

**FINANCIAL RISKS MANAGEMENT AND FINANCIAL PERFORMANCE OF TIER III  
COMMERCIAL BANKS IN KENYA**

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## **DECLARATION**

I declare that this project is my original work and has not been presented for a degree in any other university or for any other award. No part of this project may be produced without prior authority of the author and/or Kenyatta University

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## **DECLARATION BY THE SUPERVISOR**

I confirm that this project was undertaken by the student under my guidance as the university appointed supervisor

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## **DEDICATION**

Thus project is dedicated to my family, whose unwavering aid, encouragement and love have been a fountain of strength. To my wife Muna Abdirahman, my children Muadh and Abdirahman for their prayers and presence in this research. I also dedicate this project to my parents who persistently encouraged me throughout my research process.

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## **ABBREVIATIONS AND ACRONYMS**

<b>ALR</b>	Asset-Liability Ratio
<b>CAR</b>	Capital Adequacy Ratio
<b>CBK</b>	Central Bank of Kenya
<b>COVID-19</b>	Corona Virus Disease of 2019
<b>GMM</b>	Generalized Method of Moments
<b>JSE</b>	Johannesburg Stock Exchange
<b>LCR</b>	Liquidity Coverage Ratio
<b>LR</b>	Loan Ratio
<b>NACOSTI</b>	National Commission for Science and Technology
<b>NIM</b>	Net Interest Margin
<b>NPLs</b>	Non-Performing Loans
<b>ROA</b>	Return on Assets
<b>ROE</b>	Return on Equity
<b>SPSS</b>	Statistical Package for Social Sciences
<b>VIF</b>	Variance Inflation Factors

## OPERATIONAL DEFINITION OF TERMS

<b>Financial performance</b>	Evaluation of an organization's fiscal stability and profitability potential, considering its revenue, assets and shareholders' equity within a designated timeframe. Measured using ROA ratio.
<b>Financial risk</b>	Chance of incurring financial loss or experiencing adverse financial outcomes due to multifaceted influences, including market fluctuations, credit and operational challenges. It was measured by operational, credit, liquidity and market risk.
<b>Operational risk</b>	Loss potential emanating from deficient ineffectual internal processes, external events, people and systems. Measured by Operating expenses/operating income ratio
<b>Credit risk</b>	Denotes likelihood of a borrower defaulting on their contractual commitments, causing potential financial setbacks to the lender. Indicated by non-performing loans ratio.
<b>Liquidity risk</b>	Denotes the risk an organization encounters when its liquid resources are insufficient to cover immediate liabilities, particularly when converting assets into cash would require steep discounts or result in unfavorable financial outcomes.

**Market risk**

Monetary loss risk arising from market asset prices changes.

## ABSTRACT

Kenya commercial banks' financial performance is influenced by myriad of challenges that can impact their profitability, operational efficiency and overall stability. Therefore, this review endeavored to ascertain financial risks impacts on Kenya's commercial banks financial performance, specifically targeting operational, credit, liquidity and market risk impacts. Theories of Miller and Modigliani, financial distress, financial intermediation and modern portfolio underpinned the review. Employing descriptive research, all 22 tier III banks formed the target populace and census was used. Financial data was collated from existing published statements using secondary designated collection sheet from 2019-2023. Data collected was analyzed via descriptive techniques (mean, median and standard deviation) and inferential statistics (multiple regression). Findings were organized and depicted clearly, using tables. Diagnostic assessments encompassed multi-collinearity, normality, heteroscedasticity, stationarity, Housman and autocorrelation. Ethical considerations was prioritized and observed at every step. The study revealed that operational, credit, liquidity and market risks had a positive significant effect on Tier III Kenya's commercial banks' financial performance. The research concludes that operational risks have the potential to result in operational failures, which may incur additional costs for mitigation and compliance, thereby placing financial strain on banks. The credit risk may occur in a situation whereby the bank does not effectively evaluate the borrower's creditworthiness resulting to increased number of loan defaulters which also leads to more provisioning costs for bad debts affecting negatively the bank's profitability. The existence of liquidity risk can hinder a bank's ability to effectively manage its liquidity, leading to increased costs related to borrowed funds necessary to meet its obligations, which ultimately diminishes profit margins and impacts the bank's overall financial performance. Fluctuations in interest rates have an impact on the net interest income of banks, which constitutes their revenue stream. This can lead to a reduction in their ability to adapt to such changes, thereby influencing their financial performance. The research suggests that Tier III banks ought to improve their investment in technology by upgrading their information technology systems and implementing more advanced security protocols to reduce the risk of cyber threats. The Tier III banks should adopt a diversified loan portfolio to minimize more reliance of certain industries that could bring higher risks upon economic fluctuations. Tier III banks can properly manage liquidity risks through maintenance of a larger financing base like deposits, loans and other sources of capital mix. The Tier III banks should adopt a comprehensive structure managing risks, carry out a frequent stress test and have a more diversified lending portfolio to solve the possible losses.

# **CHAPTER ONE**

## **INTRODUCTION**

### **1.1 Background to the Study**

Commercial banks aim to enhance their financial performance through a variety of strategic initiatives and operational improvements with the aim of building a resilient and sustainable business model that can adapt to the changing landscape of the financial industry (Elamer & Benyazid, 2018). According to Liang, Wang and Dawes Farquhar (2021), banks seek to increase their income by expanding their product and service offerings, entering new markets, and attracting a larger customer base. This may involve developing innovative financial products, such as new investment vehicles or digital banking solutions, to meet the evolving needs of consumers and businesses.

Adeusi, Akeke, Adebisi and Oladunjoye (2019) establishes effective risk management as organizational success cornerstone, crucial in ensuring financial stability and enhancing overall performance. This is because in current's complex and fast-paced business environment, organizations recognize the importance of proactively addressing potential risks that could jeopardize their operations and financial health. Elamer and Benyazid (2023) observe that to navigate diverse risk categories, organizations develop comprehensive risk management frameworks that encompass policies, procedures, and governance structures. These frameworks provide a systematic approach to risk assessment and management, helping organizations proactively detect emerging risks and establish effective countermeasures to safeguard operations.

Elamer and Benyazid (2018) highlight that financial risk management integration by international financial institutions is vital in enhancing their financial performance. Globally, international financial institutions in United States and United Kingdom have implemented advanced risk

management practices that have significantly improved their resilience during economic downturns. The 2008 financial crisis highlighted robust risk management systems' prominence, prompting several institutions to enhance their risk assessment methodologies and stress testing capabilities. As a result, these institutions have been able to maintain stability and protect their assets, leading to improved financial performance in the long run (Bastomi, Salim & Aisjah, 2021; Poudel, 2022).

Silva, Silva and Chan (2019) point that financial risk management integration in Brazil has facilitated greater access to international capital markets whereby by demonstrating a commitment to sound risk management practices, the country has attracted foreign investment, which has contributed to economic growth and development. De-Oliveira, Basso, Kimura and Sobreiro (2022) observe that the adoption of technology and data analytics in financial risk management has transformed the way Brazilian financial institutions operate enabling these institutions can identify potential risks more accurately and respond proactively. This technological advancement not only improves risk management efficiency but also enhances decision-making processes, leading to better financial outcomes.

Munangi and Sibindi (2020) observe that South Africa's financial institutions have embraced comprehensive risk assessment frameworks encompassing wide range of financial risks, including credit, market, operational, and liquidity risks. Chiliya, Rungani, Chiliya and Chikandiwa (2022) observe that implementation of advanced analytics and stress testing has allowed these institutions to better anticipate potential financial shocks, thereby positioning themselves to respond more effectively to adverse economic conditions contributing to a more resilient banking sector, which is crucial for maintaining investor confidence and fostering economic growth. Therefore, by

systematically identifying, measuring, and mitigating these risks, South African banks have not only enhanced their stability but also improved their profitability.

