks are identifiable and measurable, meaning that organizations can use available data and analytical models to quantify potential threats (Kaplan & Mikes, 2012). The theory also assumes that decision-makers act rationally when implementing risk management strategies, choosing options that maximize benefits while minimizing losses (Dionne, 2013). Additionally, it presumes that historical data can be used to predict future risks, which allows for the development of reliable risk assessment frameworks (Aven, 2016). Another important assumption is that risk mitigation measures, such as diversification, insurance, and hedging, are

effective in reducing or neutralizing threats (Purdy, 2010).

Despite these assumptions, risk management theory has notable limitations. One significant challenge is the existence of unpredictable risks, often referred to as "Black Swan" events, which cannot be anticipated using historical data or standard models (Taleb, 2007). Another limitation is the over-reliance on quantitative models, which may not fully capture qualitative risks or systemic uncertainties (Power, 2009). Additionally, the theory assumes rational decision-making, but in reality, human and behavioral biases can influence risk perception and response, leading to suboptimal decisions (Slovic, 2000). Furthermore, implementing effective risk management strategies requires substantial financial and human resources, which may not be accessible to all organizations, particularly small and medium-sized enterprises (Hopkin, 2017).

This theory was relevant to this study as it provided the conceptual framework necessary to understand and analyze how commercial banks in Kenya navigate and mitigate various risks in their operations. The study focused on credit risk, liquidity risk, and capital/solvency risk, and the risk management theory served as a guide to comprehend the strategies and mechanisms these banks employ to identify, assess, and manage these specific risks. Examining how these risk management practices influence the overall financial performance banks was essential for policymakers, researchers, and banking professionals, as it not only enhances our understanding of the sector's dynamics but also offers practical insights for the development of effective risk management strategies that contribute to the stability and success of the banking industry in the country.

### **2.2.2 Contingency Planning Theory**

Contingency planning theory, commonly referred to as contingency planning or scenario

planning, is a strategic management approach that emphasizes the preparation for unforeseen occurrences and uncertainties. This theory recognizes that businesses function in ever-changing situations where unexpected obstacles may develop, and it highlights the importance of taking proactive steps to maintain resilience and flexibility.

Hisnson and Kowalski (2008) assert that business continuity planning, or contingency planning (CP), is essential for efficient risk management. Contingency Planning (CP) is based on the fundamental idea that, even when the organization tries its best to remove or reduce risks, there are still hazards that remain. The recognition that incidents may still happen requires the creation of backup plans to deal with and handle these unexpected events.

Within this research context, Contingency Planning (CP) is described as the extensive collection of actions, measures, procedures, and strategies related to significant incidents and disasters. It requires proactive preparation for such situations, which involves creating adaptable strategies and mobilizing suitable resources to successfully respond to whatever happens during the event. The philosophy of contingency planning begins by recognizing that uncertainties are inherent in the corporate environment. These risks may arise from variables like economic conditions, legislative changes, technology developments, natural disasters, geopolitical events, or other unexpected circumstances.

Contingency planning theory focuses on preparing organizations for unexpected disruptions by developing alternative strategies and response plans. A fundamental assumption of this theory is that organizations can anticipate future uncertainties and identify potential disruptions in advance (Pearson & Clair, 1998). It also assumes that having predefined response plans in place can significantly reduce the negative impacts of crises, allowing organizations to maintain stability and continuity (Ritchie, 2004). Another key assumption is that organizations possess

the flexibility and adaptive capacity needed to respond effectively to unforeseen events (Burns & Stalker, 1961). Additionally, the theory assumes that training and preparedness exercises enhance an organization's ability to manage crises efficiently by improving response times and decision-making processes (Herbane, 2010).

However, contingency planning theory also has limitations. One major drawback is that not all crises can be foreseen, meaning that even the most comprehensive contingency plans may fail to address certain unexpected situations (Mitroff et al., 1989). Moreover, overly rigid contingency plans can sometimes hinder an organization's ability to adapt to rapidly evolving crises, making them less effective in dynamic environments (McConnell & Drennan, 2006). Another limitation is the resource-intensive nature of contingency planning, as developing and maintaining these plans requires financial investments and ongoing training efforts, which may be challenging for smaller organizations (Hale et al., 2005). Finally, the successful execution of contingency plans depends heavily on leadership and communication; if these elements break down during a crisis, the overall effectiveness of the plan may be compromised (Boin & Lagadec, 2000).

This theory was pertinent to the study as it assisted in identifying the significant risks that commercial banks in Kenya face. These potential dangers may encompass credit danger, capital danger, operational danger, and liquidity danger. The idea assisted in identifying possible disruptive occurrences linked to these risks. The theory will also assist in evaluating and ranking the identified risks according to their probability and possible effect on the financial performance of commercial banks in Kenya. Prioritization assists in directing attention and resources towards the most important issues that could have a substantial impact on the banks' operations and financial well-being.

## **2.3 Empirical Literature**

### **2.3.1 Credit Risk Management and Bank Financial Performance**

Siddique, Khan, and Khan (2021) looked into how South Asian commercial banks' financial performance was affected by credit risk management. They embraced the capital adequacy ratio (CAR) and non-performing loans. Return on equity (ROE), return on assets (ROA), and credit risk ratios were all accepted as indicators of financial performance. Over a ten-year period, from 2009 to 2018, secondary data was collected from 19 commercial banks in Pakistan and India. To counteract the impacts of some endogenous variables, the researchers used the generalized method of moment (GMM) model for coefficient estimation. The authors concluded from the data that there is a substantial inverse link between credit risk and commercial banks' financial performance. According to this study, policymakers in Asian nations should establish a monetary policy that stimulates interest rates in order to establish a robust financial environment. This will automatically assist in reducing the high ratio of non-performing loans (NPLs) (tied monitoring system). Maintaining a strong liquidity position is essential for the organization to thrive even in a fiercely competitive market.

Isanzu (2017) investigated how credit risk affected Chinese banks' financial results. The study used secondary data that was gathered over a seven-year period, from 2008 to 2014, from five of the nation's biggest commercial banks. The study employed loan impairment charges, capital adequacy ratio, nonperforming loans, and impaired loan reserves as indicators of credit risk and return on assets as a gauge of financial performance. A balanced panel data regression model was used for data analysis, and the results of the study demonstrated that capital sufficiency and non-performing loans significantly impair the financial performance of Chinese commercial banks. Thus, the author came to the conclusion that managing credit risk is essential to bank financial success.

Noman et al. (2015) conducted a study to examine the impact of credit risk on the profitability of banks in Bangladesh. The research utilized an unbalanced panel dataset comprising 172 observations from 18 private commercial banks over the period 2003 to 2013. The study employed NPLGL, LLRGL, LLRNPL, and CAR as indicators of credit risk, while ROAA, ROAE, and NIM were used as measures of profitability. Applying the OLS random effect model, GLS, and system GMM, the findings revealed a strong negative and significant relationship between NPLGL and LLRGL with all profitability indicators. Additionally, CAR exhibited a negative and significant impact on ROAE. The study also highlighted that the adoption of Basel II had a significantly positive effect on NIM but a significantly negative effect on ROA.

Munangi and Sibindi (2020) conducted an empirical study to assess the impact of credit risk on the financial performance of South African banks. The research analyzed data from 18 banks over the period 2008 to 2018, utilizing secondary data sources. To examine the relationship between credit risk and financial performance, the study employed pooled ordinary least squares (pooled OLS), fixed effects, and random effects estimators. Credit risk was measured using non-performing loans (NPLs), while financial performance was assessed using return on assets (ROA) and return on equity (ROE). The findings indicated a negative relationship between credit risk and financial performance, suggesting that an increase in non-performing loans leads to reduced profitability. Additionally, the study found that bank growth positively influenced financial performance, implying that increased productivity enhances overall profitability. Moreover, capital adequacy was positively associated with financial performance, highlighting the importance of maintaining sufficient capital reserves. The study's findings underscored the need for banks to implement prudent and stringent credit policies to minimize the occurrence of non-performing loans. At a regulatory level, the research emphasized the importance of enhanced supervision to ensure banks adhere to credit risk management regulations, thereby mitigating the

risk of financial instability and bank failures

Noman (2015) looked at credit risk impact on Bangladeshi banks' profitability. They made use of imbalanced panel data from 2003 to 2013, which included 18 commercial banks 172 observations. Utilising the OLS random effect model, GLS, and system GMM, the research consistently identifies a significant detrimental influence on every profitability metric. However, a prior research highlights that the primary challenge fronting credit risk in UAE's commercial banks (Al-Tamimi, 2002). This implied that the strategies employed to manage risks are becoming more sophisticated. Muasya (2013) investigated the credit risk management techniques and loan losses connection in Kenyan commercial banks using a descriptive study design. The findings show a substantial negative correlation between credit risk management strategies and loan loss incidence. The study was conducted in UAE and its findings might not apply in Kenya due to contextual differences.

In specifically, Kipnetich and Muturi (2015) scrutinized how credit risk management affected SACCOs' financial performance in Bomet County. Their results provide credence to the idea that the Capital Adequacy Ratio (CAR) improves SACCOs' financial performance in a way that is statistically significant. Furthermore, a research by Korir (2012) looked at how credit risk management techniques affected the financial performance of Kenyan deposit-taking microfinance firms. The research concludes that the financial performance of microfinance organizations that take deposits is positively correlated with the methods used to manage credit risk. The study focused on only one aspect of risk management leaving a gap on the others such as liquidity and capital adequacy.

### **2.3.2 Liquidity Risk Management and Bank Financial Performance**

The importance of the business side of liquidity risk has increased recently, largely because of

the rising reliance on financial institutions (Aldo, 2015). Liquidity risk is the possibility that a bank won't be able to fulfill its obligations without suffering significant losses (Erika & Raimonda, 2014). Liquidity risk's impact on Ethiopian commercial banks' financial performance was investigated by Eyob (2019). Data from nine banks between 2007 and 2016 were examined in the research. Panel data analysis revealed that liquidity ratios negatively affect financial performance. Laminfoday (2018) used a descriptive research design to investigate the affiliation between the financial performance of Sierra Leonean commercial banks and their ability to manage liquidity risk. The findings indicated a significant negative correlation between Sierra Leone's commercial banks' financial performance and their handling of liquidity risk.

When liabilities have a shorter tenor than assets, maturity mismatches give rise to liquidity risk. Shortages of cash or liquid marketable assets may result from an abrupt increase in the borrowers' demands above the anticipated level (Oldfield and Santamero, 1997). This study examined disclosure and liquidity risks, and it used the Islamic banks' return on equity (ROE) and return on assets (ROA) to show how liquidity concerns relate to financial performance metrics. Based on a sample of Malaysian Islamic banks from 2006 to 2008, the study also aims to ascertain how the global financial crisis affected the liquidity risks and financial performance of Islamic banks. By offering a greater knowledge of issues pertaining to liquidity risk management by Islamic banks, the study's findings enhance the body of literature on risk management of Islamic banks.

The impact of managing liquidity risk on the financial performance of consumer products companies was investigated by Ariffin (2012). In order to improve their financial performance, it sought to determine how concerned consumer products companies were about managing their

liquid cash, cash defense intervals, long-term debts, and quick ratios. Data were transformed into liquidity measurement criteria from the annual reports and accounts of the enterprises under study. Multiple regression analysis techniques were used for the analyses, and the results indicate that while cash ratios and long-term debts only have an impact on ROCE, quick ratios, cash defensive intervals, and long-term debts all significantly affect EPS and ROA. In particular, it has been empirically demonstrated that the financial performance of consumer products companies and the management of liquidity risk are significantly correlated. Results also show that businesses' disregard for managing liquidity risk has a major impact on consumer goods companies' financial success.

The impact of managing liquidity risk on the financial performance of Pakistani commercial banks was examined by Effiong and Enya (2020). It was noted that the banking industry in Pakistan plays a significant role in the financial market's stability and ability to meet its objectives. As a result, the nation's whole economy is greatly impacted by the performance of the banking industry. The central bank of Pakistan makes sure that banks maintain an optimal liquidity position to maximize benefits and boost returns in order to meet its demand for stability. The study uses panel data for Ordinary Least Square analysis to examine how liquidity risk management affects financial performance. Using data archives from the State Bank of Pakistan website, financial information from all commercial banks that operated in Pakistan between 2006 and 2019 was gathered. It was determined that Pakistani commercial banks operate better when they have more liquidity.

Important banking metrics, such as indications of liquidity risk, and their effects on financial performance were thoroughly examined by Abbas and Mourouj (2015). The study, which covered 47 banks in Iraq and was carried out over a ten-year period from 2005 to 2014, revealed

a strong link between these variables and the banking industry's financial performance. Conversely, Li (2007) observed an astounding result on liquidity impact on bank profitability, whereas Kosmidou and Pasiouras (2005) found a significant link between liquidity and financial success. A weak positive association was discovered by Lartey et al. (2013) between the profitability and liquidity of Ghanaian banks that were listed. Examining Kenya's existing relationship between profitability and liquidity is crucial in light of the disparate outcomes in many domains.