According to Adeusi, Akeke, Adebisi and Oladunjoye (2019) Nigeria banks have recognized vitality of robust risk management strategies in achieving favorable fiscal outcomes and the Nigerian financial sector has faced numerous challenges, including economic volatility and regulatory changes. Chiliya, Rungani, Chiliya and Chikandiwa (2022) observe that many banks in Nigeria have developed and implemented comprehensive risk management frameworks that prioritize risk identification and mitigation including the use of technology to enhance data analysis and reporting, as well as the establishment of dedicated risk management teams tasked with overseeing compliance and risk exposure. As a result, Nigerian banks have reported improved financial performance, characterized by increased profitability and reduced non-performing loans.

In Kenya, Otieno, Nyagol and Onditi (2020) observe that the Central Bank has established various guidelines and regulations aimed at promoting sound risk management practices among financial institutions and through adhering to these regulations, banks not only avoid potential penalties but also position themselves as responsible entities in the eyes of regulators and the public. Lelgo and Obwogi (2022) posits that financial risk management integration within financial institutions in Kenya is not merely a regulatory requirement but a strategic imperative that significantly enhances their financial performance. This compliance can further strengthen financial outcomes by curbing expenditures linked to regulatory breaches and fostering a stable operating environment. Therefore, by improving decision-making, fostering transparency, ensuring regulatory compliance, and facilitating better capital allocation, banks can navigate the challenges of the financial landscape more effectively.

### **1.1.1 Financial performance**

This is a comprehensive company's fiscal health evaluation, encompassing various dimensions that reflect its potential in profit generation, manage expenses and provide value to stakeholders, like employees, shareholders, broader community and customers (Fatihudin, 2018). This evaluation is crucial for understanding how well a company is positioned in its industry and how effectively it is utilizing its resources to achieve its financial goals. Waddock and Graves (2022) accentuate vitality of profitability as financial performance fundamental measure. Profitability is not merely a reflection of a company's ability to earn money; it also functions as a vital metric reflecting organization's knack to operate efficiently and execute strategic goals effectively.

Barker (2020) argues for including market performance metrics, like stock price growth and market capitalization, in assessing a company's financial performance. This approach broadens success evaluation beyond traditional indicators focused on internal efficiency and profitability. Purdy, Langemeier, and Featherstone (2021) support this view, emphasizing that financial success is influenced not only internally but also externally like investor sentiment and market trends. In addition, recognizing market performance metrics allows commercial banks to align their strategies with investor expectations and market dynamics, enhancing their public image and investor relations. Therefore, integrating market performance metrics into financial assessments marks a significant evolution in evaluating corporate success in today's complex economy.

Collison, Cobb, Power, and Stevenson (2023) present a framework for understanding financial performance by integrating liquidity and solvency ratios. This highlights the importance of a bank's capacity to cover short-term liabilities, essential for operational continuity and avoiding financial distress. Liquidity ratios, like the current and quick ratios, indicate short-term financial health by showing the capacity to convert assets into cash for immediate liabilities. Supporting this, Smith

and Taffler (2022) identify key metrics for evaluating liquidity and solvency, including the current ratio, debt-to-equity and quick ratio. Together, these insights emphasize the need for a balanced approach to liquidity and solvency in assessing fiscal performance. However, Return on Assets (ROA) measured commercial banks' financial performance.

ROA is a vital financial indicator assessing how adeptly a bank leverages its assets to optimize revenue streams, reflecting overall operational performance and managerial effectiveness, allowing stakeholders to evaluate bank's ability to convert investments in assets into net income (Lassala, Apetrei & Sapena, 2017). Alie, Hermansyah, Maryana and Oktaria (2023) observe that a higher ROA reflects effective asset management and operational efficiency, making it an important metric for investors, analysts, and company management alike. Therefore, by understanding and leveraging ROA, stakeholders can obtain clearer understanding of commercial bank's financial stability and operational performance.

### **1.1.2 Financial Risks**

Financial risk is generally chance of incurring financial loss or experiencing adverse financial outcomes due to multifaceted influences, including market fluctuations, credit and operational challenges (Dionne, 2021). Financial risk is frequently analyzed by Adler and Dumas (2023) through quantitative models that assess the likelihood and impact of various risk factors. These models help organizations and investors make informed decisions by quantifying potential losses and identifying risk mitigation strategies. Therefore, through this definition stakeholders are able to navigate the financial landscape effectively and to implement robust risk management practices.

Gabriel and Baker (2022) provide a comprehensive analysis of financial risk, specifically focusing on market risk as the potential for financial losses that arise from market conditions shifts,

particularly fluctuations in market prices and interest rates which reflects the uncertainty associated with the overall market environment. Kuritzkes (2022) define financial risk in terms of operational risk, encompassing loss potential emanating from deficient ineffectual internal processes, external events, systems and people. This broad spectrum of definitions underscores the complexity of financial risk and comprehensive risk management strategies need. Further, Central Bank of Kenya categorizes risk into the following: Strategic, credit, liquidity, market, operational, information and communication technology, reputational, compliance and country/transfer risks (CBK, 2013). Therefore, operational, credit, liquidity and market risk operationalized financial risk in this review.

Fadun & Oye (2020) observe operational risk as loss potential emanating from deficient ineffectual internal processes, external events, people and systems and encompasses diverse risks like fraudulent behavior, system outages, human errors and natural calamities. Santika, Fakhrgozy, Nur and Lestari (2022) observe that when operational risks are realized, companies often incur costs related to fixing the issues, such as hiring consultants, implementing new systems, or training employees. Therefore, operational risk is a multifaceted challenge that can have far-reaching consequences for a company's financial health.

Credit risk denotes likelihood of a borrower defaulting on their contractual commitments, causing potential financial setbacks for the lender and may arise from various sources, including loans, bonds and other forms of credit exposure (Al-Eitan & Bani-Khalid, 2019). Otieno, Nyagol and Onditi (2021) observe that credit risk directly affects a financial institution's profitability. High non-performing loans (NPLs) levels can lead to increased provisions for loan losses, which reduce net income. Conversely, effective credit risk management can enhance profitability by curtailing losses and optimizing the risk-return profile of the loan portfolio.

Liquidity risk emerges when an organization lacks capacity to liquidate assets without enduring considerable value reduction and it's particularly pertinent in financial markets, where the ability to buy or sell assets quickly can be crucial for maintaining operational stability (Effiong & Ejabu, 2020). According to Ariffin (2022), liquidity risk directly affects an organization's cash flow though insufficient liquidity can lead to cash flow shortages, making it difficult to pay suppliers, employees, and other operational expenses which precipitate operational disturbances and harm supplier relationships.

Market risk encompasses losses risk in financial markets owing to factors that affect entire market or a particular segment of it which include economic changes, interest rate, currency exchange rate and commodity prices fluctuations (Ekinici, 2019). According to Heckmann, Comes and Nickel (2023), market risk can lead to unpredictable revenue streams since a decline in consumer demand due to economic downturns can reduce sales, directly impacting revenue. In addition, companies may become more conservative in their investment strategies during periods of high market risk, potentially leading to missed opportunities for growth and innovation.

### **1.1.3 Commercial Banks in Kenya**

Kenyan commercial banks operate within Central Bank of Kenya (CBK) regulatory scope. CBK's roles include designing and enforcing monetary policy, overseeing banking industry and maintaining financial stability. These banks deliver diverse financial offerings such as deposit accounts like savings, current and fixed deposits; credit products like personal, business, mortgage and overdraft loans; investment solutions spanning foreign exchange services, such as cross-border remittances and currency conversions, wealth advisory, brokerage facilitation and strategic asset management; alongside mobile banking interfaces that empower users to execute financial

transactions seamlessly through handheld digital devices, enhancing accessibility and real-time engagement.

Kenyan banks have consistently reported a healthy ROA, often averaging between 2% to 3% over the past few years. This indicates efficient management of assets to generate profits. Kenyan banks ROE has been robust, often exceeding 15%. This reflects the banks' ability to generate returns for their shareholders. The Net Interest Margin (NIM) for Kenyan banks has remained relatively stable, typically ranging from 4% to 6%. This margin is indicative of the banks' ability to manage interest income and expenses effectively. Their total assets have also shown consistent growth, often increasing by 10% to 15% annually. This growth is driven by an increase in customer deposits, which have also seen similar growth rates. The total deposits in the banking sector have surpassed KES 4 trillion, indicating a strong public confidence in the banking system (CBK, 2023).

## **1.2 Statement of the Problem**

Kenyan commercial banks' financial performance has come under scrutiny recently. CBK's 2023 report shows that average ROA is below regional average, indicating asset utilization inefficiencies. Decline in ROE has also been reported by many banks, with figures falling below the 10% benchmark for strong performance. Additionally, the Non-Performing Loan (NPL) ratio exceeds 12% in some institutions, well above the regulatory limit of 5%, raising concerns about loan quality and credit risk management. Many banks struggle to maintain a Liquidity Coverage Ratio (LCR) above the 100% minimum, indicating liquidity issues. While the minimum Capital Adequacy Ratio (CAR) is 14.5%, some banks are close to this threshold, questioning their ability to absorb losses. The 2016 interest rate cap has also negatively impacted profitability by constraining competitive loan pricing and reducing net interest margins.

Inadequate management of financial risk has also been a substantial concern, particularly the country's evolving economic landscape. For instance, the report indicate that NPL ratio in Kenya has fluctuated, with figures hovering around 13% in 2022, indicating non-repayment of significant loan portions. This is a clear indicator of credit risk management inadequacies. The average lending rate has been reported to fluctuate between 12% and 14%, impacting banks' profitability and risk management strategies. The Liquidity Coverage Ratio (LCR) for many banks has been reported to be below the recommended levels, indicating potential liquidity risk. A ratio below 100% suggests that banks have deficient liquid assets to cover current debts. Growing dependence on technological advancements in banking operations has ushered novel operational risks. Cybersecurity threats have become a pressing concern, with reports indicating that Kenyan banks have faced numerous cyberattacks, leading to financial losses and reputational damage.

Juma & Atheru (2018) established a substantial foreign exchange risk negative correlation with ROA. They identified a conceptual gap, noting strong correlations between liquidity, credit, market, and operational risks and financial performance, but their reliance on primary data posed a methodological issue. Baraza (2020) also studied financial risk's influence on banks listed on the Nairobi Securities Exchange, while Mwanzia (2021) found weak insignificant financial performance relationship with both liquidity and credit risk management. Mwanzia's examination was limited to 2016-2020, highlighting a contextual gap. Therefore, this review endeavored to ascertain financial risks impacts on Kenya's banks fiscal performance.

### **1.3 Objectives of the Study**

#### **1.3.1 General Objective**

The review generally purposed to ascertain financial risks impacts on Kenya's Tier III commercial banks' financial performance.

### **1.3.2 Specific Objectives**

- i. To examine the effect of operational risk on financial performance of Tier III commercial banks in Kenya,
- ii. To ascertain the effect of credit risk on financial performance of Tier III commercial banks in Kenya.
- iii. To establish the effect of liquidity risk on financial performance of Tier III commercial banks in Kenya,
- iv. To find out the effect of market risk on financial performance of Tier III commercial banks in Kenya,

### **1.4 Research Hypotheses**

**HO<sub>1</sub>:** Operational risk has no significant effect on financial performance of Tier III commercial banks in Kenya,

**HO<sub>2</sub>:** Credit risk has no significant effect on financial performance of Tier III commercial banks in Kenya,

**HO<sub>3</sub>:** Liquidity risk has no significant effect on financial performance of Tier III commercial banks in Kenya,

**HO<sub>4</sub>:** Market risk has no significant effect on financial performance of Tier III commercial banks in Kenya,

### **1.5 Significance of the Study**

Insights would help aid leaders understand the specific financial risks that most significantly affect their institutions by informing them on strategic decision-making, risk management practices, and operational adjustments aimed at enhancing financial performance. Regulatory agencies like CBK, would benefit from the examination insights and guide development of policies and regulations

aimed at risk mitigation and guaranteeing the banking sector's health. The government officials and policymakers could utilize the findings to shape economic policies that boosts banking sectors' financial stability and growth and be aided in crafting interventions that support financial system's resilience.

Investors would gain commercial banks' investments clearer risk-return profile comprehension and also help them make informed decisions regarding their portfolios, assess the viability of investing in specific banks, and understand the potential for returns in relation to the risks involved. The credit rating agencies could use the insights to refine their assessment criteria for evaluating the creditworthiness of commercial banks leading to more accurate ratings, affecting banks' ability to raise capital. Finally, academics and financial analysts would find the study valuable for further research and analysis. The insights could contribute to prior scholarly pieces on financial risk management and banking sector' performance metrics, potentially leading to new models or theories.

### **1.6 Scope of the Study**

The review evaluated financial risks impacts on Kenya's Tier III commercial banks' financial performance. The selected banks to be studied included 22 Tier III banks in Kenya. Financial was operationalized by operational, credit, liquidity and market risk. Financial performance was measured by ROA. The review employed descriptive research and data was obtained from secondary sources. The financial performance was analyzed from 2019 to 2023.

### **1.7 Limitations of the Study**

The review could suffer from incomplete access to secondary data of all 22 tier III Kenya's commercial banks for the target five-year period under focus. This limitation could affect the study

robustness and dependability. To mitigate this limitation impacts, the study took all measures including visiting the respective commercial banks' headquarters in Nairobi, Kenya and regulator, CBK's website to access the relevant data. Additionally, the dynamic nature of Kenyan banking sector regulations could affect performance during the time scope, thus making it relatively difficult to attribute changes on the parameter solely on financial risk management. The researcher took note of the key regulatory changes during the study period and examines their likely impact on performance

### **1.8 Organization of the Study**

The review is systemized into distinct sections. Chapter one introduces the research, outlining background, objectives and scope. Chapter two presents review of relevant literature, highlighting key theories and previous studies. Chapter three describes research methodology, including data collection and analysis techniques. Chapter Four details the study's results alongside discussion, while Chapter Five expounding on key insights into a summary, draws conclusions, offers actionable recommendations and outlines areas for future inquiry.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

Here, research's theoretic structure, empirical assessment, reviewed empirical studies along with identified gaps are advanced concluding with conceptual framework.

#### **2.2 Theoretical Review**

Miller and Modigliani, financial distress, financial intermediation and modern portfolio theories underpin the review.

##### **2.2.1 Miller and Modigliani Theory (MM)**

Miller and Modigliani Theory is a key corporate finance concept introduced by economists Franco Modigliani and Merton H. Miller in 1958. It transformed understanding firm's capital structure relationship with its value. Their first proposition states that in a perfect market without taxes, bankruptcy costs, or asymmetric information a firm's value is unaffected by its financing method, whether through equity or debt. The second proposition indicates that as a firm increases its leverage, the cost of equity rises to offset the higher risk, but the overall weighted average cost of capital remains unchanged.

Glickman (2019) argue that that primary critic of the Miller and Modigliani Theory is its reliance on the perfect capital markets assumption. In reality, markets are often imperfect due to factors such as transaction costs, taxes, and information asymmetries. These imperfections can lead to situations where capital structure does affect firm's value. Brusov, Filatova, Orekhova and Eskinarov (2022) critics about the theory point to behavioral finance as a challenge to the Miller and Modigliani Theory. Investors may not always act rationally, and their perceptions of risk and return can be influenced by psychological factors culminating into market inefficiencies.

MM Theory helps identify several financial risks. For Kenyan banks, effective management of these risks is crucial in sustaining stability and profitability. The theory encourages utilization of risk-adjusted performance metrics to evaluate banks' performance. This is particularly relevant in Kenya, where economic volatility can significantly impact financial outcomes.

### **2.2.2 Financial Distress Theory (FDT)**

Edward I. Altman introduced the financial distress theory in 1968, aiming to systematically assess companies' financial health and predict bankruptcy. He developed the Altman Z-score, a formula that uses various financial ratios profitability, leverage, liquidity, solvency, and activity to evaluate a company's condition. The Z-score combines five key metrics: working capital to total assets, retained earnings to total assets, earnings before interest and taxes to total assets, market value of equity to total liabilities, and sales to total assets, providing a numerical value indicating the likelihood of financial distress. Altman's (1968) work emphasized the importance of early detection of financial issues, allowing stakeholders to take proactive measures. The Z-score has become a vital tool in financial analysis, used by analysts, credit rating agencies, and corporate finance professionals to assess creditworthiness.