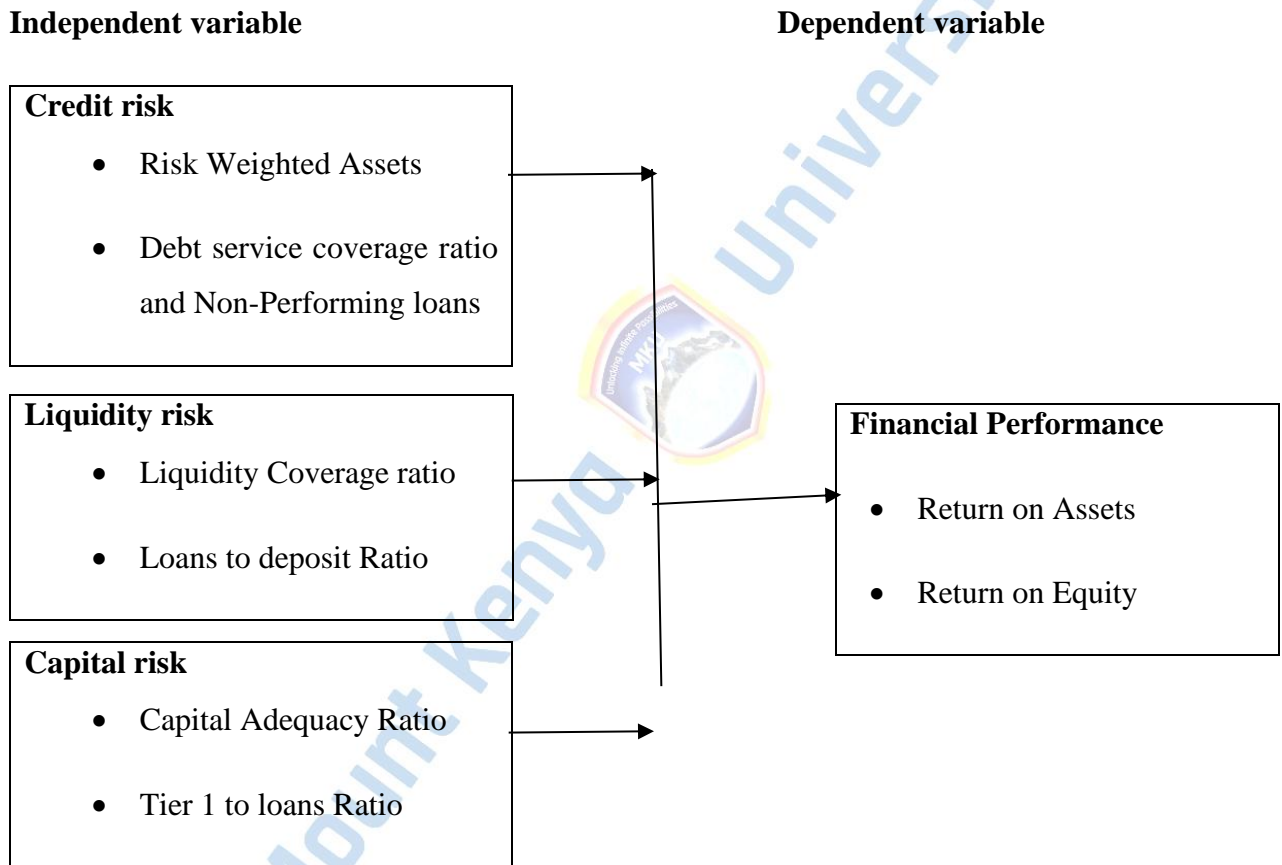
### **2.3.3 Capital Risk Management and Bank Financial Performance**

A positive correlation has been found in most studies examining the effect of capital sufficiency on bank financial performance (Ravindra et al., 2008; Gurdmundssoa et al., 2013). Numerous studies have demonstrated capital adequacy regulations influence on the financial performance of banks (Prawitasari et al., 2020; Ha, 2019; Ezike and Oke, 2013). The Capital Adequacy Ratio measures a bank's ability to absorb losses brought on by a decline in assets. It is established by the bank's capacity to turn a profit and distribute capital among assets in accordance with risk assessments. Many studies indicate that CAR influences Return on Assets (ROA) in a relatively positive way (Chavarín, 2015; Albulescu, 2015; Islam and Nishiyama, 2016).

The profitability of financial institutions in Nigeria is closely related to capital adequacy, as demonstrated by Olalekan and Adeyinka (2013). This lends credence to the notion that banks' ability to maintain their financial stability depends on their capital levels (Kyule, 2015). The combined data emphasizes how important it is to keep capital adequacy levels high in order to protect financial institutions as a whole.

## 2.4 Conceptual Framework

In this study, the independent variables comprise of, Credit risk management, liquidity risk management and capital/solvency risk management, and the dependent variable is commercial banks financial performance. The study also comprises of control variables (size of the bank and operation efficiency) as shown below.



**Figure 1: Conceptual Framework**

Source: Researcher (2024)

## 2.5 Research Gaps

From the literature review on credit risk management and bank financial performance, several research gaps emerge. Firstly, the existing studies primarily focus on the impact of risk

management on profitability in specific regions such as Bangladesh, the UAE, and Kenya. However, there is a lack of a comprehensive cross-country analysis that considers diverse economic conditions and regulatory environments. Additionally, the studies predominantly use quantitative methods, neglecting potential qualitative insights into the strategic approaches and risk management practices adopted by banks. A more nuanced understanding of the tactics employed by banks in credit risk management and their qualitative implications could provide a more holistic view.

## **2.6 Recap of the Literature Review**

Research conducted in Kenya and other regions has yielded varying conclusions regarding liquidity management impact on financial performance. Profitability has been the principal metric utilized in the majority of these studies to assess financial success. However, there isn't much study on this subject in Kenya or the rest of East Africa. Maaka (2013) emphasized the necessity for more investigation into the link between financial performance and risk management. It is advised to focus on alternative metrics like ROE and ROA, which offer a more comprehensive perspective than merely total profitability, in order to address this acknowledged shortcoming.

Numerous research concentrate on the immediate advantages of risk management. There is a lack of study in investigating the lasting effects and durability of risk management techniques. It is important to comprehend how firms maintain efficient risk management over long periods and adjust to changing situations in order to achieve ongoing progress. The literature recognizes that risks are always changing, but there is a lack of understanding regarding how firms may adjust their risk management techniques to keep up with these fast changing risk environments. Exploring mechanisms that allow for monitoring risks in real-time and responding quickly to

emerging threats is crucial.

## **2.7 Chapter Summary**

The above chapter has examined the theoretical foundations of the study which included the Risk Management Theory and the Contingency Planning theory which explain the relationship between risk management and financial performance of commercial banks. Further, the chapter examined empirical evidence from the global regional and local perspectives in addition to highlighting the knowledge gaps that the current study intends to fill. The chapter concluded with a conceptual framework illustrating the expected relationships between the independent and the dependent variables. The next chapter outlines the methodology used in achieving the research objectives.



Mount Kenya

University

## **CHAPTER THREE**

### **METHODOLOGY**

#### **3.1 Introduction**

In this chapter, the study outlined its design and methodologies. Sections 3.2 and 3.3 discussed the research design and target population, separately. Section 3.4 introduced the empirical model, and Section 3.5 detailed the methods for data collection. The processing and analysis of data were addressed in Section 3.6, while Section 3.7 delved into the operationalization a measurement of study variables.

#### **3.2 Research Design**

This study used a descriptive research design. A descriptive design allowed the researcher to determine the overall influence of the independent variables on the dependent variable (Erickson, 2017). This architecture enable researchers to get beyond basic correlations and construct a directional connection between variables, offering insights into causality. By recognizing the interrelationships among the study variables, banks and policymakers can make better-informed decisions regarding strategies, policies, and interventions that are expected to produce desirable results.

#### **3.3 Population and Sampling**

The research covered all the regulated commercial banks in Kenya, which consisted of 38 institutions according to the CBK (2023) report as of December 2023. The research used a census method to include all banks that have been operating from 2015 to 2022. As such all the 38 commercial banks were included in the sample. The main focus was on examining the financial statements and reports of these banks, as these are important sources of information for the study.

### 3.4 Data Collection Methods and Procedures

This study utilized secondary panel data from 2015 to 2022. Data was obtained from the authorized 38 Kenyan commercial banks. The data sources for this research included the Annual published financial statements for the banks. The data collection tool was a secondary data collection sheet appendix I depicts.

### 3.5 Data Processing and Analysis

The study adopted the fixed effect and system GMM model. Various pre diagnostic tests will be carried out before running the panel data analysis. First the Shapiro wilk test was carried out to test if the data is normally distributed or not. The Breusch pagan test for heteroscedasticity was carried out to ensure the variances of the error terms are constant. A correlation matrix will be used to test for multicollinearity between the variables. Fisher type test will also be carried out to test if the data is stationary or not.

Various post diagnostic tests will also be carried out. Cross dependence test will be carried out to test for correlations across various cross-sectional units. Other tests include serial correlation test and instrumental validity tests. SPSS software will be used to analyze the data and estimate the proposed model since it is an integrated software for data science and analysis.

#### 3.5.1 Diagnostic Tests

The diagnostic tests that were performed are outlined in Table 1

**Table 3.1: Diagnostic Tests**

Assumption	Description	Test	Interpretation	Treatment
Normality	To verify normal distribution, the test is conducted	Shapiro–Wilk test	If p values are above 0.05, the variables are normally distributed	application of square roots or logs to non-normality

Linearity Test	There is linearity when there is a linear link between the variables.	ANOVA test	A linear relationship exists where the alpha values are $< 0.05$	Use of the reciprocal method
Multicollinearity	The phenomenon known as multicollinearity occurs when there is a connection between many variables, which then leads to the standard errors distorting the regression analysis.	VIF Test	Multicollinearity exist where the VIF $> 10$	Eliminate highly correlated variables.
Heteroscedasticity	to determine whether the model's or the errors' variance is different for each observation	Breusch-Pagan test	Heteroscedasticity exist where the p-value $p < 0.05$ )	Use Natural log of variables
Autocorrelation	To determine the value of a single variable by considering other variables that are connected to it.	Breusch-Godfrey test.	If p-values are lower than 0.05, autocorrelation is present.	Hildreth-Lu Procedure
Stationarity test	In order to evaluate whether or not a time series variable has a unit root and whether or not it is stationary	ADF test	If p values are below 0.05, unit roots exist.	Use Natural log of variables
Hausman specification test	To differentiate between fixed-effects and random-effects models and identify the optimal one	Hausman test	Use fixed effects model if p value is less than 0.05 and random effects if otherwise	Use natural log of variables

### 3.5.2 Empirical Model

This study used the fixed effect model and then the System GMM model for robustness. The model incorporated fixed effects to consider all features that do not change over time and that were related to the independent variables. This helped to minimize the possibility of skewed results caused by omitting relevant variables. The GMM estimator, commonly referred to as the Arellano-Bond estimator, is important in of 1%, 5%, and 10%. Generally, the model is represented as follows.

$$Y = \rho_1 X_1 + \rho_2 X_2 + \mu \dots \dots \dots (3.1)$$

Y represented bank financial performance which is the response variable and X1 and X2 represented the independent and control variables, respectively. The model can as well be expanded as shown in equation 3.2.

$$BP = b_0 + b_1 X_1 + b_2 X_2 + b_3 X_3 + b_4 X_4 + e \dots \dots \dots (3.2)$$

Where BP is the bank financial performance as Return on asset and Return on equity measures X1, X2, X3, X4, X5, e are Credit risk, liquidity risk, capital risk, bank size, operational efficiency and the error term respectively. Equation 3.2 was first analyzed using the fixed effect model.

The lagging of the dependent variable in the GMM model introduces endogeneity concerns, and the GMM approach effectively addresses this by ensuring that explanatory variables remain uncorrelated with the error term. Moreover, the Arellano–Bond estimator incorporates both the levels as well as first difference equations, enhancing its versatility. The level equation can be written in a simplified manner as equation 3.3 depicts.

$$BP_{it} = \rho BP_{it-1} + \beta_1 X_{it} + \eta_i + \mu_t + \epsilon_{it} \dots \dots \dots (3.3)$$

In equation (3.3), there is endogeneity bias since the bank-specific effects  $\eta_i$  are correlated with the lagged dependent variable  $BP_{it-1}$ . This association creates inconsistency in the fixed effects estimator employed in the model. GMM estimators are used to handle this issue by treating the regressors as instruments, which helps to overcome endogeneity difficulties. This method efficiently accounts for both the time- related and institution-specific impacts, as described

in the research conducted by Arellano and Bond (1991). According to Arellano and Bond (1991), the bank-specific effects will be removed through the first difference equation, and this yields to:

$$BP_{it} - BP_{it-1} = \rho(BP_{it-1} - BP_{it-2}) + \beta_1 (X_{it} - X_{it-1}) + (\mu_t - \mu_{t-1}) + (\varepsilon_{it} + \varepsilon_{it-1}) \dots \dots \dots (3.4)$$

$\rho$  is the autoregressive coefficient,  $i$  represents a specific bank and  $t$  represents the period.,  $\mu_t$  is a temporal dummy that accounts for the specific effects of time, and  $\varepsilon_{it}$  is the error term. The equation denoted as (3.4) holds significant importance since it is the equation that will be used for regression to assist in realizing the study objectives. All the variables, including the independent and control variables, are lagged.

### 3.5.3 Operationalization and Measurement of Study Variables

The main study variables' measurement was summarized in Table 2, as depicted.

**Table 3.2: Study variables Operationalization and Measurement**

Variable	Measurement
Bank financial performance	<ol style="list-style-type: none"> <li>1. Return on assets (ROA)</li> <li>2. Return on Equity (ROE)</li> </ol>
Credit risk	<ol style="list-style-type: none"> <li>1. Risk weighted assets (RWA) where  <math display="block">CR = \frac{RWA/OBS}{TOTAL ASSETS}</math> </li> <li>2. Non-performing loans (NPLs)</li> <li>3. Debt service coverage ratio (DSCR)</li> </ol>
Liquidity risk	<ol style="list-style-type: none"> <li>1. Liquidity coverage ratio (LCR)</li> <li>2. Loans to deposit ratio (LDR)</li> </ol>
Capital risk	<ol style="list-style-type: none"> <li>1. Capital adequacy ratio (CAR)</li> <li>2. Tier 1 leverage ratio (TLR)</li> </ol>

Operational efficiency	1. Operational expense to net operating income ratio for banks.
Bank size	1. Total assets

The Tier 1 Leverage Ratio (TLR) will be established via division of the bank's core capital and total assets. Meanwhile, the Capital Adequacy Ratio (CAR) will be calculated by dividing a bank's total capital by the risk-weighted assets. Equations (3.5) and (3.6) illustrates the computation process for both CAR and TLR

$$CAR = \frac{\text{Total Capital}}{\text{Risk Weighted Assets}} \dots\dots\dots (3.5)$$

$$TLR = \frac{\text{Core \& Tier 1 Capital}}{\text{Total Assets}} \dots\dots\dots (3.6)$$

A higher Tier 1 Leverage Ratio (TLR) and Capital Adequacy Ratio (CAR) indicate that the bank is better equipped to endure losses and withstand shocks to its balance sheet. Elevated CAR and TLR values signify a heightened capacity of banks to absorb risks.

**3.6 Ethical Considerations**

The study will be verified by obtaining a research authorization from a NACOSTI to conduct the research. A letter of introduction from an MKU postgraduate student and an ethical assessment from the MKU ethical review committee will also be requested. Before the exercise starts, consent will be obtained, and the study will maintain the confidentiality of the data exchanged. Any

responding company that is interested in learning the results of the study will be given access to the information.

Regarding originality, the researcher will make sure that, in order to prevent plagiarism, all works cited in this study are duly recognized and correctly referenced. In addition, the researcher will make sure that the suggestions and conclusion are solely based on the study's findings and not on the researcher's own views.

### **3.7 Chapter Summary**

This Chapter outlines the research methodology used in the study. This included the research design, population of the study, data collection and analysis methods including the analytical model that was adopted. Additionally, the chapter outlined the various diagnostic measures undertaken to ensure the reliability and validity of the data. The next chapter presents the study findings based on each of the study objectives.

## CHAPTER FOUR: DATA ANALYSIS RESULTS AND FINDINGS

### 4.1 Introduction

The study's general objective was to determine the relationship between risk management and the financial performance of commercial banks in Kenya. The specific objectives were to determine the effect of credit risk, liquidity risk, and capital risk on the financial performance of commercial banks. This section presents the findings of the study based on the study's objective. The chapter presents the descriptive analysis, diagnostic tests, correlation, and regression analysis conducted to achieve the aim of the study.

### 4.2 Descriptive Analysis

Table 4.1 contains summary statistics for the study variables which were essential for understanding the distribution and characteristics of the data. The data was collected for a 10 year period (January 2014 to December 2023) and the 38 commercial banks had complete data set for the study period leading to 380 data points that were considered adequate.

**Table 4.1: Descriptive Statistics**

	N	Minimum	Maximum	Mean	Std. Deviation
ROA	380	-0.468	11.8408	0.481174	5.7738273
ROE	380	0.0005	8.5700	0.474193	1.0956717
Credit Risk	380	-9.0048	5.6829	8.316015	0.955141
Liquidity Risk	380	0.0034	45.3861	2.580414	0.7682518
Capital risk	380	0.1528	8.8649	1.355793	2.4730536
Bank size	380	9.2563	21.0777	18.063904	1.5678855
Valid N (listwise)	380				

**Source: Research Findings (2024)**

The mean return on assets (ROA) was 0.48, indicating that, on average, commercial banks in Kenya generated a return of approximately 48% on their total assets. The minimum ROA

observed was -0.468, suggesting that some commercial banks experienced losses, while the maximum ROA was 111.84, indicating the highest level of profitability among the sampled commercial banks.

In examining return on equity, which indicates the return to shareholders, the commercial banks had the mean of 0.474 thus suggesting that on average the commercial banks gained a return of over 47% to their equity holders. The variability, as indicated by the standard deviation of 1.0956717, implies diversity in return on equity among the different commercial banks, with some potentially operating with higher or lower return on their capital.

Regarding assessment of the credit risk which measures the potential loss experienced by a bank resulting from lending activities, the mean credit risk ratio of 8.316015 indicates a high credit risk among the commercial banks. However, the relatively high standard deviation of 0.955141 implies significant variability in credit risk among the commercial banks, potentially reflecting differences in credit risk management.

Furthermore, in considering liquidity risk, the reflected in the mean value among the commercial banks was 2.580414 hence showing the liquidity risk among the commercial banks was relatively high. The standard deviation of 0.7682518s suggests some degree of variability in the liquidity risk of the commercial banks indicating differences in the ability to meet short-term obligations.

On capital risk, the commercial banks had a mean value of 1.355 and it appears that commercial banks face a relatively high capital risk. The standard deviation of 2.4730536 suggests a high degree in variability in capital risk exposure among the commercial banks. Lastly, on the bank size, the commercial banks had a mean value of 18.0639. The standard deviation of 1.5678855 suggests a high degree in variability in bank size within commercial banks in Kenya.

In summary, the descriptive results provide a comprehensive overview of the financial

performance and risks among commercial banks in Kenya, highlighting both the average levels and variability across these different metrics. These insights lay the foundation for further analysis to understand the relationships between these factors and their impact on bank financial performance.

### 4.3 Diagnostic Tests

The researcher conducted diagnostic tests to ensure that the assumptions of the statistical tests used in the analysis were met. Diagnostic tests helped to identify potential problems such as outliers, multicollinearity, heteroscedasticity, and normality of residuals, which can influence the validity and reliability of the results. The diagnostic tests conducted are discussed in this section.

#### 4.3.1 Normality Test

The researcher conducted a linearity test to assess whether a normal distribution exists among the variables. This was done using the Shapiro wilk test. The results are in table 4.2 below

**Table 4.2. Normality Test**

<b>Shapiro Wilk Tests</b>			
<b>Variable</b>	<b>Statistic</b>	<b>df</b>	<b>Significance</b>
ROA	.049	380	0.000
ROE	.467	380	0.000
Credit Risk	.040	380	0.000
Liquidity Risk	.466	380	0.000
Capital risk	.516	380	0.000
Bank Size	.928	380	0.000

**Source: Research Findings (2024)**

From the above table, all variables had a significant value of less than 0.05 which was the minimum threshold for normality distribution. The test confirms a normal distribution of variables across all commercial banks.

### 4.3.2 Linearity test

The linearity assumption was also tested in the study. Based on this assumption, a linear test confirms if there is a link between the variables. The test was performed using the ANOVA test which confirms if the assumption holds. The results are in table 4.3 below

**Table 4.3 Analysis of Variance**

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	12435.64	4	3108.910	5855.155	.000 <sup>b</sup>
	Residual	199.114	375	.531		
	Total	12634.754	379			

a. Dependent Variable: ROA

b. Predictors: (Constant) Credit Risk, Liquidity risk, Capital Risk, Bank Size

**Source: Research Findings (2024)**

From the above table the significant value was 0.000 which is less than 0.005. This confirmed the absence of a linear link between the variables and as such the variables passed the linearity test assumption.

### 4.3.3 Multicollinearity Test

Table 4.4 contains statistics related to multicollinearity, which is a condition in regression analysis where two or more independent variables in a model are highly correlated with each other. Multicollinearity can lead to issues in regression analysis, making it difficult to determine the individual impact of each variable on the dependent variable.

**Table 4.4: Multicollinearity Test for Tolerance and VIF**

Variable	Collinearity Statistics	
	Tolerance	VIF
ROA	0.601	1.664
ROE	0.598	1.672
Credit risk	0.599	1.663
Liquidity risk	0.621	1.610
Capital risk	0.605	1.653

Bank size

0.580

1.724

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**Source: Research Findings (2024)**

The results indicated a moderate degree of correlation between the independent variables in the regression model. While the tolerance values are below 1, suggesting some correlation. However, the VIF values are also below the commonly used threshold of 5, indicating that multicollinearity is not severe for any of the variables.

#### **4.3.4 Heteroscedasticity Test**

Table 4.5 shows the results of the Breusch pagan test for heteroscedasticity. The results of the test indicate whether the model's or the variance of the error is different for each observation. The threshold for this test is a value less than 0.05. The results of the Breusch-Pagan/Cook-Weisberg test for heteroscedasticity provide evidence regarding the homoscedasticity assumption in regression analysis. The results are as shown in Table 4.5

**Table 4.5: Heteroscedasticity Test**

---

<b>Breusch-Pagan / Cook-Weisberg test for heteroscedasticity</b>		
chi2(1)	=	0.3224
Prob > chi2	=	0.1963

---

**Source: Research Findings (2024)**

A higher p-value, such as the one obtained (0.1963), indicates that there is no strong evidence to reject the null hypothesis, suggesting that heteroscedasticity is not significantly present in the regression model. This implies that the variance of the residuals, or errors, across different levels of the independent variables does not differ significantly, which is a fundamental assumption of linear regression

#### **4.3.5 Autocorrelation Test**

The Durbin-Watson statistic was used to detect autocorrelation, which is the presence of serial

correlation or dependence among the residuals of a regression model. In this case, the Durbin-Watson statistic has a value of 2.102. The range of possible values for the Durbin-Watson statistic is between 0 and 4. A value close to 2 suggests that there is little to no autocorrelation in the residuals, indicating that the error terms are not systematically related to each other across observations.

**Table 4.6: Test of Autocorrelation**

Durbin Watson Statistic
2.102

**Source: Research Findings (2024)**

In this study, a value of 2.102 was obtained, which falls within the range of values close to 2, thus suggesting no strong evidence of autocorrelation in the model's residuals. Therefore, based on this statistic, it appears that the assumption of no autocorrelation is not violated, and the residuals are reasonably independent across observations in the regression model.

**4.3.7 Stationarity Test**

Stationarity refers to a statistical property of a time series where its mean, variance, and autocorrelation structure do not change over time. Testing for stationarity before running a regression is crucial because non-stationary data can lead to spurious regression results, where the estimated relationships between variables appear significant but are meaningless. The results are as shown in Table 4.6.

**Table 4.7: Levin-Lin Chu unit-root test**

Levin-Lin Chu unit-root test		
Variable	Statistic	P.Value
ROA	8.2031	0.0000
ROE	7.8718	0.0000
Credit risk	7.2385	0.0000

Liquidity Risk	6.7943	0.0000
Capital risk	6.8132	0.0000

**Source: Research Findings (2024)**

The results of the Levin-Lin Chu unit-root test in Table 8 indicate that all the variables tested exhibit stationarity. Typically, a P-Value of 0.0000 suggests strong evidence against the presence of a unit root which in turn implies that these variables are stationary time series. In this context, the results indicate that the variables in question are suitable for analysis without the need for differencing or transformations to make them stationary.

**4.3.8 Hausman Specification Test**

The Hausman test was done to determine if fixed or random effects should be utilized with the null hypothesis being that random effects should be preferred over fixed effects (Green, 2008). The P-value for the Hausman test in Table 4.7 is less than 0.05, indicating that the fixed-effects model should be used.

**Table 4.8: Hausman Specification Test Results**

chi2(4)	P-Value
11.23	0.0000

**Source: Research Findings (2024)**

**4.4 Correlation Analysis**

The correlation analysis provides insights into the relationship between financial performance, measured by Return on Assets (ROA), and the independent variables of interest in the study.

The results are as shown in Table 4.9.

**4.4.1. Correlation Between Credit risk, ROA and ROE**

The correlation analysis revealed that credit risk has a significant negative relationship with return on Assets given a correlation coefficient of -0.992 and a P-Value lower than 0.05. This suggests that there is a significant negative relationship between a bank’s financial performance and its

credit risk, indicating that commercial banks with a higher credit risk tend to have lower returns on assets. This relationship was found to be exceptionally strong.

Additionally, the correlation between credit risk and the return on Equity was found to be negative but insignificant given a Pearson correlation coefficient of -0.025. This means that commercial banks with higher credit risk have a lower return on equity. The relationship however was not significant given a P-value greater than 0.05. This suggests that while higher credit risk may be associated with a reduction in return on equity, the relationship is not strong or significant enough to draw definitive conclusions. The findings highlight that credit risk has a substantial negative effect on ROA, but its impact on ROE is weak and not statistically significant. This could indicate that credit risk more directly affects a bank's operational profitability (ROA) rather than its overall equity returns (ROE)



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**Table 4.9: Correlation Analysis**

		ROA	ROE	Credit risk	Liquidity risk	Capital risk	Bank Size
ROA	Pearson Correlation	1					
	Sig. (2-tailed)						
ROE	Pearson Correlation	.001	1				
	Sig. (2-tailed)	.977					
Credit risk	Pearson Correlation	-.992**	-.025	1			
	Sig. (2-tailed)	.000	.627				
Liquidity Risk	Pearson Correlation	-.026	.145**	-.023	1		
	Sig. (2-tailed)	.005	.005	.656			
Capital risk	Pearson Correlation	-.019	-.130*	.031	.023	1	
	Sig. (2-tailed)	.716	.011	.542	.650		
Bank size	Pearson Correlation	.328**	.104*	-.334**	.179**	.065	1
	Sig. (2-tailed)	.000	.011	.000	.000	.209	

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

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

c. Listwise N=380

**Source: Research Findings (2024)**

#### **4.4.2 Correlation Between Liquidity risk, ROA and ROE**

Secondly, the correlation between ROA and liquidity risk was negligible but significant, with a Pearson correlation coefficient of -0.026 and a P-Value less than 0.05. This indicates that there is a negligible linear relationship between the financial performance and liquidity risk of commercial banks therefore suggesting that liquidity levels do not significantly influence ROA. The coefficient is very close to zero, indicating that the relationship between liquidity risk and ROA is extremely weak and not meaningful in a practical sense. This suggests that liquidity risk has little to no direct impact on the profitability of banks as measured by ROA.

However, the relationship between liquidity risk and ROE yielded a positive significant relationship given a correlation coefficient of 0.145 and a P-value lower than 0.05. Although the strength of the relationship is still relatively weak (given the low coefficient), the positive correlation suggests that higher liquidity risk is associated with an increase in ROE. This could imply that banks taking on more liquidity risk might generate higher returns on equity, possibly due to more aggressive liquidity management strategies that improve equity returns.

#### **4.4.3 Correlation Between Capital risk, ROA and ROE**

ROA also exhibited a statistically insignificant negative correlation with capital risk with a Pearson correlation coefficient of -0.019 and a P-Value greater than 0.05. This creates the impression that no linear relationship between the financial performance and capital risk of commercial banks therefore suggesting that capital levels do not significantly influence ROA.

The correlation between capital risk and Return on Equity was negative and significant given a Pearson correlation coefficient of -0.130 and a P-value lower than 0.05.

The results show contrasting relationships between capital risk and financial performance measures (ROA and ROE) for commercial banks. Firstly, the correlation between return on assets

(ROA) and capital risk is negative but statistically insignificant, with a Pearson correlation

coefficient of -0.019 and a P-value greater than 0.05. This implies that there is no meaningful linear relationship between capital risk and ROA. The low magnitude of the correlation suggests that variations in capital risk do not significantly affect ROA, indicating that the level of capital held by commercial banks has little to no direct influence on their asset-based profitability.

On the other hand, the correlation between capital risk and return on equity (ROE) is negative and statistically significant, with a Pearson correlation coefficient of -0.130 and a P-value lower than 0.05. This indicates a weak but meaningful negative relationship, suggesting that higher capital risk is associated with lower ROE. In practical terms, this could mean that banks with higher capital risk tend to deliver lower returns to their equity holders, possibly due to the higher cost of managing and maintaining riskier capital structures. From the results, capital risk does not significantly influence ROA, but it has a small yet significant negative impact on ROE, suggesting that banks with higher capital risk may experience reduced equity returns.

#### **4.4.3 Correlation Between Bank Size, ROA and ROE**

Bank size was adopted as a control variable in the study. The results showed that there is a statistically significant positive correlation between ROA and bank size, with a Pearson correlation coefficient of 0.328 and a P-value lower than 0.05. This indicates that there is a moderate positive relationship between commercial bank's financial performance and their size. The positive and statistically significant correlation between ROA and bank size, suggests that larger banks tend to have better asset-based profitability. The moderate strength of the relationship indicates that as banks grow, they are likely to benefit from economies of scale, improved operational efficiencies, and a broader customer base, which positively influences their financial performance.

On the correlation between bank size and Return on Equity, the study established a positive correlation between bank size and return on equity given a Pearson correlation coefficient of 0.104 and a P-value less than 0.05. The positive correlation between bank size and ROE indicates that larger banks also tend to generate higher returns for equity holders, though the relationship is weaker compared to ROA. This could imply that while larger banks generally perform better in terms of managing assets, the benefits to equity holders, though present, are less pronounced. The results show that bank size positively affects both ROA and ROE, but the impact is more pronounced on asset-based profitability (ROA). Larger banks may have more diversified portfolios, access to better resources, and improved risk management, leading to better financial outcomes.

#### 4.5 Regression Analysis (ROA as Dependent Variable)

The panel regression results in Table 4.10 present the relationship between credit risk, liquidity risk and capital risk as predictors of financial performance among commercial banks in Kenya as measured by ROA.

**Table 4.10: Regression Results with ROA as the Dependent Variable**

ROA	Coef.	Std. Err.	P>t
Credit risk	-.261	0.039	0.000
Liquidity risk	-.182	0.011	0.000
Capital risk	-.005	0.000	0.000
Bank Size	.976	0.006	0.006
_cons	-.179	0.068	0.010
<b>Model Summary</b>			
R-squared	0.4811		
F(4, 375)	101.34		
Prob > F	0.0000		
Observations	380		

**Source: Research Findings (2024)**

#### **4.5.1 ROA and Credit Risk**

The regression results reveal a significant negative relationship between credit risk and the financial performance of commercial banks, as measured by Return on Assets (ROA). The regression coefficient of -0.261 suggests that for every unit increase in credit risk, the financial performance of the bank decreases by 0.261 units. The p-value of 0.000 confirms that this relationship is statistically significant, indicating that credit risk is a critical factor influencing bank profitability.