Raza, Gillani, Ramakrishnan, Gillani and Imran (2020) criticize the finance distress theory by indicating that it oversimplifies the complex relationship between financial distress and corporate performance, failing to consider various factors like market conditions, management decisions, and industry dynamics. On the other hand, Anvary (2021) contend that the theory's reliance on quantitative metrics, such as debt-to-equity and liquidity ratios, does not fully capture a firm's operational capabilities or strategic positioning. For example, a company with high debt may still have strong cash flows and a competitive edge, suggesting that financial distress may not be as harmful as the theory suggests.

This theory is crucial for analyzing how financial risks affects commercial banks' stability and profitability as it helps identify specific financial risks that can lead to distress. Therefore, by understanding these risks, banks can execute more effective risk management strategies. For instance, FDT emphasizes the importance of maintaining adequate capital reserves and liquidity to absorb shocks from unexpected financial downturns.

### **2.2.3 Theory of Financial Intermediation**

Founded by Allen and Santomero (1998), financial intermediation theory, primarily pegged on information asymmetry concept. It posits that financial intermediaries are present in an economy due to information asymmetry especially between savers and borrowers (Havrychyk & Verdier, 2018). In other words, the driving force in financial intermediation is due to lack of perfect information in the market hence there is need to find a common platform for the stakeholders. Moreover, the motive behind establishment of numerous forms of financial institutions is due to existence of different levels of information asymmetry in the economies (Bongomin, Ntayi, Munene, & Akol, 2017).

This theory has been used in this study as it provides insights on the existence of banks as financial intermediaries between the savers and the lenders. As intermediaries, they exist to make sure the interests of each group are taken care of. By so doing, they have to make sure the businesses are profitable enough to give return on investment to the savers. And therefore, the managers have a duty to make care the financial risks are well taken care of and well managed (Nobili, Scalia, Iannamorelli, & Zaccaria, 2023). Therefore, understanding the theory offers information on existence of different financial risks in the banking sector. In this aspect, many of the risks occurs due to the market's information asymmetry.

#### **2.2.4 Modern Portfolio Theory (MPT)**

MPT, developed by Harry Markowitz in 1952, provides a structure for portfolio optimization, advocating for diversification as a means to reduce overall risk while maximizing returns (Lekovic, 2018). It asserts that individual assets should not be analyzed in isolation but in relation to the overall portfolio, allowing investors, including financial institutions, to construct asset combinations that achieve greater returns without necessarily increasing risk exposure. The theory operates under key assumptions, including investor rationality, risk aversion, a normal distribution of returns, equal access to market information, and the efficiency of financial markets (Yu & Zhang, 2023). Given these premises, MPT has significant implications for commercial banks, especially Tier III institutions in Kenya, where financial risk management directly impacts financial performance.

MPT is crucial in financial risk management by providing a systematic method of evaluating risk and return trade-offs across multiple assets. It allows banks to construct diversified portfolios that mitigate exposure to financial shocks while enhancing expected returns. The theory suggests that financial institutions should assess risk through a multidimensional lens, incorporating insights from various data resources like financial statements, market sentiment and economic indexes. Relying solely on one risk assessment method, such as interpreting news reports, may lead to incomplete evaluations, potentially overlooking critical risk factors embedded in financial reports or macroeconomic data. A holistic approach ensures that banks consider the broader market dynamics affecting financial stability.

Despite its advantages, MPT has notable limitations. One key concern is its reliance on historical data to inform portfolio decisions, which may not account for sudden market disruptions or shifting economic conditions. The assumption that investors behave uniformly and share common risk

preferences overlooks variations in financial strategies and institutional objectives. Additionally, MPT does not inherently predict future events, leaving banks vulnerable to unforeseen financial crises that could significantly alter portfolio performance (Zhang, 2024). Another critique involves the assumption that market volatility follows a normal distribution. Empirical studies have shown that financial returns may exhibit skewness or kurtosis, challenging the conventional risk estimations within MPT (Schulmerich et al., 2015). When combined with measures such as the Sharpe ratio, these assumptions may affect risk-adjusted performance calculations, requiring financial institutions to explore alternative distribution models for more accurate assessments.

This examination underscores the relevance of MPT in structuring investment decisions. Effective diversification strategies and risk assessment models enable banks to mitigate financial vulnerabilities while optimizing profitability. However, the limitations of MPT suggest the need for complementary risk management approaches that account for market uncertainties and institutional variations. By integrating traditional risk evaluation techniques with advanced financial modeling, banks can achieve a more resilient approach to financial performance optimization, ensuring long-term sustainability and competitiveness in the evolving financial landscape.

## **2.3 Empirical Review**

The empirical analysis presented in this section summarizes the findings of previous studies that have investigated similar research specific objectives. These are presented as below;

### **2.3.1 Operational Risk and Financial Performance**

Qabajeh, Almajali, Natour, Alqsass and Maali (2023) studied operational risk impacts on MENA banking sector profitability, using 20 Islamic banks from 12 nations over a decade (2011-2020) with fixed effect models. They analyzed ROA and ROE as indicators of financial health, with

operational risk indicated by efficiency ratio. Outcomes exhibited strong inverse connection between operational risk and profitability, indicating that higher operational risk leads to poor management control, increased operating expenses, and lower profit levels. Nevertheless, both contextual and methodological gaps are presented.

Lyambiko (2019) examined operational risk management impacts on Tanzania's 36 commercial banks financial performance as of December 31, 2013. Using a census approach, the research analyzed Bank of Tanzania secondary data and banks' financial reports from 2009 to 2013. A descriptive survey method was employed, and regression analysis investigated credit risk, insolvency and operational efficiency influence on financial performance, indicated by ROA. The findings revealed varying independent variables' correlations, indicating that effective operational risk management positively affected their returns. Nonetheless, the study remains contextually limited, having focused exclusively on commercial banks within Tanzania.

Ishmail, Memba & Muriithi (2023) explored operational risk connection with financial outcomes within Kenyan microfinance banks overseen by CBK. Adopting a census approach, they evaluated secondary data derived from annual reports of 13 MFI's spanning 2011 to 2019. It involved an explanatory research framework coupled with an unbalanced panel regression model. Outcomes demonstrated a noteworthy inverse relationship between the variables, as indicated by ROA. Conversely, link with ROE appeared weak and statistically insignificant. It is important to note that their focus on microfinance banks introduces a contextual limitation to the results generalizability.

Mrindoko, Macha & Gwahula (2020) examined financial performance of 41 accredited Tanzanian commercial banks through panel data spanning 2006 to 2019, sourced from the Bank of Tanzania

and the National Bureau of Statistics. Employing a longitudinal quantitative approach and analyzing data with STATA14, the research focused on operational risk variables such as portfolio concentration ratio (PCR), operating expense ratio (OER), bank leverage ratio (BLR) and cost-to-income ratio (CIR). Findings revealed that PCR and BLR negatively but insignificantly impacted ROE, while OER and CIR negatively and significantly impacted ROE. Regarding Return on Assets (ROA), PCR and CIR significantly reduced bank performance; BLR had a positive but insignificant effect, and OER's impact was insignificant. Results suggest that increasing PCR and CIR diminish bank performance, and the study advises that bank management adopt MPT Theory and information asymmetry theory to choose less risky portfolios and borrowers, thereby reducing operational costs and risks. However, a contextual gap is presented by Tanzania being the focus country, whole findings generalization maybe impossible maybe due to contrasting regulatory frameworks

### **2.3.2 Credit Risk and Financial Performance**

Bhattarai (2021) examined credit risk impacts on Nepal's 14 commercial banks performance from 2010 to 2019 utilizing both descriptive and causal comparative designs and regression model for analysis. Outcomes indicated NPL adverse effects, 'cost per loan assets' and bank size positive influences. However, capital adequacy ratio and cash reserves were not identified as significant factors affecting bank performance. Existence of notable bank performance relationship with credit risk indicators was established. However, a contextual gap since was identified in the analysis of Nepalese commercial banks from year 2010 to 2019.