This moderate negative relationship highlights the importance of effective credit risk management for commercial banks in Kenya. As credit risk increases due to factors like higher defaults or poor loan quality banks experience a decline in profitability. This underscores the need for robust risk mitigation strategies, such as prudent lending practices and maintaining adequate loan-loss provisions, to safeguard the financial health of banks. These results align with the broader understanding that credit risk is one of the primary risks that banks must manage to maintain stable financial performance.

#### **4.5.2 ROA and Liquidity Risk**

The regression analysis reveals a negative relationship between liquidity risk and the financial performance of banks, as indicated by the coefficient of -0.182. This suggests that for every unit increase in liquidity risk, the financial performance (measured by Return on Assets) of commercial banks declines by 0.182 units. The negative correlation implies that as banks face higher liquidity risk when they struggle to meet short-term obligations, their overall profitability decreases.

The findings highlight the importance of maintaining optimal liquidity levels. Excessive liquidity risk, which might arise from inadequate liquid assets or poor cash flow management, could lead to reduced operational efficiency, limiting the bank's ability to meet its financial obligations.

As a result, commercial banks need to carefully monitor their liquidity ratios to avoid a detrimental impact on financial performance. This reinforces the need for sound liquidity risk management practices to ensure stable and sustainable profitability in the banking sector.

#### **4.5.3 ROA and Capital Risk**

The regression results show that capital risk has a weak negative relationship with the financial performance of commercial banks, as indicated by a regression coefficient of 0.005 and a significant p-value of 0.006. Although the relationship is statistically significant, the magnitude of the effect is quite small, implying that while higher capital risk does tend to lower the financial performance of banks, the impact is minimal.

The weak relationship suggests that while capital risk, generally referring to the risk of loss due to insufficient capital reserves, can influence profitability, it may not be a major determinant of financial performance in Kenyan banks. Other factors such as credit risk or liquidity risk might play a more dominant role in affecting financial outcomes. However, the significant p-value emphasizes the need for banks to still manage their capital structures effectively to avoid any potential negative impacts, even if they are relatively small.

#### **4.5.3 ROA and Bank Size**

The results indicate that bank size has a significant positive relationship with financial performance, as evidenced by a positive coefficient of 0.976 and a p-value of 0.000. This suggests that as the size of a bank increases, its financial performance, as measured by metrics such as return on assets (ROA) or return on equity (ROE), also improves. The large positive coefficient highlights that larger banks tend to perform better financially, possibly due to factors such as economies of scale, enhanced market power, and broader access to capital and resources. The p-value further confirms the statistical significance of this relationship, emphasizing that the

increase in financial performance with larger bank size is unlikely due to chance.

This result suggests that larger commercial banks in Kenya may benefit from operational efficiencies, more diverse revenue streams, and improved risk management capacities compared to smaller banks.

#### **4.5.4 Model Summary**

The model's R-squared value of 0.4811 suggests that 48.11% of the variance in the financial performance of commercial banks is explained by the four predictor variables included in the model (credit risk, liquidity risk, capital risk, and bank size). This indicates a moderately strong explanatory power, showing that nearly half of the changes in financial performance are influenced by these independent variables.

The F-statistic of 101.34 and its p-value of 0.0000 show that the model is highly statistically significant. This suggests that the independent variables, when considered together, have a substantial and meaningful impact on financial performance. It confirms that these factors are not random or insignificant but crucial determinants.

The regression analysis further highlights the importance of managing credit risk, liquidity risk, and capital risk, all of which show negative relationships with financial performance. This underscores the need for commercial banks to focus on risk management strategies to mitigate their adverse effects on profitability and overall performance. Managing these risks effectively can improve bank outcomes and stability.

Based on the regression results provided in Table 4.9, the resulting regression model can be expressed as follows:

$$\text{Financial Performance} = -0.179 - 0.261 \text{ credit risk} - 0.182 \text{ liquidity risk} - 0.005 \text{ capital risk} + 0.976$$

**Bank Size**

#### 4.6 Regression Analysis (ROE as Dependent Variable)

The panel regression results in Table 4.11 present the relationship between credit risk, liquidity risk and capital risk as predictors of financial performance among commercial banks in Kenya as measured by ROE.

**Table 4.12: Regression Results with ROE as the Dependent Variable**

ROE	Coef.	Std. Err.	P>t
Credit risk	-3.691	0.000	0.000
Liquidity risk	.028	0.009	0.004
Capital risk	-.056	0.022	0.013
Bank Size	.058	0.038	0.006
_cons	-.570	0.686	0.009
Model Summary			
R-squared	0.0471		
F(4, 375)	4.64		
Prob > F	0.0012		
Observations	380		

**Source: Research Findings (2024)**

The variables were also regressed against the return on equity to establish the relationship between risk management strategies and financial performance as measured by return on equity.

The results are as follows

##### 4.6.1 ROE and Credit Risk

From the regression analysis, a significant regression coefficient of -3.69 was established between credit risk and financial performance of commercial banks measured by the return on equity. The regression analysis indicates a significant negative relationship between credit risk and the financial performance of commercial banks, as measured by the return on equity (ROE). The coefficient of -3.69 suggests that for each unit increase in credit risk, the return on equity decreases by 3.69 units. This indicates a strong inverse relationship.

The negative coefficient implies that as credit risk increases, the financial performance of the bank, as indicated by ROE, worsens.

This could mean that higher credit risk leads to increased provisions for bad debts, lower revenues, and ultimately reduced profitability. This finding highlights the importance of effective credit risk management strategies in enhancing the financial performance of commercial banks. It suggests that banks should work to mitigate credit risk to maintain or improve their ROE. Overall, this result emphasizes the importance of managing credit risk effectively to improve the financial performance of commercial banks.

#### **4.6.2 ROE and Liquidity Risk**

From the regression analysis, a weak but positive regression coefficient of 0.028 was established between liquidity risk and financial performance of commercial banks measured by the return on equity. This coefficient suggests that for every one-unit increase in liquidity risk, the return on equity increases by 0.028 units. While the relationship is positive, the weak coefficient indicates that this effect is not very strong or impactful. The positive coefficient implies that higher liquidity risk is associated with higher ROE. This might suggest that banks engaging in riskier liquidity management strategies could potentially yield better returns on equity. For instance, banks may invest in higher-yielding assets while maintaining minimal liquidity buffers. While the findings suggest that increased liquidity risk may be linked to improved short-term financial performance, the weakness of the relationship indicates that this effect may not be substantial or reliable over time. Higher liquidity risk can expose banks to challenges in meeting obligations during times of financial stress, which could jeopardize long-term stability.

Banks should carefully evaluate their liquidity management strategies. While pursuing higher returns through increased liquidity risk can lead to higher ROE, it may not be sustainable in the

long run.

A sound balance between liquidity risk and adequate cash reserves is essential for maintaining stability and resilience. The weak positive relationship between liquidity risk and ROE suggests that while there is a tendency for banks to achieve higher returns with increased liquidity risk, this relationship is not strong enough to indicate a robust strategy for enhancing financial performance. Banks should remain vigilant about managing liquidity risk to ensure they do not compromise their financial health for marginal gains in ROE.

#### **4.6.3 ROE and Capital Risk**

From the regression analysis, a weak negative regression coefficient of -0.056 was established between capital risk and financial performance of commercial banks measured by the return on equity. The regression analysis indicates a weak positive relationship between liquidity risk and the financial performance of commercial banks, as measured by the return on equity (ROE). This coefficient indicates a weak negative relationship between capital risk and ROE. Specifically, for every one-unit increase in capital risk, the return on equity decreases by 0.056 units. This weak negative relationship suggests that higher capital risk is associated with lower financial performance. Capital risk typically arises from inadequate capital reserves relative to the risks that a bank is exposed to, potentially leading to financial instability. However, the weakness of the relationship indicates that this effect is not strong enough to suggest a definitive trend.

The regression analysis indicates a weak positive relationship between liquidity risk and ROE, suggesting that as liquidity risk increases, ROE also tends to increase, albeit slightly. While the positive relationship implies that banks may achieve higher returns by taking on additional liquidity risk (possibly through investing in higher-yielding but less liquid assets), the term "weak" indicates that this effect is minimal.

High liquidity risk could stem from unstable funding sources or low cash reserves, which may enhance short-term returns but expose banks to challenges in meeting obligations during financial stress. The weak negative relationship with ROE suggests that banks should focus on maintaining adequate capital levels to mitigate risks. Insufficient capital can lead to decreased profitability and potential long-term financial instability.

It underscores the importance of sound capital management practices to enhance financial performance and ensure regulatory compliance. Although there is a weak positive relationship with ROE, banks should be cautious about pursuing higher returns through increased liquidity risk. The minimal impact suggests that while there may be some benefit to higher liquidity risk, it is not substantial enough to rely upon as a strategy for improving ROE. Effective liquidity management should ensure that banks maintain adequate reserves to meet obligations while still pursuing profitable opportunities. The analysis highlights that both capital and liquidity risks have weak relationships with financial performance as measured by ROE. While increasing liquidity risk may provide slight benefits to ROE, the negative impact of capital risk suggests that banks should prioritize capital adequacy to safeguard long-term profitability and stability.

#### **4.6.4 ROE and Bank Size**

From the regression analysis, a significant regression coefficient of 0.058 was established between bank size and financial performance of commercial banks measured by the return on equity. The regression analysis indicates a positive relationship between bank size and the financial performance of commercial banks, as measured by the return on equity (ROE). This coefficient suggests that for every one-unit increase in bank size, the return on equity (ROE) increases by 0.058. The positive relationship indicates that larger banks tend to have higher financial performance, as reflected by their ROE. This can be interpreted in several ways. Larger banks may benefit from economies of scale, where they can spread fixed costs over a larger volume of business, leading

to lower per-unit costs and improved profitability.

Also, bigger banks often have more diversified operations and revenue sources, which can contribute to increased overall performance. This diversification may help mitigate risks associated with economic downturns or sector-specific challenges.

Additionally, larger banks may have greater market power, enabling them to negotiate better terms with clients and suppliers, attract more customers, and engage in higher-yielding investments. The positive relationship suggests that banks might consider strategies to expand their size and scale as a means to enhance their financial performance. This could involve mergers, acquisitions, or organic growth strategies. While larger banks may exhibit better performance, they may also face different types of risks (e.g., operational complexity, regulatory scrutiny).

Effective risk management practices will be crucial to ensuring that growth does not compromise stability. The results underscore the notion that bank size is a significant determinant of financial performance, with larger banks demonstrating higher returns on equity. This relationship highlights the potential benefits of scale and diversification in enhancing profitability. However, while bank size correlates with improved financial performance, it's essential for banks to balance growth with effective risk management and operational efficiency to sustain these benefits overtime

#### **4.6.5 Model Summary**

The R-squared value of 0.0471 indicates that approximately 4.72% of the variance in the ROE of commercial banks is explained by the four predictor variables: credit risk, liquidity risk, capital risk, and bank size. While the model captures some variation in financial performance, the low R-squared value suggests that a significant portion (over 95%) of the variance in ROE remains unexplained by these factors.

This indicates that other variables not included in the model may also play important roles in determining financial performance.

The F-statistic of 4.64, coupled with a p-value of 0.0012, suggests that the overall regression model is highly statistically significant. This means that at least one of the predictor variables has a non-zero coefficient, indicating a meaningful relationship with the dependent variable (ROE). The significance of the model implies that when the independent variables (credit risk, liquidity risk, capital risk, and bank size) are considered together, they collectively contribute to explaining financial performance in a statistically significant way. The high significance of the F-statistic indicates that the model is valid and provides a meaningful framework for understanding the factors influencing financial performance in commercial banks. Based on the regression results provided in Table 4.9, the resulting regression model can be expressed as follows:

**Financial Performance = -0.570 - 3.691 credit risk + 0.028 liquidity risk - 0.056 capital risk + 0.058 Bank Size**

#### **4.7 Discussion of findings**

This chapter outlines the findings from the study investigating the relationship between risk management and financial performance in Kenyan commercial banks. Specifically, it has examined how credit risk, liquidity risk, and capital risk affect financial performance, measured through Return on Assets (ROA) and Return on Equity (ROE). From the descriptive results, the average ROA was 0.48, indicating that, on average, banks generated a return of 48% on their total assets, although some banks reported losses (minimum ROA of -0.468). The maximum ROA was notably high at 11.84%, showing variance in profitability. Similarly, the average ROE was 0.474, suggesting a return of 47.4% to shareholders, but the high standard deviation indicates

considerable differences across banks.

The average credit risk ratio of 8.316015 signaled a significant level of credit risk exposure, with variability reflected in a standard deviation of 0.955141. Liquidity risk also appears substantial, with an average of 2.580414 and a standard deviation of 0.7682518, indicating varied capacities among banks to meet short-term obligations. The average capital risk was 1.355793, with a notably high standard deviation of 2.4730536, indicating diverse capital risk exposures. Lastly, bank size averaged at 18.0639, with a standard deviation of 1.5678855, suggesting variability in the scale of operations among the banks. In summary, the descriptive results reveal significant diversity in financial performance and risk exposure among Kenyan commercial banks, setting the stage for deeper analysis of their interrelations.

The correlation analysis shed light on the relationships between financial performance and the independent risk variables. A strong negative correlation between credit risk and ROA (coefficient of -0.992,  $p < 0.05$ ) indicates that higher credit risk significantly reduces a bank's operational profitability. However, credit risk's correlation with ROE was weak (-0.025,  $p > 0.05$ ), suggesting that while credit risk impacts profitability, it does not significantly affect returns to shareholders.

Liquidity risk displayed a negligible correlation with ROA (-0.026), indicating that liquidity levels have little impact on banks' asset-based profitability. Conversely, liquidity risk had a positive, albeit weak, relationship with ROE (0.145,  $p < 0.05$ ), suggesting that banks with higher liquidity risk may adopt strategies leading to improved equity returns.

Regarding capital risk, the correlation with ROA was statistically insignificant (-0.019,  $p > 0.05$ ), indicating minimal impact on profitability. However, a significant negative correlation with ROE (-0.130,  $p < 0.05$ ) implies that higher capital risk is associated with lower returns for equity

holders, possibly due to the costs linked with managing riskier capital structures.

The regression analysis further evaluated how credit risk, liquidity risk, capital risk, and bank size predict ROA. The model indicates that all independent variables significantly influence ROA, with credit risk and liquidity risk having negative coefficients (-0.261 and -0.182, respectively), while bank size positively impacts ROA (0.976). The model's R-squared value of 0.4811 suggests that approximately 48.1% of the variability in ROA can be explained by the predictors.

In the regression results with ROE as the dependent variable, credit risk showed a substantial negative effect (-3.691), while liquidity risk positively influenced ROE (0.028). Capital risk also negatively affected ROE (-0.056). The R-squared value of 0.0471 indicated that only about 4.71% of the variability in ROE is explained by the model, underscoring the complexity of factors influencing equity returns. The analysis reveals significant insights into how various risk management strategies influence the financial performance of Kenyan commercial banks. The findings highlight the critical nature of managing credit and liquidity risks to enhance profitability while also considering the broader implications for shareholder returns.

#### **4.8 Chapter Summary**

The above chapter presented the data analysis findings based on the research objectives. The data analysis yielded descriptive statistics such as mean values and standard deviations. For the inferential statistics, correlation analysis and regression analysis were performed to establish the causal relationship between the independent and dependent variables. The next chapter discusses the results of the study, the conclusions and recommendations of the study based on the study objectives.

## CHAPTER FIVE

### SUMMARY, CONCLUSION AND RECOMMENDATIONS

#### 5.1 Introduction

This chapter delves into a comprehensive overview of the study's core outcomes and implications. The chapter begins by summarizing the key findings. Next, the study draws insightful conclusions based on the empirical evidence. The chapter also critically assesses the study's limitations, acknowledging the boundaries of the research and potential areas for future exploration. The chapter also covers practical recommendations derived from the findings, aiming to guide policymakers and decision-makers in enhancing risk management practices among commercial banks in Kenya.

#### 5.2 Summary of Findings

The primary aim of the study was to determine the effect of risk management on financial performance of commercial banks in Kenya over a ten-year period from 2014 to 2023. Through a comprehensive analysis utilizing descriptive, correlation, and fixed effects regression, several key findings have emerged. Firstly, the descriptive analysis revealed that, on average, these SACCOs exhibited modest returns with the mean average return on assets being 48% across all banks. Additionally, the descriptive results showed that the return on equity holders was also modest indicating an overall positive outlook for the banking sector in Kenya. A closer look at the independent variables which included credit risk, liquidity risk and capital risk showed significant variations across all the 38 banks for the ten-year period. A significantly high credit risk was observed given the high mean value. Additionally, the variability on credit risk across the banking sector was equally high given the significant standard deviation on credit risk. This was also observed for both liquidity and capital risks.

The correlation analysis provided insights into the relationships between financial performance (measured by Return on Assets, ROA) and the independent variables of interest. Credit risk showed a high negative correlation with return on assets suggesting that a significant credit risk among the banks was associated with lowered levels of performance as measured by the return on Assets. Liquidity risk was also negatively correlated with financial performance as measured by the return on assets, but the correlation was weak. Furthermore, no linear correlation was established between capital risk and financial performance as the correlation co-efficient was weak and insignificant. Finally, firm size which was the control variable had a significant positive correlation with bank financial performance indicating that the bigger the bank size, the more profitable the bank.

On the regression analysis, a negative relationship was established between credit risk and financial performance as measured by ROA. This was established by a moderate negative regression co-efficient between credit risk and financial performance. Additionally, liquidity risk equally had a moderate negative relationship with financial performance indicating that as liquidity risk increases, financial performance of commercial banks decline. Finally, a negative relationship was established between capital risk and financial performance. However, the relationship was weak given a low regression coefficient. Bank size which was employed as the control variable had a positive relationship with financial performance which was statistically significant indicating that as the size of the bank increases, the financial performance improves.

The relationship between credit risk, liquidity risk, and capital risk with Return on Equity (ROE) as a measure of financial performance reveals several important insights. The analysis indicated a substantial negative correlation between credit risk and ROE. This strong relationship suggests

that as credit risk increases, ROE tends to decrease significantly.

Higher credit risk can lead to increased loan defaults and losses, negatively impacting a bank's ability to generate returns for its shareholders. Consequently, effective credit risk management is crucial for enhancing ROE in commercial banks. The relationship between liquidity risk and ROE is positive, albeit weak. This implies that there is a slight tendency for banks that take on more liquidity risk to experience higher returns on equity. This could be due to more aggressive liquidity management strategies that enable banks to invest excess liquidity in higher-yielding assets. However, given the weak nature of this relationship, liquidity risk does not significantly influence ROE, suggesting that banks can manage liquidity risk without substantially affecting their equity returns. Finally, the analysis showed a negative correlation between capital risk and ROE (coefficient of -0.056), indicating that higher capital risk is associated with lower returns for equity holders. This negative relationship may arise from the higher costs and complexities involved in managing riskier capital structures, which can diminish profitability. Consequently, while capital is necessary for absorbing losses and supporting growth, excessive capital risk can detract from the effective generation of equity returns.

### **5.3 Discussion of Research Findings**

This study investigated the effect of risk management on the financial performance of commercial banks in Kenya for the period 2014 to 2023. The primary objective was to assess the effect of risks, including credit risk, liquidity risk and capital risk on the financial performance of commercial banks. Descriptive, correlation, and fixed effects regression analyses were conducted to examine the relationships between financial performance and the independent variables.

The descriptive analysis revealed that commercial banks in Kenya exhibit relative profitability as measured by the return on assets and the return on equity additionally a high degree of variation

in credit risk, liquidity risk and capital risk was established across the different banks in Kenya. Correlation analysis indicated a significant negative relationship between financial performance and credit risk. A weak but significant negative correlation was also established between liquidity Risk and financial performance. However, capital risk exhibited a statistically significant but weak relationship with financial performance.

### **5.3.1 Credit risk and Financial Performance**

The link between the empirical literature and the study findings on credit risk and financial performance reflects a consistent theme of negative relationships.

The current study findings are consistent with these empirical results, as a significant negative correlation was observed between credit risk and financial performance, with a Pearson correlation coefficient of -0.992. This supports the view that higher credit risk leads to lower financial performance, as evidenced by the study's negative regression coefficient of -0.261. The findings reinforce the importance of effective credit risk management in maintaining financial stability, aligning with previous literature on the detrimental effect of credit risk on financial outcomes.

The regression coefficient for credit risk when ROA is the dependent variable was -0.261 with a p-value of 0.000. This indicates a significant negative relationship, meaning that for each unit increase in credit risk, ROA decreases by approximately 0.261 units. The statistical significance ( $p < 0.05$ ) reinforces the finding that credit risk has a substantial adverse effect on operational profitability. In contrast, the regression coefficient for credit risk when ROE is the dependent variable is -3.691 with p-value of 0.000. While this also indicates a negative relationship, the magnitude of the coefficient suggests that credit risk has a more pronounced effect on ROE, decreasing it significantly as well. However, it's important to note that the analysis indicates a weak correlation of credit risk with ROE compared to its correlation with ROA.

On ROA: The coefficient of -0.261 reflects a moderate negative impact on ROA, suggesting that increases in credit risk directly hinder a bank's ability to generate profits from its assets. This finding emphasizes the need for banks to implement effective credit risk management strategies to maintain a healthy ROA. On ROE on the other hand, the coefficient of -3.691 suggests a much larger impact of credit risk on ROE. While it indicates a strong statistical relationship, the earlier correlation analysis showed a weak relationship between credit risk and ROE, suggesting that the effect of credit risk on ROE may be mediated by other factors.

### **5.3.2 Liquidity Risk and Financial Performance**

The relationship between liquidity risk and financial performance has been well-documented in empirical literature, with most studies highlighting a negative impact. The findings from the current study resonate with the dominant narrative in the literature. A negative correlation between liquidity risk and financial performance was identified, with a Pearson correlation coefficient of -0.026. Moreover, the regression analysis revealed a moderate negative relationship, with a coefficient of -0.182, indicating that as liquidity risk increases, financial performance decreases. This aligns with much of the empirical literature, affirming that liquidity risk can undermine the financial health of commercial banks in Kenya.

The study highlights the importance of managing liquidity effectively to enhance financial performance, consistent with global findings. Conversely, when examining the relationship between liquidity risk and ROE, the regression coefficient is 0.028 with a p-value of 0.004. This indicated a positive relationship, meaning that increases in liquidity risk are associated with a slight increase in ROE. However, the coefficient was relatively small, suggesting that while the relationship is statistically significant, it is weak. The statistically significant p-value for the

regression coefficient related to ROA indicates that the negative relationship between liquidity risk and ROA is robust and unlikely to be due to random variation.

The results highlight the importance of maintaining adequate liquidity to support profitability, as higher liquidity risk can lead to operational inefficiencies and affect asset-based profitability. The significant p-value associated with the positive relationship to ROE suggests that liquidity risk does influence returns to equity holders, albeit weakly. The positive relationship may indicate that banks with higher liquidity risk are implementing strategies that could leverage short-term funds for higher equity returns, but the weak magnitude suggests this effect is limited.

The negative coefficient of -0.182 reflects a moderate negative impact of liquidity risk on ROA. This finding indicates that higher liquidity risk can hinder a bank's ability to generate returns from its assets effectively. It underscores the need for banks to manage liquidity risks diligently to ensure they can meet short-term obligations without compromising profitability. The positive coefficient of 0.028 suggests that liquidity risk may have a minor positive impact on ROE. This indicates that banks may benefit from taking on a certain level of liquidity risk, possibly through aggressive liquidity management strategies that could enhance equity returns. However, the impact is minimal compared to the negative impact observed on ROA.

### **5.3.3 Capital Risk and Financial Performance**

The relationship between capital risk and financial performance has been widely explored in empirical literature, with many studies indicating a positive correlation between capital sufficiency and bank profitability. However, the findings of the current study contrast with much of the literature, as a weak negative relationship between capital risk and financial performance was established. The Pearson correlation coefficient of -0.019 indicates a negative remote correlation, while the regression coefficient of -0.005 further confirms a slight negative impact of

capital risk on financial performance. This suggests that in the context of the current study, higher capital risk correlates with a marginal decrease in financial performance. These findings imply that while capital adequacy may generally protect banks, excessive capital risk in certain contexts, such as the sample banks in this study, could potentially hinder profitability. This deviation highlights the complexity of the capital risk-performance relationship, especially in varying market environments.

Conversely, when examining the relationship between capital risk and ROE, the regression coefficient was -0.056, with a p-value of 0.013. This indicates a statistically significant negative relationship, meaning that as capital risk increases, ROE tends to decrease. The coefficient suggests that for each unit increase in capital risk, ROE decreases by approximately 0.056 units, highlighting a more impactful relationship compared to ROA. The coefficient of -0.005 reflects an insignificant negative impact on ROA. This result implies that capital risk does not significantly hinder a bank's ability to generate returns from its assets, suggesting that banks might have adequate capital buffers to absorb potential risks associated with capital management without drastically affecting asset utilization.

On ROE, the coefficient of -0.056 signifies a more substantial negative impact on ROE. This indicates that higher capital risk is associated with lower returns to equity holders. The statistical significance of this relationship suggests that variations in capital risk can have a meaningful impact on how effectively banks are delivering returns to their shareholders.

## **5.4 Conclusion**

### **5.4.1 Credit Risk and Financial Performance**

The study and existing literature consistently show a negative relationship between credit risk and financial performance. Increased credit risk, often reflected in bad loans or defaults, can lead to higher loan loss provisions, reducing overall profitability. This has been established in the study

as credit risk had a negative relationship with the financial performance of commercial banks in Kenya. Effective credit risk management, therefore, remains critical for enhancing the financial performance of banks.

#### **5.4.2 Liquidity Risk and Financial Performance**

The findings also showed a moderate negative relationship between liquidity risk and financial performance. This is because liquidity risk implies a bank's inability to meet its financial obligations as they fall due, which can lead to costly measures like expensive borrowing or forced asset liquidation. As such, managing liquidity risk effectively is crucial for maintaining bank profitability. The study therefore concludes that banks in Kenya should manage their liquidity risk effectively over its negative relationship with financial performance.

Unlike credit and liquidity risks, the relationship between capital risk and financial performance is weakly negative. The study therefore concludes that excessive capital risk may marginally impact profitability. This suggests that while capital adequacy is important for risk mitigation, overcapitalization or inefficient capital allocation may not necessarily improve financial performance. In conclusion credit risk and liquidity risk have a clear and negative influence on the financial performance of commercial banks, emphasizing the need for stringent risk management practices.

#### **5.4.3 Capital Risk and Financial Performance**

Capital risk shows a weak negative correlation with performance, indicating that capital structure decisions must be carefully balanced to avoid reducing profitability. Effective management of these risks is vital for improving the financial health and stability of commercial banks in Kenya. The analysis indicates that credit risk primarily impacts ROA, highlighting the importance of effective credit risk management for operational profitability. Conversely, liquidity risk shows a more complex relationship, where it negatively affects ROA but is positively associated with

ROE, suggesting that banks might leverage liquidity strategies to enhance equity returns despite the risks involved. Capital risk, while not significantly affecting ROA, has a notable negative effect on ROE, emphasizing the need for careful capital management to optimize returns for shareholders.

The findings also underscore the importance of tailored risk management strategies for banks. Effective management of credit and liquidity risks is crucial for enhancing operational profitability (ROA), while capital risk management is essential for delivering value to shareholders (ROE). In conclusion, the study highlights distinct relationships between the two financial performance measures and the various types of risks. ROA is more influenced by credit and liquidity risks, while ROE is significantly affected by capital risk, with nuanced relationships for liquidity risk. These insights can guide banks in developing focused strategies to enhance both operational efficiency and shareholder returns while navigating the inherent risks in the banking sector.

### **5.5 Recommendations for Policy and Practice**

Based on the findings regarding the relationships between credit risk, liquidity risk, capital risk, and financial performance, several recommendations for policy and practice can be proposed to improve risk management and financial performance of commercial banks. Banks should prioritize improving their credit risk assessment and monitoring processes to minimize non-performing loans (NPLs) and defaults. This can be done by adopting advanced credit scoring systems, improving borrower screening, and regularly reviewing loan portfolios. Regulatory bodies such as the Central Bank of Kenya (CBK) should strengthen supervision and enforcement of credit risk management frameworks by ensuring banks maintain adequate loan loss provisions and risk-weighted assets.

Banks should also adopt robust liquidity management strategies to ensure they can meet short-term obligations without incurring significant costs. This includes maintaining a sufficient buffer

of highly liquid assets and optimizing their asset-liability management (ALM) systems. Policymakers should establish stricter liquidity coverage ratios (LCR) and monitor compliance to ensure banks maintain adequate levels of liquidity. Regulations should incentivize banks to hold a minimum amount of liquid assets to mitigate liquidity crises. Finally, banks should focus on optimizing their capital risk management by ensuring adequate capitalization without overcapitalization, which could reduce profitability. A balance between capital adequacy and profitability should be maintained by effectively allocating capital to areas of higher returns. Regulatory authorities should ensure banks comply with capital adequacy requirements while encouraging more innovative ways to balance capital risk, such as tiered capital requirements based on asset quality or risk profiles.

#### **5.6 Suggestions for Further Research**

Future research could investigate the influence of external factors such as macroeconomic conditions (inflation, interest rates, and GDP growth) on the relationship between risk management (credit, liquidity, and capital) and financial performance. Understanding the interaction between internal bank factors and external economic conditions could provide deeper insights into bank performance.

Future studies could also explore additional financial performance measures, such as Net Interest Margin (NIM) or Economic Value Added (EVA), to provide a more comprehensive analysis of how different risks impact various aspects of bank performance. Research extending beyond a 10-year period could help identify trends and shifts in the relationships between risk factors and financial performance over time. This can be particularly useful in understanding how changing economic conditions, regulatory frameworks, or banking practices affect these relationships.