Siriba (2020) ascertained credit risk impacts on Kenyan commercial banks financial performance (2014-2018), grounded in credit risk theory which suggests credit risk inverse connection with firm performance. Utilizing bank financial statements secondary data, the analysis employed

descriptive statistics and multiple regression. Results indicated that NPL ( $p= 0.394$ ) and loan loss provisions ( $p= 0.653$ ) negligibly negatively impacted profitability, while loans and advances significantly positively influenced bank profitability ( $p= 0.001$ ). The findings recommend that banks enhance client assessment and loan analysis to better manage credit risks. A methodological gap is identified in the study of all commercial banks instead of top tier banks that this study intends to zero in.

Ukpong and Essien (2020) ascertained credit risk impacts on Nigeria's largest publicly listed commercial banks fiscal outcomes, by Ex-post facto design. The research zeroed on the ten largest banks as of December 2021, analyzing data from 2017-2021. Secondary data were sourced from annual reports, and descriptive statistics summarized key metrics. Regression analysis tested the hypotheses, revealing liquidity ratios' notable connection with financial performance, but no significant correlation with exchange and interest rates. The findings indicated that rising exchange and interest rates led to decreased return on assets, concluding that higher interest rates negatively impact bank performance. However, the study analysed financial performance data from 2017 to 2021.

Mercylynne and Omagwa (2017) studied credit risk management link with selected Kenyan commercial banks' fiscal performance. Employing descriptive research and probability sampling, they collected data from 42 respondents via questionnaires. Outcomes indicated that debt recovery efforts effectiveness had little to no significant impact on overall bank performance. In contrast, critical processes such as loan evaluation, lending criteria and credit policy were more influential. Consequently, the review underscored bank's imperative to adopt forward-looking strategies in mitigating credit exposure to optimize returns and recommended that commercial banks implement stricter loan appraisal measures and ensure compliance with lending requirements to

enhance financial performance. However, the study was limited on sample size as it zeroed on selected Kenyan commercial banks.

### **2.3.3 Liquidity Risk and Financial Performance**

Onywera (2022) explored financial risk influence on Kenyan commercial banks performance, recognizing that despite numerous studies on this topic, conclusive evidence remains elusive. The primary focus is to determine how four key financial risks; market, operational, credit and liquidity risks, affect banks' financial performance. The theoretical frameworks underpinning the study include the financial distress theory and stakeholder theory, providing insights into how financial risks can lead to distress or influence stakeholder perceptions. Employing descriptive research, the study targeting all 42 commercial banks licensed by CBK, using CBK and bank database secondary data. Data analysis was conducted using Microsoft Excel for initial data presentation and SPSS for statistical testing. Insights are expected offer invaluable insights for legislative bodies and banks aiming to boost risk management strategies and improve bank performance.

Rahman and Saeed (2019) examined liquidity risk impacts on Malaysian banks performance from 2005 to 2018, using three liquidity risk indicators. Their findings revealed that Malaysian banks maintain reasonable liquid assets and a strong capital position without excessive lending. However, not all liquidity risk indicators significantly affected bank performance. Loan-to-deposit ratio negligibly impacted, while liquid asset to total assets ratio imposed opportunity costs. Capital to asset ratio showed mixed results. Overall, the study concluded that liquidity risk impact is complex and varies by performance metric. However, the study analysed financial performance from the year 2005 to 2018.

Ezelda (2019) reviewed credit and liquidity risks impacts on listed Johannesburg Stock Exchange (JSE) South African banks financial performance from 2017 to 2022, focusing on the pre- and post-COVID-19 periods. Data was sourced from Bloomberg, and the methodology included descriptive paired t-tests and multiple regression analysis to assess pandemic's effects on financial metrics. The paired t-test revealed significant impact differences in ROA and ROE before, during, and after the pandemic. Additionally, significant differences in liquidity and credit risks were noted between the pre- and during-pandemic periods, but no significant differences were found post-pandemic, suggesting stabilization of these risks. Multiple regression further examined risk factors connection with profitability, providing deeper insights into the banks' financial dynamics. However, a contextual gap was identified in reviewing South African banks from 2017 to 2022.

Ratemo and Ndede (2021) investigated liquidity risk impacts on 42 Kenya's commercial banks financial performance, using causal research and bank records secondary data from CBK. Analysis with Stata 14.0 revealed that bank size positively impacts financial performance, while asset quality negatively affects it. Capital adequacy showed a positive but insignificant correlation, contrasting to the strong positive association of operational efficiency. Additionally, money supply was found to moderate liquidity risks connection with overall bank performance. However, a methodological limitation was identified, as it employed causal research, which may restrict causal inferences depth drawn from the outcomes.

#### **2.3.4 Market Risk and Financial Performance**

Siddique, Khan & Khan (2022) investigated market risk management influences on banking factors on South Asian commercial banks financial performance, using secondary data from 19 banks (10 from Pakistan and 9 from India) from 2009 to 2018. Utilizing GMM to derive coefficient estimates, outcomes exhibited that higher levels NPLs, CIR and LR detrimentally impacted

financial success, indicated by ROA and ROE. On the other hand, the capital adequacy ratio (CAR) and asset-liability ratio (ALR) showed a positive association with overall performance. However, the review's reliance on secondary data presents a methodological limitation.

Uddin, Hossain, and Rahman (2023) studied market risk management impacts on Bangladesh's banking sector financial performance, focusing on nine listed commercial banks from 2016 to 2022. Using robust least squares regression and a dynamic model to address endogeneity, they found that non-performing loans (NPL) negatively affect performance, while average lending rate, capital adequacy, inflation and liquidity ratios. The study identified cross-sectional dependency and autocorrelation in the data. It recommends reducing NPL ratios and improving capital adequacy and liquidity ratios, along with implementing stricter fiscal and banking regulations for better governance and financial stability. However, the study focused on Bangladesh's banking sector financial performance from 2016 to 2022.

Gathigia, Munyua and Muturi (2020) examined how market risk affects financial outcomes of 43 Kenyan commercial banks, using balance sheet data and financial ratios. They applied panel data methods, including fixed effects and GMM, to control for unobserved effects and endogeneity. Their analysis involved pairwise correlations, F-tests for regression significance, and  $R^2$  to assess explanatory power. Outcomes indicated credit risk negative connection with profitability, suggesting that high NPL ratios and poor asset quality undermine both short and long term bank performance. The review focused on data from 2016 to 2019.

Maniagi (2018) investigates how various financial risks influence Kenyan commercial banks performance. Covering data from 2006 to 2015, both panel primary and secondary data were utilized from 30 banks and responses from 220 risk-related managers. Using descriptive statistics,

correlation analysis, and regression models in E-Views and SPSS, findings revealed credit risk negatively influences bank performance, emphasizing the need for effective credit management. Conversely, market and interest rate risk positively influenced performance, suggesting that fluctuations in these areas can enhance profitability. The study recommends that banks implement policies to manage credit exposure, assess borrower creditworthiness, hedge against macroeconomic factors, and actively trade foreign exchange to boost performance. Additionally, maintaining adequate liquidity and establishing early warning systems are crucial for effective risk management and sustaining bank profitability.