To yield more insights, further studies could examine specific segments of the banking industry (e.g., microfinance banks, investment banks, or regional banks) to determine whether the relationships between risk and performance vary significantly across different types of banks.

Utilizing qualitative methods, such as interviews or case studies with bank managers and risk officers, could also provide deeper insights into how risk management practices are implemented and perceived within banks.

This approach may also uncover factors influencing the effectiveness of risk management strategies that quantitative data alone might miss.

Comparing the findings from Kenyan commercial banks with those from banks in other emerging markets or developed economies could provide valuable insights into the generalizability of the results. Such studies could highlight differences in risk management practices and financial performance across different banking environments. Also, with the increasing adoption of technology in banking, research could explore how FinTech innovations and digital banking influence risk management and financial performance. This could include examining the impact of technology on credit risk assessment, liquidity management, and capital structuring.

Future studies could employ more advanced statistical methods, such as Structural Equation Modeling (SEM) or Granger causality tests, to better understand the causal relationships between risk factors and financial performance. This could help identify whether certain risks lead to changes in performance metrics or if performance influences risk management strategies. Research can also assess the impact of different risk management frameworks and practices on the financial performance of banks. This could involve evaluating how adherence to international standards and best practices in risk management affects banks' ability to mitigate risks and enhance performance.



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## APPENDICES

### Appendix I: Secondary Data Collection Sheet

Bank	Year	Net income	Total assets	NPLs	Total loans	Liquid assets	Overall RWA	Total Operating Income	Operating Expenses
Absa Bank Kenya Plc	2014	8,387,000	225841000.	4554426	125423000	24568000	207154473	12293000	19604000
	2015	8,401,000	240877000	785000	145838000	18180000	224121000	12074000	20411000
	2016	7,399,000	259,718,000	1,600,000	168,510,000	13,378,000	239,299,000	36,978,208	20,831,705
	2017	6,926,000	271,572,000	1,914,000	168,397,000	16,354,000	243,728,000	35,173,052	19,897,572
	2018	7,416,000	324,839,666	3,263,000	177,354,000	23,531,000	261,752,219	38,233,634	21,048,750
	2019	7,456,077	373,981,791	13,519,000	205,304,000	28,807,522	277,812,947	41,005,445	21,845,616
	2020	4,162,009	379,440,676	17,099,000	229,677,000	18,259,807	297,314,000	41,698,684	25,673,338
	2021	10,869,969	428,746,000	19,817,000	256,465,000	21,009,379	328,712,000	42,606,663	21,372,488
	2022	14,587,166	477,290,548	22,519,000	301,717,000	24,211,174	382,149,724	53,232,488	25,138,624
African Banking Corporation Ltd	2014	145493.000	22073123.000	693254	13679881	1209272.000	17095614.000	336879	2731491.000
	2015	182655.000	22617744.000	2180457	15292071	1230902.000	18304295.000	243720	2974601.000
	2016	66,847	22,864,968	2,292,944	14,641,988	1,506,524	18,530,000	3,546,749	1,505,149
	2017	166,143	25,586,668	2,909,220	15,905,885	2,538,577	19,239,000	3,340,383	1,631,589

	2018	11,508	27,925,990	3,537,734	17,786,770	1,768,813	19,408,413	3,558,825	1,764,462
	2019	119,495	28,680,000	3,557,000	20,115,000	2,092,949	20,005,291	3,582,302	1,451,760
	2020	131,578	32,643,000	3,425,000	21,961,000	1,891,156	21,095,000	3,613,410	1,530,365
	2021	105,809	36,341,000	4,665,000	23,654,000	3,010,848	20,448,000	3,670,596	1,648,251
	2022	235,744	36,965,935	5,075,000	25,364,000	2,629,809	21,640,545	4,129,960	1,785,617
Access Bank (Kenya) PLC	2016	109,130	10,372,441	736,146	6,367,429	1,288,247	9,974,000	1,642,136	925,995
	2017	36,433	10,241,368	1,595,247	6,604,120	1,425,005	6,663,000	1,407,441	918,062
	2018	- 71,841	10,235,524	1,464,956	6,625,522	1,320,255	9,136,177	1,276,473	931,834
	2019	- 56,229	9,318,142	2,196,000	6,123,829	809,600	9,020,366	1,183,267	948,884
	2020	- 2,091,737	10,147,000	159,000	3,481,000	1,009,584	6,699,000	1,271,356	2,843,209
	2021	135,958	13,211,000	202,000	3,128,000	1,186,376	7,499,000	1,453,729	1,067,162
	2022	- 233,594	14,601,676	209,000	4,041,000	907,082	7,758,984	1,445,030	1,192,126
Bank of Africa Ltd	2014	184836.000	77075795.0 00	2202666	46372306	8109890.00 0	51781454.0 00	214337	3293386.00 0
	2015	- 1023361.00 0	69280267.0 00	8787673	37798691	5953628.00 0	52778178.0 00	1434188.00 0	2491757.00 0
	2016	10,470	55,995,671	8,218,800	31,541,959	6,392,943	47,248,000	7,259,281	5,402,325
	2017	67,618	54,191,291	7,712,792	27,388,460	5,152,891	44,275,000	6,310,660	3,405,261
	2018	173,073	49,080,859	7,168,734	21,188,115	9,927,343	30,952,640	5,104,293	2,687,917
	2019	-	43,996,000	8,998,000	22,546,000	9,250,628	24,545,787		

		2,039,838						4,314,141	5,314,724
	2020	- 393,465	44,917,000	8,689,000	21,850,000	8,061,820	21,331,000	3,956,012	2,947,118
	2021	218,173	43,350,000	8,352,000	26,337,000	4,876,963	21,403,000	4,325,801	2,692,673
	2022	195,070	48,848,588	5,321,000	22,289,000	3,838,913	24,342,466	4,548,424	2,786,686
Bank of Baroda (Kenya) Limited	2014	2216911.00 0	61944649.0 00	945880	21503213	3021454	5151613.00 0	2694608	3376252.00 0
	2015	2026117.00 0	68177548.0 00	2140994	28379555	3238017.00 0	5886053.00 0	2485571	3707781.00 0
	2016	2,946,759	82,907,475	3,077,933	36,400,900	4,054,514	45,823,000	9,960,848	373,236
	2017	3,922,996	96,132,100	2,475,022	42,207,282	4,373,944	52,365,000	11,225,786	780,231
	2018	3,929,580	123,014,401	3,668,292	37,166,041	6,390,114	58,280,792	12,147,239	1,722,771
	2019	4,092,768	143,311,000	4,126,000	49,335,000	7,834,834	69,827,913	14,799,217	2,283,542
	2020	4,522,525	166,313,000	6,342,000	51,151,000	7,074,410	86,842,000	15,930,863	2,313,480
	2021	5,199,539	180,381,000	6,088,000	58,165,000	8,543,387	95,644,000	18,492,219	2,720,640
	2022	5,206,670	193,775,161	6,016,000	63,390,000	6,835,678	99,550,442	20,149,576	3,120,900
Bank of India	2014	1021293.00 0	34370422.0 00	69208	12375611	1454725.00 0	15316073.0 00	1284260	1487644.00 0
	2015	1107937.00 0	42162947.0 00	361575	17857613	1525545.00 0	16888917.0 00	1469537	1808780.00 0
	2016	1,640,905	47,815,075	268,329	19,246,080	1,601,933	19,615,000	-	565,992
	2017	2,088,671	56,630,656	427,663	20,641,381	2,214,823	20,508,000	-	664,825
	2018	1,935,113	62,689,134	1,314,690	1,826,969	2,129,224	28,787,492	-	922,473

	2019		62,543,000	1,212,000	13,608,000		30,964,343	-	709,436
	2020		75,129,000	996,000	20,980,000		35,693,000	-	
	2021	2,854,344	86,867,000	627,000	22,552,000		38,666,000	7,204,895	879,026
	2022	3,281,116	121,649,324	839,000	20,680,000	2,479,559	50,427,672	8,825,278	1,058,568
Citibank N.A. Kenya	2014	2443063.00 0	79397808.0 00	570431	24012130	9328964.00 0	66135845.0 00	7387297	4523747.00 0
	2015	3400960.00 0	88147287.0 00	1545051	26628660	9780512.00 0	67435098.0 00	8707445	5678464.00 0
	2016	3,432,189	103,323,540	526,900	27,436,980	6,947,595	72,808,000	10,095,180	2,950,201
	2017	3,910,416	98,231,911	1,368,733	37,187,236	8,206,639	77,348,000	10,549,316	3,143,578
	2018	3,161,772	85,638,687	428,686	26,435,800	7,365,179	68,086,955	10,265,417	3,530,798
	2019	2,932,682	96,570,000	1,116,000	27,068,000	11,776,471	68,493,696	10,283,051	3,731,620
	2020	3,090,694	106,454,000	1,120,000	39,726,000	11,471,476	82,243,000	9,826,439	3,323,705
	2021	3,492,225	130,940,000	1,020,000	53,765,000	12,021,083	98,723,000	10,517,631	3,375,179
	2022	5,893,855	139,827,066	1,563,000	51,242,000	18,941,502	97,275,279	16,174,539	4,832,002
NCBA Bank Kenya PLC	2016							-	12,441,780
	2017							-	13,322,376
	2018		232,317,119	9,271,261		15,412,764			10,951,640
	2019	6,089,699	464,891,000	30,516,000	244,395,000	32,867,184	350,879,90 0	-	16,942,694
	2020	5,161,865	491,614,000	35,995,000	259,698,000	29,440,662	341,742,00 0	58,179,896	34,279,088

	2021	11,381,061	546,734,000	40,909,000	255,664,000	30,870,881	351,787,000	61,326,898	26,886,408
	2022	14,078,822	567,278,106	35,300,000	270,100,000	37,313,718	404,040,200	72,930,171	30,898,349
Consolidated Bank of Kenya Limited	2014	- 281632.000	15077051.0 00	1101143	9212581	1406318.0 0	13138981.0 00	-274190	913141.000
	2015	44422.000	14135528.0 00	510209	9221256	759717.000	13973956.0 00	48789	1018829.0 0
	2016	- 211,360	13,917,895	1,077,130	9,161,484	652,941	12,669,000	2,423,512	1,714,589
	2017	- 335,681	13,455,744	1,286,270	8,421,072	857,738	11,686,000	2,122,473	1,714,830
	2018	- 540,034	12,887,332	1,292,256	8,429,659	918,709	367,430,410	2,163,238	1,756,347
	2019	- 530,199	11,866,000	2,632,000	8,929,000	906,420	10,125,914	1,895,657	1,737,610
	2020	- 277,073	12,890,006	2,436,000	10,130,000	702,185	11,740,000	1,700,456	1,540,845
	2021	- 304,906	14,283,000	2,712,000	9,858,000	893,338	13,179,000	1,870,169	1,596,381
	2022	- 459,319	15,552,524	2,845,000	11,487,000	1,261,494	12,629,705	2,029,952	1,769,856
Co-operative Bank of Kenya Ltd	2014	8014997.0 0	285396067. 000	3381924	179486355	24335332.0 00	256510900. 0000	10645235	19134515.0 00
	2015	11705559.0 00	342499809. 000	3304841	208571920	29455691.0 00	298137376 7.000	14998101	19783128.0 00
	2016	12,676,210	349,997,760	5,827,665	260,153,437	25,682,704	319,615,000	53,738,442	24,641,207
	2017	11,405,065	382,829,640	9,942,808	287,371,708	24,260,196	357,310,000	52,188,832	25,327,275
	2018	12,732,486	408,303,625	10,149,865	245,410,302	32,478,601	160,962,878	53,746,501	25,692,535
	2019	14,255,428	449,616,000	31,156,000	281,516,000	25,393,303	410,346,536	58,624,383	27,794,275

	2020	13,719,267	496,823,000	51,781,000	307,324,000	20,795,376	455,847,000	63,014,290	33,839,358
	2021	15,598,264	540,387,000	43,312,000	334,274,000	27,511,150	502,186,000	69,565,148	34,086,957
	2022	19,635,622	562,082,490	47,480,000	362,205,000	24,307,460	539,577,102	80,922,457	38,465,287
Credit bank	2014	-91715.000	8864537.000	455550	5527640	193068.000	6184951.000	-90382	549272.000
	2015	-59795.000	10287085.000	452421	7087728	253697.000	8963969.000	-178548	618655.000
	2016	109,605	12,237,889	570,204	7,899,394	303,548	10,801,000	2,016,457	1,076,932
	2017	134,080	14,510,677	730,857	9,698,546	291,143	16,679,000	2,272,816	1,174,138
	2018	248,537	17,904,609	943,737	13,031,250	409,090	18,756,441	2,731,074	1,376,482
	2019	210,231	21,541,000	1,592,000	15,797,000	1,256,286	20,069,349	3,009,317	1,478,174
	2020	-63,084	23,145,000	2,017,000	17,512,000	1,115,938	22,156,000	3,155,094	1,721,527
	2021	129,897	25,893,000	5,022,000	17,784,000	1,594,536	21,234,000	3,060,635	1,409,433
	2022	-9,705	25,721,643	5,775,000	21,094,000	1,267,684	22,438,170	3,042,009	1,618,268
Development Bank of Kenya Ltd	2016	61,715	16,411,435	2,271,625	8,733,212	81,552	8,047,000	1,873,719	512,100
	2017	27,658	16,319,924	1,930,383	9,199,779	64,555	8,060,000	1,575,190	446,246
	2018	114,445	15,323,111	2,499,849	8,386,697	119,097	8,936,475	1,549,382	366,075
	2019	1,079,115	15,358,000	3,341,000	9,801,000	361,419	9,381,519	2,477,553	411,116
	2020	20,579	17,222,000	3,420,000	10,149,000	682,875	12,114,000	1,315,681	447,420
	2021	52,620	17,289,000	2,995,000	10,218,000	482,236	13,232,000		

								1,304,278	339,779
	2022	64,339	16,891,988	2,992,000	11,510,000	605,136	12,586,464	1,330,949	317,267
Diamond Trust Bank	2014	5708430.00 0	211539412. 000	1603182	137654551	4209824.00 0	132274405. 000	9566635	15190207.0 00
	2015	6599806.00 0	271608597. 000	4274897	177544871	4325186.00 0	171280696. 000	8516725	12787601.0 00
	2016	7,728,140	328,044,501	6,052,824	186,303,191	5,903,563	183,223,00 0	27,867,915	9,195,269
	2017	6,925,040	363,303,400	13,050,400	196,048,155	7,632,063	204,039,00 0	28,779,517	10,559,865
	2018	7,082,115	377,719,314	12,145,324	193,074,357	7,928,396	213,677,90 4	37,703,138	11,503,099
	2019	5,714,991	287,251,000	12,892,000	155,307,000	18,228,378	233,853,54 9	38,621,410	6,685,116
	2020	3,045,940	312,189,000	19,747,000	165,948,000	14,831,865	229,366,00 0	37,212,219	12,208,657
	2021	2,963,147	326,377,000	27,151,000	171,866,000	17,219,059	250,695,00 0	40,144,232	12,406,991
	2022	4,519,194	359,269,886	28,167,000	191,056,000	15,803,197	267,006,89 9	49,119,709	13,238,411
DIB Bank Kenya Ltd	2016							-	
	2017	- 599,847	2,610,309	-	290,621	70,744	1,811,000	-	852,791
	2018	- 873,325	5,250,614	7,958	2,131,658	266,331	3,932,028	-	1,008,510
	2019		8,988,000	50,000	5,067,000		6,839,081	54,386	1,015,997
	2020		13,263,000	125,000	8,789,000		10,291,000	122,474	
	2021	-494,229	15,523,000	1,492,000	9,965,000	1,531,751	11,379,000	1,168,987	1,166,399
	2022	-358,355	18,236,325	1,381,000	12,037,000	1,055,761	14,395,401	1,233,258	1,047,076

Ecobank	2014	- 320212.000	45934458.0 00	2002062	22982094	2956011.00 0	32967062.0 00	- 499252.000	997552.000
	2015	90373.000	52426513.0 00	1841602	29621166	3588231.00 0	39685462.0 00	92869.000	1709742.00 0
	2016	- 2,023,883	47,123,839	3,984,801	24,473,512	2,248,410	39,119,000	3,568,269	4,176,082
	2017	- 1,115,332	53,455,760	6,171,217	16,370,967	4,551,206	37,495,000	4,402,637	4,372,371
	2018	70,484	54,463,878	2,259,710	13,022,796	4,048,200	34,582,816	3,775,161	2,648,824
	2019	127,331	75,378,000	4,783,000	24,118,000	2,266,168	42,533,091	3,968,220	2,777,974
	2020	- 20,694	94,428,000	4,377,000	26,884,000	8,829,065	44,549,000	4,641,605	2,928,901
	2021	677,040	103,388,000	4,389,000	27,223,000	8,565,498	44,481,000	5,661,883	3,215,089
	2022	195,920	101,225,490	5,623,000	27,683,000	4,034,661	49,288,483	7,409,187	5,274,732
Equity Bank	2014	17151365.0 00	344571649. 000	7349608	214170424	14544326.0 00	302592112. 000	47648679	29174637.0 00
	2015	17327000.0 00	428062514. 000	7327662	269892942	34854276.0 00	375684698. 000	56062624	34123565.0 00
	2016	16,602,529	473,713,133	16,717,199	266,068,089	23,391,567	356,088,00 0	58,336,645	27,546,255
	2017	18,918,051	524,465,745	15,442,413	279,091,669	26,674,752	374,209,00 0	56,260,912	24,641,160
	2018	19,824,000	573,384,000	14,468,769	297,227,000	24,356,787	400,288,76 9	58,296,917	24,989,219
	2019	18,743,744	507,525,000	26,185,000	290,564,000	32,594,539	476,759,74 3	66,216,693	29,174,603
	2020	14,004,068	667,650,000	42,825,000	355,630,000	29,660,543	566,959,00 0	77,426,974	49,591,164
	2021	32,184,821	877,415,000	35,470,000	420,774,000	27,157,359	704,636,00 0	89,527,429	31,253,810
	2022	33,393,823	894,011,760	39,144,000	458,599,000	32,712,360	768,315,22 5	109,826,975	43,948,987

Family bank	2014	1809785.00 0	61834403.0 00	1091251	55853882	5532611.00 0	52060130.0 00	2665060	5373356.00 0
	2015	1982946.00 0	81281366.0 00	1393019	37925476	6167092.00 0	73765213.0 00	2957128	6399929.00 0
	2016	352,279	69,491,684	6,002,839	50,163,555	5,492,415	69,534,000	13,110,050	8,364,764
	2017	- 1,000,788	69,134,935	8,360,108	43,471,853	5,641,710	66,207,000	9,149,728	7,846,451
	2018	244,216	67,011,065	7,135,322	44,113,093	6,281,773	65,186,401	9,058,888	6,349,289
	2019	895,955	78,857,000	8,244,000	54,389,000	6,961,324	70,978,185	9,817,948	6,326,927
	2020	1,076,047	90,591,000	9,391,000	63,111,000	8,879,520	74,824,000	11,414,848	7,601,859
	2021	2,175,277	111,683,000	11,056,000	73,529,000	8,212,917	83,080,000	13,938,472	7,390,707
	2022	2,271,182	128,465,438	12,431,000	88,137,000	8,992,039	94,588,542	10,368,510	8,126,431
First Community Bank	2014	50437.000	15278026.0 00	1470474	9765509	3475769.00 0	12652344.0 00	906739	0.000
	2015	-12114.000	14564631.0 00	2566084	10940003	2454049.00 0	13249172.0 00	1041927	0.000
	2016	- 55,734	14,962,089	3,495,479	10,939,122	2,223,807	14,071,000	-	1,069,708
	2017	151,797	17,359,968	3,966,687	9,726,807	2,325,388	13,173,000	-	1,493,057
	2018	- 212,062	17,880,462	4,406,893	9,027,389	2,272,879	11,828,591	-	1,458,092
	2019		18,763,000	4,699,000	11,833,000		13,962,683	453,940	1,010,573
	2020		21,947,000	5,258,000	14,572,000		17,453,000	407,571	
	2021		24,701,000	5,487,000	19,037,000		21,511,000	-	
	2022		17,640,991	7,333,000	17,849,000		20,441,788		

								317,295	
Guaranty Trust Bank	2014	446645.000	45554407.000	2507802	19347818	3849860.000	30819359	532572	2311789.000
	2015	388936.000	40964878.000	1796422	19606520	3221322.000	29761214.000	439793	2652337.000
	2016	419,283	32,165,405	2,153,878	19,441,803	7,288,682	20,599,000	-	1,557,487
	2017	212,945	27,627,849	2,235,804	20,542,673	6,243,296	19,923,000	2,882,715	1,632,976
	2018	90,739	25,323,367	2,886,814	19,681,830	1,811,040	18,810,854	2,691,780	1,422,322
	2019	347,317	29,082,000	2,747,000	14,872,000	1,058,681	20,643,540	2,619,151	1,348,489
	2020	373,601	31,267,000	3,269,000	15,714,000	1,409,592	20,794,000	2,882,806	1,509,891
	2021	564,489	34,301,000	2,528,000	18,332,000	1,283,784	23,226,000	3,394,863	1,534,005
	2022	753,285	32,973,352	1,791,000	14,301,000	1,015,479	19,451,184	3,561,311	1,247,245
Guardian Bank	2014	261251.000	14572873.000	118505	9434741	1582023.000	10252732.000	377673	856462.000
	2015	229330.000	14609492.000	281032	9242735	1320403.000	11255815.000	328963	946895.000
	2016	230,127	14,705,350	151,685	8,974,527	1,532,007	11,288,000	2,238,673	744,856
	2017	160,022	15,802,759	435,271	9,616,965	1,236,146	11,746,000	1,833,856	521,186
	2018	225,568	16,185,963	445,876	9,028,027	1,397,485	11,241,904	1,960,191	745,730
	2019	183,658	16,386,000	944,000	9,892,000	1,574,039	12,345,662	1,804,274	683,749
	2020	93,207	16,858,000	1,181,000	9,248,000	2,105,225	12,030,000	1,700,686	818,431
	2021	155,033	17,736,000	1,257,000	7,665,000	2,572,400	11,324,000	1,734,575	825,420

	2022	249,809	15,658,126	1,208,000	7,018,000	1,385,476	11,127,423	1,766,395	766,823
Gulf African Bank	2014	402196.000	19750030.000	896328	13790646	1599680.000	23284797.000	616458	0.000
	2015	728619.000	24706595.000	1299174	15427705	2198286.000	24592935.000	1090592	0.000
	2016	498,321	27,156,264	1,494,067	16,193,046	3,471,447	22,788,000	2,913,361	1,694,090
	2017	153,653	31,316,228	2,404,231	19,384,156	3,428,796	29,847,000	3,189,192	2,376,647
	2018	131,589	33,325,575	3,478,778	22,605,853	2,885,379	32,834,897	3,628,916	2,682,536
	2019	167,000	35,123,000	3,613,000	24,578,000	2,253,372	34,347,247	3,514,146	2,481,320
	2020	393,671	37,653,000	4,028,000	22,928,000	1,933,030	31,903,000	3,585,834	2,322,782
	2021	444,060	37,678,000	3,623,000	22,486,000	2,265,084	30,962,000	3,619,712	2,258,219
	2022	555,104	38,162,471	3,203,000	24,240,000	3,206,600	31,524,032	3,962,487	2,492,714
Habib Bank Ltd	2014								
	2015	298584.000	10229979.000	312382	3946146	538163.000	5776330.000	830817	719374.000
	2016	306,165	12,508,025	713,263	3,812,504	837,492	5,412,000	-	340,981
	2017						10,505,000	-	
	2018						11,880,588	-	
	2019	239,949	24,823,000	787,000	7,000,000	755,933	10,731,752	2,198,628	815,738
	2020	307,054	27,212,000	836,000	6,847,000	860,897	11,255,000	2,314,996	805,107
	2021	423,635	28,554,000	739,000	6,359,000	924,586	8,902,000	2,474,035	835,906

	2022	295,705	30,855,524	740,000	7,385,000	1,183,149	9,456,369	2,763,078	978,771
Housing finance Company ltd	2014	975336.000	60961680.000	2773625	45243539	4028221.000	43534183.000	1400653	3033979.000
	2015	1196969.000	71659434.000	2319103	53021022	30973.000	52671912.000	1753518	3611954.000
	2016	905,829	68,084,930	3,771,813	54,469,605	5,029,859	54,161,000	8,967,235	2,642,618
	2017	126,216	62,126,556	5,365,761	49,639,639	4,079,347	53,576,000	7,416,483	3,412,196
	2018	-598,218	57,083,283	10,832,833	43,439,691	2,780,352	48,940,357	6,348,399	3,131,924
	2019	6,348	54,532,000	12,316,000	45,822,000	2,846,719	44,679,426	5,633,166	2,793,039
	2020	-931,729	54,478,000	10,799,000	41,836,000	1,517,914	46,280,000	4,777,436	3,335,268
	2021	-381,306	52,098,000	8,673,000	39,339,000	2,343,733	38,441,000	4,487,793	3,037,748
	2022	178,223	55,168,371	8,487,000	43,601,000	2,108,044	38,520,149	5,046,996	2,825,392
I&M Bank	2014	5734013.000	176464451.000	1113427	112491329	11274508.000	121259711.000	8920078	10404084.000
	2015	7144411.000	191723542.000	3171478	127823778	9948128.000	138178796.000	10826693	12647165.000
	2016	7,760,162	210,542,393	3,891,520	134,675,332	11,083,876	148,414,000	23,715,092	7,608,580
	2017	7,264,249	240,110,741	13,307,822	153,018,152	11,879,815	173,455,000	23,744,030	9,051,844
	2018	8,503,357	288,522,049	12,890,508	166,736,729	14,867,139	199,699,818	26,204,505	9,132,344
	2019	10,309,038	254,252,000	18,799,000	152,807,000	15,385,829	209,981,453	27,912,554	6,529,769
	2020	8,073,855	283,569,000	20,178,000	160,665,000	19,403,419	223,976,000	31,320,447	12,606,382
	2021	8,623,936	307,802,000	18,563,000	172,615,000	27,546,591	247,142,000	33,250,974	17,748,498

	2022	11,583,698	315,510,359	19,662,000	198,770,000	22,818,302	279,769,286	65,520,213	21,337,890
KCB Bank	2014	16848863.00	490338324.000	8875944	283732205	97197974.00	338995357.000	57949854	35948695.00
	2015	19623071.00	558094154.000	15425647	345968686	96948578.00	397490368.000	61562175	39294522.00
	2016	19,722,447	504,777,674	27,202,975	385,745,331	11,374,751	430,839,000	71,439,045	29,702,503
	2017	19,235,300	555,630,311	32,371,150	422,684,637	11,288,063	483,986,000	73,830,449	33,529,726
	2018	22,410,707	621,722,876	28,572,777	455,880,284	11,062,802	537,572,619	77,878,550	31,485,320
	2019	22,705,901	674,302,000	34,786,000	468,258,000	42,222,221	577,236,270	87,288,419	39,213,787
	2020	51,558,109	758,345,000	66,810,000	544,837,000	33,436,981	654,393,000	90,982,577	33,529,726
	2021	43,281,911	826,395,000	92,193,000	584,441,000	37,047,141	676,511,000	100,643,758	31,485,320
	2022	43,839,393	971,352,761	129,110,000	676,648,000	42,349,906	792,142,822	114,700,017	39,213,787
Kingdom Bank Limited-Jamii Bora Bank Limited	2014	19688.000	13117893.000	513411	6189799	574619.000	8708542.000	96270	583507.000
	2015	17737.000	16781543.000	525542	10155694	1086007.000	14150605.000	36418	732759.000
	2016	-167,704	15,779,873	1,609,057	9,356,471	691,139	13,888,000	-	
	2017	-473,037	12,882,646	1,106,163	8,310,978	171,386	12,156,000	-	
	2018	-695,584	9,683,856	4,975,285	6,330,045	93,553	5,593,083	1,238,731	611,071
	2019	-1,063,236	9,169,794	6,083,000	10,766,000	280,562	8,147,944	800,087	1,383,957
	2020	-200,904	30,612,000	6,787,000	8,907,000	545,670	7,427,000	1,867,621	1,737,412

	2021	497,793	31,691,000	6,010,000	8,072,000	649,203	7,058,000	3,247,257	2,294,492
	2022	930,169	34,659,895	4,512,000	9,154,000	1,019,517	10,239,032	3,593,638	2,191,574
Mayfair Bank Ltd Commercial International Bank (CIB)	2016							-	
	2017						1,237,000	-	
	2018	- 267,653	6,856,572				2,475,148	-	534,421
	2019	- 365,879	8,652,000	67,000	4,606,000	651,658	5,836,904	687,626	597,198
	2020	- 379,274	12,729,000	129,000	5,056,000	1,005,909	7,625,000	1,106,273	896,868
	2021	96,094	13,461,000	212,000	5,649,000	2,130,423	10,170,000	1,428,562	800,534
	2022	444,899	12,929,077	876,000	5,301,000	976,776	9,873,677	1,423,554	945,041
Middle East Bank (K) Ltd	2016	- 66,285	5,233,522	574,987	3,616,626	301,026	3,749,000	703,403	369,675
	2017	- 25,188	5,121,036	500,314	2,769,120	810,308	2,717,000	563,471	301,345
	2018	2,611	5,360,864	979,273	2,560,398	353,903	8,674,913	585,559	328,162
	2019	3,614	8,466,000	870,000	6,153,000	121,097	3,506,605	848,346	467,037
	2020	125,953	11,022,000	790,000	7,639,000	767,573	4,371,000	1,131,468	455,585
	2021	123,400	11,186,000	524,000	6,648,000	749,081	5,128,000	1,244,672	523,997
	2022	403,307	12,962,188	421,000	6,132,000	1,054,585	6,277,369	1,812,660	596,438
M-Oriental Bank Kenya Ltd	2016	33,686	9,920,247	545,199	6,638,054	794,751	7,207,000	-	702,647