## 2.4 Summary of Literature Reviewed and Research Gaps

**Table 2.1: Summary of Literature Reviewed and Research Gaps**

<b>Author</b>	<b>Title</b>	<b>Results</b>	<b>Gap</b>	<b>Focus of present study</b>
Qabajeh, Almajali, Natour, Alqsass and Maali (2023)	Operational risk impacts on MENA banking sector profitability	Operational risk significant negative correlation with profitability	The review presents both contextual and methodological gap.	Kenya's tier III commercial banks financial performance was the focus.
Lyambiko (2019)	Operational risk management impacts on Tanzania's 36 commercial banks financial performance	Effective operational risk management positively affected their returns	Contextual gap given that the review's scope was narrowed to Tanzanian commercial banks	Kenya's tier III commercial banks financial performance was the focus.
Ishmail, Memba, and Muriithi (2023)	Operational risk connection with financial outcomes within Kenyan microfinance banks	Noteworthy inverse relationship between the variables	The study examined microfinance banks regulated by CBK which presents a contextual gap	The study focused on financial performance of tier III commercial banks in Kenya
Bhattarai (2021)	How credit risk affects Nepal's commercial	Bank size positively affects performance	Contextual gap was identified in analysis of Nepalese	Kenya's tier III commercial banks financial performance was

	banks performance		commercial banks from year 2010 to 2019	the focus from 2019-2023.
Ukpong and Essien (2020)	Credit risk impacts on Nigeria's largest publicly listed commercial banks financial performance	Rising exchange and interest rates led to decreased return on assets, concluding that higher interest rates negatively impact bank performance	The study analyzed financial performance data from 2017 to 2021	Kenya's tier III commercial banks financial performance was the focus from 2019-2023
Mercylynne and Omagwa (2017)	Credit risk management and selected Kenyan commercial banks' financial performance	Debt recovery efforts effectiveness had little to no significant impact on overall bank performance. In contrast, critical processes such as loan evaluation, lending criteria and credit policy were more influential.	The study was limited on sample size as it focused on selected Kenyan commercial banks	All Kenya's tier III commercial banks financial performance was evaluated.
Rahman and Saeed (2019)	Liquidity risk impacts on Malaysian banks performance	Loan-to-deposit ratio had no significant impact, while the liquid asset to total assets ratio imposed opportunity costs. Capital to asset ratio showed mixed results. Overall, the study concluded that liquidity risk impact is complex and varies by	The review analyzed financial performance from the year 2005-2018	Kenya's tier III commercial banks financial performance was the focus from 2019-2023

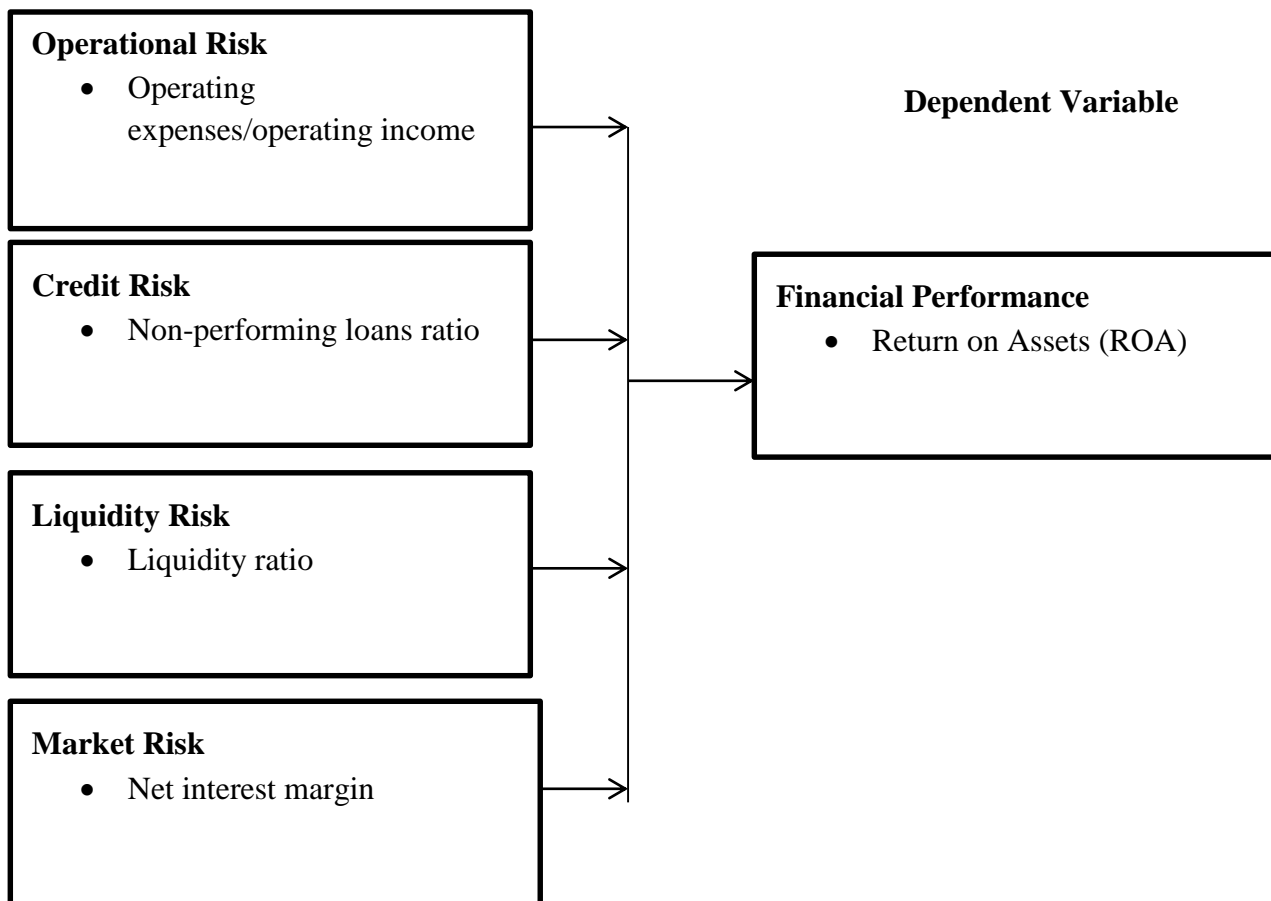
		performance metric.		
Ezelda (2019)	Credit and liquidity risks impacts on listed South African banks	Significant differences in liquidity and credit risks were noted between the pre- and during-pandemic periods	The study context was listed South African banks on Johannesburg Stock Exchange (JSE) from 2017 to 2022	Kenya's tier III commercial banks financial performance was the focus
Ratemo and Ndede (2021)	Liquidity risk impacts on Kenya's 42 commercial banks fiscal performance	Liquidity risks impacts on bank performance are moderated by money supply.	Methodological gap, as it employed causal research	Descriptive research was utilized.
Siddique, Khan, and Khan (2022)	Market risk management influences on banking factors on South Asian commercial banks fiscal outcomes.	Capital adequacy ratio (CAR) and asset-liability ratio (ALR) positively influenced performance.	Study's reliance on secondary data presents a methodological limitation.	The study used primary data
Uddin, Hossain, and Rahman (2023)	Market risk management impacts on Bangladesh's banking sector financial performance	Non-performing loans (NPL) negatively affect performance, while average lending rate, capital adequacy, inflation and liquidity ratios have positive impacts	Study focused on Bangladesh's banking sector financial performance from 2016-2022	Kenya's tier III commercial banks financial performance was the focus from 2019-2023
Gathigia, Munyua, and Muturi (2020)	How market risk affects financial outcomes of 43 Kenyan commercial banks.	Significant negative credit risk link with profitability	The study analyzed financial performance of commercial banks from the year 2016 to 2019	Time scope was from 2019 to 2023

Source: Researcher (2024)

## 2.5 Conceptual Framework

Acting as foundational structure, the conceptual framework visually represents how variables are hypothesized to interact. This depiction supports analytical precision by ensuring that each variable's role and connection within the study are well understood. The independent variables are; operational, credit, liquidity and market risks with financial performance measured by profitability (ROA) as the explained variable.

### Independent Variables



**Figure 2.1: Conceptual Framework**

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

This section depicts review methodology, detailing examination's design, target populace, sampling, sample size, data amassing, piloting, analysis and finally, ethical considerations.

#### **3.2 Research Design**

Descriptive research was utilized to collate comprehensive information regarding subject matter. This approach aligns with the observations made by Morrow (2020), who noted that such a design facilitates a clearer understanding of the topic by gathering data through questionnaires. Consequently, by concentrating on specific characteristics, the study was positioned to identify patterns and trends that might not be readily apparent. Similarly, Tetnowski and Damico (2021) assert that descriptive research is instrumental in comprehending the present state of a situation without implementing alterations. Thus, this method enabled the researcher to offer a thorough overview and derive significant conclusions from data amassed.