	2017	96,510	10,576,525	522,138	7,272,765	974,582	8,506,000	-	667,470
	2018	82,446	10,515,015	705,105	7,502,022	1,161,044	4,303,343	-	595,858
	2019		12,394,000	1,411,000	7,455,000		7,858,628	-	570,994
	2020		12,985,000	1,812,000	7,742,000		8,712,000	-	
	2021		13,657,000	1,934,000	7,212,000		9,117,000	-	
	2022		13,333,772	1,653,000	8,226,000		9,125,698	-	
National Bank of Kenya	2014	870702.000	123091996.000	7809624	65641491	17195213.000	80433021.000	2431685	6797451.000
	2015	-1153477.000	125440316.000	7569018	67803990	16438119.000	75266076.000	-1637985	6397539.000
	2016	70,953	111,929,158	9,625,269	55,019,784	8,559,339	88,325,000	14,957,864	10,509,250
	2017	785,082	109,873,140	15,712,346	52,361,043	7,500,172	87,998,000	12,334,240	8,339,502
	2018	-84,901	114,849,105	18,696,293	47,778,777	6,117,711	92,765,531	11,031,475	7,534,290
	2019	-336,992	112,029,000	25,175,000	60,677,000	12,680,512	67,262,493	11,084,069	9,165,515
	2020	177,731	126,842,000	26,438,000	74,774,000	4,850,916	76,037,000	11,606,320	8,581,672
	2021	1,017,590	146,543,000	26,542,000	79,236,000	8,973,946	81,309,000	14,087,575	8,724,070
	2022	719,779	142,769,274	18,496,000	83,851,000	5,239,112	90,363,905	15,511,340	10,515,743
Paramount Bank Ltd	2014	147846.000	10402326.000	293831	4447617	500069.000	5404156.000	160871	337640.000
	2015	158025.000	10525709.000	304891	5871717	1007873.000	6349081.000	168876	556432.000
	2016	106,439	9,427,841	479,961	5,799,443	765,418	5,979,000		

								-	376,387
	2017	117,498	9,541,086	623,315	5,902,031	1,100,274	5,974,000	-	377,310
	2018	236,292	9,886,573	743,922	5,642,627	1,234,438	5,517,940	-	331,561
	2019		10,443,000	1,263,000	7,177,000		5,517,940	-	383,313
	2020		11,378,000	1,346,000	7,883,000		7,064,000	-	
	2021		12,448,000	1,518,000	7,934,000		6,721,000	-	
	2022		13,813,300	1,811,000	8,708,000		7,910,235	-	
Prime Bank	2014	1736019.00	54917674.00	461601	34481269	2485435.00	40099676.00	3945368	2971814.00
	2015	2023189.00	65001313.00	697679	41047741	3735407.00	48318393.00	4511105	3350058.00
	2016	1,903,776	65,335,455	1,423,391	39,356,307	2,699,890	48,576,000	8,571,711	2,207,942
	2017	2,245,143	77,987,909	1,895,198	38,965,591	4,767,410	52,478,000	8,379,400	2,660,963
	2018	2,274,052	100,135,959	2,229,699	36,776,526	8,768,933	53,829,261	8,895,773	2,562,153
	2019	2,443,592	108,786,000	4,555,000	38,932,000	5,774,164	53,266,941	10,314,092	3,010,125
	2020	2,114,146	116,204,000	4,838,000	44,531,000	5,238,349	58,365,000	10,764,578	3,902,674
	2021	3,020,771	126,482,000	5,199,000	47,577,000	5,961,772	59,274,000	11,718,618	3,714,658
	2022	3,541,147	140,402,895	5,870,000	44,469,000	5,918,614	72,071,335	13,171,356	3,747,167
SBM Bank Kenya Ltd	2016	-	1,859,568	9,902,771	4,306,872	4,876,333	298,158	1,783,548	2,954,352
	2017	-	330,104	11,745,145	3,207,495	4,399,953	1,010,969	840,274	724,066

	2018	1,324,205	70,654,062	15,291,505	12,206,233	7,854,243	28,664,566	6,250,049	3,831,748
	2019	903,874	72,519,000	14,980,000	27,226,000	4,248,348	33,983,208	9,794,336	5,119,879
	2020	654,653	79,190,000	16,225,000	36,760,000	5,448,171	46,180,000	9,379,453	5,144,447
	2021	346,766	81,958,000	12,850,000	37,408,000	4,232,124	49,250,000	10,195,013	5,777,021
	2022	130,457	81,757,793	13,190,000	48,913,000	2,833,798	54,382,829	10,081,256	5,109,677
Sidian Bank	2014	514044.000	15801439.000	776423	10453714	2668823.000	11571533.000	2153072	1660452.000
	2015	372320.000	19106556.000	1607630	12519387	2978963.000	15340370.000	2084048	1656889.000
	2016	28,048	20,875,499	3,200,943	13,434,572	3,101,778	16,420,000	3,691,945	2,435,181
	2017	-421,810	19,301,752	3,171,556	11,409,325	3,842,281	20,377,000	2,670,247	2,336,613
	2018	-377,883	25,308,924	2,673,011	13,134,315	2,140,314	27,021,094	3,163,306	2,669,950
	2019	89,415	26,452,000	3,258,000	15,846,000	3,306,661	27,479,534	3,530,169	2,266,218
	2020	62,449	33,500,000	2,337,000	20,409,000	2,716,175	31,047,000	3,827,549	2,095,241
	2021	485,897	41,410,000	2,820,000	23,834,000	2,640,019	34,874,000	5,136,440	2,427,041
	2022	392,419	42,585,542	2,880,000	24,920,000	1,803,713	35,155,429	6,009,724	2,730,721
Spire Bank Limited	2016	-751,623	13,802,498	1,246,425	7,433,605	983,029	11,646,000	-	1,810,072
	2017	-1,126,048	11,147,949	2,237,236	5,238,814	340,198	9,537,000	-	2,126,001
	2018	-2,254,919	9,223,078	2,488,611	4,445,622	410,561	7,099	-	318,047
	2019	-472,037	6,860,000	2,632,000	5,114,000	140,385	6,463,765	-	261,897

	2020		5,114,000	2,711,000	3,827,000		4,263,000	-	
	2021	-1,167,457	3,855,000	2,587,000	3,405,000	38,080	2,638,000	70,518	1,064,254
	2022		2,882,182	2,765,000	4,090,000		2,235,723	-	
Stanbic Bank Kenya Ltd	2016	4,425,402	204,895,157	5,834,603	115,587,723	8,621,228	179,751,000	24,483,602	10,953,497
	2017	4,309,494	239,407,877	8,694,793	130,535,814	8,044,783	206,090,000	24,652,262	13,048,145
	2018	6,227,166	280,953,012	13,852,115	146,604,117	22,061,875	227,294,222	28,304,268	12,349,293
	2019	6,222,144	292,705,000	19,345,000	163,859,000	26,758,586	238,222,002	31,211,430	15,306,670
	2020	5,224,001	318,986,000	25,038,000	176,597,000	18,076,937	256,472,000	29,513,837	15,735,968
	2021	7,066,497	319,199,000	22,504,000	200,941,000	21,751,167	288,178,000	30,516,083	14,700,942
	2022	9,088,709	390,319,664	28,450,000	253,959,000	20,771,424	339,606,832	38,364,862	19,002,759
Standard Chartered Bank	2014	10436180.000	222495824.000	8887564	122749233	15383312.000	183104659.000	26074678	17904721.000
	2015	6342427.000	233965447.000	11681664	115125427	14240581.000	189747429.000	25365149	18116032.000
	2016	9,049,307	250,274,108	10,166,807	122,711,038	15,513,554	201,321,000	33,719,364	14,546,775
	2017	6,914,098	285,724,441	11,317,708	126,294,470	13,341,592	228,112,000	34,255,629	17,008,729
	2018	8,099,193	284,691,002	13,871,270	118,651,550	20,283,711	214,581,736	35,201,746	16,270,783
	2019	8,989,560	302,296,000	20,058,000	144,483,000	20,621,213	242,802,511	34,672,867	16,162,354
	2020	5,329,501	325,873,000	22,337,000	152,711,000	20,619,064	247,251,000	33,167,680	19,749,548
	2021	8,980,536	335,111,000	23,283,000	147,917,000	23,700,451	262,840,000	32,639,546	16,087,024

	2022	12,436,924	381,630,646	22,577,000	159,083,000	23,257,306	274,257,322	36,777,328	16,371,922
UBA Kenya Bank Ltd	2014	-282040.000	4755787.000	46224	734061	485252.000	1943047.000	246044	64686.000
	2015	-262653.000	7781237.000	49137	2733280	243066.000	4703784.000	348930	110495.000
	2016	24,298	5,601,281	56,752	3,058,201	205,277	5,541,000	892,207	539,147
	2017	18,609	6,504,732	142,481	3,270,289	476,684	5,575,000	853,566	589,030
	2018	53,063	15,332,118	440,027	3,447,577	1,317,998	6,557,499	1,347,240	679,461
	2019	43,082	16,088,000	883,000	3,841,000	411,580	8,837,363	1,717,193	836,870
	2020	39,494	18,743,000	1,295,000	3,178,000	669,316	7,426,000	1,910,021	993,894
	2021	-1,679,089	13,598,000	1,342,000	2,808,000	760,941	6,545,000	595,327	1,309,460
	2022	-436,502	16,290,399	961,000	3,525,000	1,116,736	9,158,894	1,868,645	1,890,259
Victoria Commercial Bank Limited	2016	592,395	22,403,481	-	15,292,829	1,339,265	19,599,000	2,718,881	607,571
	2017	617,177	25,985,160	15,159	18,870,101	1,748,562	24,265,000	2,904,355	758,505
	2018	437,004	32,336,955	696,424	22,586,671	2,640,188	29,424,874	3,406,401	785,019
	2019	527,145	36,072,000	1,204,000	24,542,000	2,812,337	31,604,573	3,930,455	906,795
	2020	511,915	37,890,000	1,679,000	25,442,000	2,662,502	35,151,000	3,983,094	915,248
	2021	466,511	43,471,000	4,342,000	31,291,000	2,384,445	41,194,000	4,466,733	1,021,976
	2022	649,484	52,082,032	4,563,000	37,477,000	2,958,774	50,279,293	5,318,547	1,215,257

## Appendix II: Commercial Banks in Kenya

1. Absa Bank Kenya
2. Access Bank Kenya
3. African Banking Corporation
4. Bank of Africa Kenya
5. Bank of Baroda (K)
6. Bank of India
7. Citibank N.A.
8. Consolidated Bank of Kenya
9. Co-operative Bank of Kenya
10. Credit Bank
11. Development Bank (K)
12. Diamond Trust Bank
13. Dubai Bank
14. Ecobank Limited
15. Equity Bank
16. Family Bank
17. First Community Bank
18. Guaranty Trust Bank Kenya
19. Guardian Bank
20. Gulf African Bank
21. Habib Bank A.G. Zurich
22. I & M Bank
23. Kenya Commercial Bank
24. Kingdom Bank
25. Mayfair Bank
26. Middle East Bank (K)
27. National Bank of Kenya
28. NCBA Bank
29. Oriental Bank
30. Paramount Universal Bank
31. Prime Bank
32. SBM Bank Kenya
33. Sidian Bank
34. Spire Bank
35. Stanbic Bank
36. Standard Chartered Bank (K)
37. UBA Kenya Bank
38. Victoria Commercial Bank

Source: CBK (2023)



### Appendix III: NACOSTI LICENCE

  
**REPUBLIC OF KENYA**

  
**NATIONAL COMMISSION FOR  
SCIENCE, TECHNOLOGY & INNOVATION**

RefNo: **397957** Date of Issue: **17/April/2024**

**RESEARCH LICENSE**



**This is to Certify that Mr. mbogo felix nyaga of Mount Kenya University, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in Nairobi on the topic: RISK MANAGEMENT AND FINANCIAL PERFORMANCE OF COMMERCIAL BANKS IN KENYA for the period ending : 17/April/2025.**

License No: **NACOSTI/P/24/34595**

**397957**  
Applicant Identification Number

  
Director General  
**NATIONAL COMMISSION FOR  
SCIENCE, TECHNOLOGY &  
INNOVATION**

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## Appendix IV: IERC LETTER



# Mount Kenya University

## DIRECTORATE OF GRADUATE STUDIES

MBA/2021/41449

4<sup>th</sup> April, 2024

National Commission for Science Technology & Innovation (NACOSTI)  
Off Waiyaki Way, Upper Kabete,  
P.O Box 30623- 00100  
NAIROBI, KENYA

Dear Sir/Madam,


**RE: FELIX NYAGA MBOGO - REGISTRATION NO. MBA/2021/41449**

The purpose of this letter is to introduce the above named student who is pursuing **Master of Business Administration** in the department of **Accounting and Finance** in the school of **Business and Economics**.

The title of the research is "**Risk Management and Financial Performance of Commercial Banks in Kenya.**" It has been cleared by the University's Ethics Review Committee (Certificate attached) and now has to proceed to the field to collect data between **April, 2024 and June, 2024.**

Any assistance accorded to the student will be highly appreciated

Thank you.

  
Dr. Samuel M. Karenga, Ph.D  
Director, Graduate Studies  
Enc.

Mount Kenya University  
P. O. Box 342 - 01000, THIKA  
Office of the Director  
Graduate Studies

## Appendix V: TURNITIN REPORT

FELIX_NYAGA_MBOGO_MBA_PROJECT_updated_07_02_2025....			
ORIGINALITY REPORT			
8%	6%	7%	3%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS
PRIMARY SOURCES			
1	<a href="http://erepository.uonbi.ac.ke">erepository.uonbi.ac.ke</a> Internet Source		1%
2	Ajufunbaya, Kamaldeen Olaitan. "Credit Risk Management, Financial Reforms and Financial Performance of Selected Deposit Money Banks in Nigeria", Kwara State University (Nigeria), 2024 Publication		1%
3	<a href="http://idr.kab.ac.ug">idr.kab.ac.ug</a> Internet Source		<1%
4	Submitted to Kenyatta University Student Paper		<1%
5	<a href="http://www.coursehero.com">www.coursehero.com</a> Internet Source		<1%
6	<a href="http://ir.jkuat.ac.ke">ir.jkuat.ac.ke</a> Internet Source		<1%
7	<a href="http://ir-library.egerton.ac.ke">ir-library.egerton.ac.ke</a> Internet Source		<1%
8	Submitted to University of Southampton Student Paper		<1%
9	Benjamin Blandful Cobbinah, Wen Yang, Francis Atta Sarpong, George Nyantakyi. "From risk to reward: Unveiling the multidimensional impact of financial risks on the performance of Ghanaian banks", Heliyon, 2024 Publication		<1%
10	<a href="http://pdfs.semanticscholar.org">pdfs.semanticscholar.org</a> Internet Source		<1%
11	Chanaba, Juan C.. "Impact of Credit Risk in Profitability Ratios on Commercial Banks in Ecuador.", Northcentral University, 2020 Publication		<1%
12	Chakahwata, Cynthia. "The Effectiveness of Banking Sector Reforms on Financial Intermediation in African Countries", University of the Witwatersrand		<1%