#### **3.3 Target Population**

Target population encompasses all entities within the interest's scope on which a study is to be conducted and is defined as having similar characteristics (Harris *et al.*, 2019). It can be vents, people, subjects, or objects which the study focuses to draw conclusion, inference, and generalization. CBK (2022) reports 22 tier III Kenyan commercial banks which formed the target population (Apendix II). The 22 commercial banks were the units of analysis and observation.

#### **3.4 Sampling Design and Sample Size**

Jawale (2019) denotes portion of target population chosen for review is known as sample size (Harris *et al.*, 2019). The scientific and probabilistic technique to determine the representative

sample size in a study according to Lohr (2021) is referred to sampling design and which could be complex or simple depending on population characteristics. The sampling procedure concerns with the selection process of sample size determination. Both sample size and procedures are applied where the target population is large and a complete study is not feasible. The study adopted census sampling survey design due to small population size. All 22 tier III Kenyan commercial banks were chosen for this examination. The census sampling survey design concerns with examination of the entire group of interest in a research activity.

### **3.5 Data Collection Instrument**

Secondary data collection sheet (Appendix I) amassed data from audited published financial statements for the 22 tier III Kenyan commercial banks. In addition it utilized the CBK supervision reports. The relevant statistics were collected for the last financial five years i.e., 2018/2019, 2019/2020, 2020/2021, 2021/2022, ad 2022/2023.

### **3.6 Data Collection Procedure**

Data amassing process started by first obtaining research authority from KU graduate school and permit from the NACOSTI. Additionally, an approval was sought from the managements of various Kenyan Tier III commercial banks which sought to inform them of the ongoing research activity in their organizations. The access to the financial statements from respective commercial banks' websites and calculation of relevant statistics took an average of 14 working days.

### **3.7 Data Analysis and Presentation**

This was procedural and systematic utilization of relevant statistical techniques to explain, summarize, compare, and draw conclusion on research data (Bairagi & Munot, 2019). The study adopted the SPSS Version 26 software to compute descriptive and inferential statistics to be used

in the data analysis. Mean, standard deviation, minimum, and maximum, formed descriptive statistics while coefficient of determination (R-square), p-value, t-statistics, F-statistics, and regression correlation coefficients formed inferential. Summary writing on the output statistics were done through the Microsoft word application. The panel regression model was adopted as given below

The panel multiple regression equation is represented as follows;

$$Y_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \epsilon_{it}$$

Where:  $\beta_0$  – intercept

$X_1$  – Operational risk

$X_2$  – Credit risk

$X_3$  – Liquidity risk

$X_4$  – Market risk

$\beta_1 \dots \beta_4$  - Coefficients

$\epsilon$  - Error term

### 3.8 Measurement of Variables and Operationalization of Variables

**Table 3.1: Operationalization and measurement of variables**

Variable	Type	Operationalization	Measurement
<b>Financial performance</b>	Dependent variable	<ul style="list-style-type: none"> <li>Return on Assets (ROA)</li> </ul>	Ratio scale
<b>Operational risks</b>	Independent variable	<ul style="list-style-type: none"> <li>Operating expenses/operating income</li> </ul>	Ratio scale

<b>Credit Risk</b>	Independent variable	<ul style="list-style-type: none"> <li>• Non-performing loans ratio</li> </ul>	Ratio Scale
<b>Liquidity Risk</b>	Independent variable	<ul style="list-style-type: none"> <li>• Liquidity Ratio</li> </ul>	Ratio Scale
<b>Market Risk</b>	Independent variable	<ul style="list-style-type: none"> <li>• Net Interest Margin</li> </ul>	Ratio scale

Source: Researcher (2024)

### 3.9 Diagnostic Tests

In analyzing data, various diagnostic tests, both pre and post-estimation, was conducted to ascertain results' robustness. These tests encompass a range of assessments to validate the model and address potential issues. The ensuing diagnostic tests were undertaken:

#### 3.9.1 Multicollinearity Test

Multicollinearity, as described by Verbeek Marno (2012), occurs when explanatory variables exhibit notable self-correlation degree. This phenomenon can lead to inefficient estimates and compromised conclusions due to inflated p-values for the variables. To assess the relationship among the various parameters (i.e. multicollinearity) in the model of choice, research employed the variance inflation factor (VIF).

VIF measured how much estimated regression coefficient variance increases due to collinearity (Kyriazos & Poga, 2023). VIF of less than 10 is considered an acceptable tolerance to mitigate

multicollinearity issues (Shrestha, 2020). In the event of significant multicollinearity, the research took corrective measures such as converting strongly correlated variables into ratios or, if necessary, eliminating them. This proactive approach helps enhance the reliability of regression coefficient estimates and contributes to more robust and valid statistical inferences in the analysis

### **3.9.2 Normality Test**

The test for normality, as described by Wooldridge, J.M. (2013) is assessed to ascertain variables' normality or non-normality. In this investigation, Jacque-Bera (JB) test for normalcy (Liang et al, 2009) was employed. The JB test statistic, with two degrees of freedom, follows a chi-squared distribution. The comparison between alternative hypothesis of a non-normal distribution and normality null hypothesis is conducted at 5% significance level.

If the null hypothesis of normality is rejected, indicating a non-normal distribution, the research adopted an estimating approach that does not assume normality. This approach acknowledges the observed deviation from normality and employs methods robust to non-normal distributions. This strategy ensures that the analysis remains reliable and valid even in the presence of non-normally distributed variables (Shrestha, 2020).

### **3.9.3 Panel Stationarity Tests**

Panel data, which consists of observations on several entities seen across time, is subjected to panel stationarity tests in order to determine its stationarity (Semmlow, 2018). Stationarity means that time series statistical features, for example, mean and variance, remain unchanged over time (Semmlow, 2018). The panel unit root test is a popular method for determining panel stationarity (Levin & Lin, 1992). The unit root test is designed to evaluate whether a time series has a unit root, suggesting non-stationarity. The investigation applied the Levin-Lin-Chu (LLC) test, which

extends classic unit root tests to incorporate panel data formats (Levin et al, 2002). The study formulated the Hypotheses: The null hypothesis typically assumed presence of a unit root, implying non-stationarity, while the alternative hypothesis assumes stationarity.

Null Hypothesis ( $H_0$ ): The time series has a unit root (non-stationary).

Alternative Hypothesis ( $H_1$ ): The time series is stationary.

The study investigated the test statistics and accompanying p-values to determine whether to reject the null hypothesis of a unit root. In the event that the p-value falls below a predetermined significance level (e.g., 0.05), the null hypothesis is rejected and the series is identified as stationary. Biau et al. (2010) state that if p-value is above 0.05, the null hypothesis, which suggests that the series might not be stationary, should not be rejected.

### **3.9.4 Heteroscedasticity Test**

In a study, the heteroscedasticity test is essential for determining if the variance of errors is constant over time and for all values. In order to pass the heteroscedasticity test, this review utilized Breusch-Pagan-Godfrey test. The p-value is compared to a significance level, usually set at 5%, as part of the test (Breusch and Pagan, 1979). According to Biau et al. (2010), if p-value > 5%, the residuals are homoscedastic, which is preferable in a robust regression model, and there is no evidence of heteroscedasticity. However, converting the variables into logarithmic form is a typical corrective approach if heteroskedasticity is found. Alternatively, the generalized least squares (GLS) method may be employed to account for and mitigate the impact of heteroscedasticity on the regression analysis, ensuring the robustness of the model.

### **3.9.5 Hausman Specification Test**

This is conducted to identify most appropriate panel regression analysis model (Hausman, 1978). This test plays a key role in deciding between random effects and fixed effects model. The null hypothesis suggests that the random effects model is more efficient, whereas the alternative hypothesis supports the fixed effects model as the better choice (Qirjo & Christopherson, 2016).

The significance level for the Hausman test is usually established at 5%. When the p-value < 5%, the null hypothesis is rejected (Biau et al., 2010), signifying that the fixed effects model is more suitable. Conversely, if the p-value exceeds 5%, the null hypothesis is retained, indicating that random effects model is the dataset's more suitable option.

By performing the Hausman test with a 5% significance level, the study aims to make an informed selection between the random effect and fixed effect models, ensuring accuracy and reliability of the panel regression analysis

### **3.10 Ethical Considerations**

The researcher acquired all required paperwork, such as introductory clearance/letter from Kenyatta University alongside formal research authorization/permit from NACOSTI. Ethical standards shall be upheld in the following manner: Participants received detailed briefings on the study's objectives, methodology and anticipated benefits and each voluntarily furnished informed consent prior to engagement, ensuring that they fully understand their involvement and can withdraw at any time without penalty. Participants' confidentiality was rigorously upheld through secure data handling protocols, with all personally identifiable details either stripped or anonymized to preserve privacy and data was stored securely to prevent unauthorized access. Only authorized personnel had access to the data.

**CHAPTER FOUR**  
**RESEARCH FINDING AND DISCUSSIONS**

**4.1 Introduction**

The chapter outlines findings derived from panel data gathered from Kenya’s 22 tier III commercial banks, which constituted the target population from 2019 to 2023, employing a secondary data abstraction tool. Data analysis is conducted in accordance with the research variables through the application of descriptive statistics, diagnostic tests, and inferential statistics.

**4.2 Descriptive Statistics Results**

Results of descriptive statistics were based on Mean, standard deviation, minimum, and maximum for each specific variable to establish distribution and variability of data. Table 4.1 encapsulates core findings.

**Table 4.1: Descriptive Statistics Results**

<b>Variable</b>	<b>Mean</b>	<b>Standard deviation</b>	<b>Minimum</b>	<b>Maximum</b>
Operational risk (Operating expenses/operating income)	12.515	5.562	10.263	19.541
Credit risk (Non-performing loans ratio)	21.623	10.366	15.263	31.246
Liquidity risk (Liquidity ratio)	11.264	4.134	9.100	15.457
Market risks (Net interest margin)	12.634	21.205	14.619	23.154
Financial performance (ROA)	16.321	22.528	12.691	17.125

**Source: Survey Data, 2025**

Findings above indicate that operational risk variable measured by operating expenses/operating income had 12.515 mean value, 5.562 standard deviation value, minimum and maximum value of 10.263 and 19.541 respectively. The finding shows a significant disparity in operational risks

amongst the Tier III Kenya's commercial banks studied making a suggestion that while there Tier III Kenya's commercial banks maintaining a lower ratio of expenses to income proportion, there are other banks that encounters significantly higher operational risks. The finding concur with Qabajeh, Almajali, Natour, Alqsass and Maali (2023) who studied operational risk impacts on MENA banking sector profitability, using 20 Islamic banks from 12 nations over a decade (2011-2020) with fixed effect models. They analyzed ROA and ROE as indicators of financial health, with operational risk indicated by efficiency ratio. Outcomes exhibited strong inverse connection between operational risk and profitability, indicating that higher operational risk leads to poor management control, increased operating expenses, and lower profit levels.

The examination also revealed that credit risk variable measured by Non-performing loans ratio had a 21.623 mean value, the standard deviation value of 10.366, minimum and maximum value of 15.263 and 31.246 respectively. The results obtained indicates the credit risks of Tier III Kenya's commercial banks had a significant range showing a possible fear about the performance of loans given to the borrowers on these bank's financial status. The outcome is consistent with Siriba (2020) who ascertained credit risk impacts on Kenyan commercial banks financial performance (2014-2018), grounded in credit risk theory which suggests credit risk inverse connection with firm performance. The results indicated that NPL ( $p= 0.394$ ) and loan loss provisions ( $p= 0.653$ ) negligibly negatively impacted profitability, while loans and advances significantly positively influenced bank profitability ( $p= 0.001$ ).

The research findings revealed that the liquidity risk variable, which was evaluated using the liquidity ratio, had an average value of 11.264. Additionally, the analysis showed 4.134 standard deviation, denoting data variability. Minimum and maximum values recorded were 9.100 and 15.457, respectively. Therefore, significant variations in liquidity risk are identified among these

banks according to the finding presenting the need for effective tracking of liquidity level so as to effectively manage possible financial risks. Therefore, significant variations in liquidity risk are identified among these banks according to the finding presenting the need for effective tracking of liquidity level so as to effectively manage possible financial risks. The finding concur with Rahman and Saeed (2019) who examined liquidity risk impacts on Malaysian banks performance from 2005 to 2018, using three liquidity risk indicators. Their findings revealed that Malaysian banks maintain reasonable liquid assets and a strong capital position without excessive lending.

The research findings revealed that the liquidity risk variable, which was evaluated using the liquidity ratio, had an average value of 11.264. Additionally, the analysis showed 4.134 standard deviation, denoting data variability. The minimum and maximum values recorded were 9.100 and 15.457, respectively. The finding indicates a wide range of market risk among Tier III Kenya's commercial banks suggesting a change in financial performance due to fluctuations. The finding agree with Siddique, Khan & Khan (2022) who examined market risk management influences on banking factors on South Asian commercial banks fiscal outcomes, using secondary data from 19 banks (10 from Pakistan and 9 from India) from 2009 to 2018. Utilizing GMM to derive coefficient estimates, outcomes exhibited that higher levels NPLs, CIR and LR detrimentally impacted financial success, indicated by ROA and ROE.

The study found that financial performance variable measured by ROA had a 16.321 mean value, the standard deviation value of 22.528 minimum and maximum value of 12.691 and 17.125 respectively. The finding suggests that the Tier III Kenya's commercial banks' financial performance varied which is an indicator that the use of assets varied across these banks.

### 4.3 Diagnostic Test Results

The diagnostics tests encompassed a range of assessments to validate the model and address potential issues which included; multicollinearity test, normality test, panel stationarity test, heteroscedasticity tests and Hausman specification test.

#### 4.3.1 Multicollinearity Test

Variance Inflation Factor (VIF) was employed to assess multicollinearity with the corresponding findings captured in Table 4.2.

**Table 4.2: Multicollinearity Test**

Variable	Collinearity Test	
	Tolerance	VIF
Operational risk	0.791	1.226
Credit risk	0.765	1.308
Liquidity risk	0.499	2.002
Market risk	0.433	2.312

**Source: Survey Data, 2025**

The analysis revealed tolerance values spanning from 0.433 to 0.791 and VIF scores ranging between 1.226 and 2.312, both comfortably below conventional threshold of 5, thereby confirming the absence of multicollinearity among the variables.

#### 4.3.2 Normality Test

To assess data normality, Shapiro-Wilk one-sample test was employed, with outcomes displayed in Table 4.3.

**Table 4.3: Normality Test**

Variable	Normality Test	
	Statistic value	Sig. Value

Operational risk	0.545	0.215
Credit risk	0.485	0.115
Liquidity risk	0.662	0.106
Market risk	0.441	0.231
Financial performance	0.364	0.334

**Source: Survey Data, 2025**

With all p-values exceeding 0.05, as captured in Table 4.3, the data distribution meets criteria for normality.

**4.3.3 Panel Stationary Test**

Levin-Lin-Chu (LLC) test was conducted to assess constancy of mean and variance over time. Results are compiled in Table 4.4.

**Table 4.4: Panel Stationary Test**

<b>Panel Stationary Test</b>		
<b>Variable</b>	<b>Statistic value</b>	<b>Sig. Value</b>
Levin-Lin-Chu (LLC) test	3.305	0.001

**Source: Survey Data, 2025**

Outcomes denote Levin-Lin-Chu (LLC) test had statistic value of 3.305 and significance value of 0.001. This implies the variables’ statistical significant relationship showing that the alternative hypotheses assume stationarity. Therefore, the null hypotheses were rejected.

**4.3.4 Heteroscedasticity Test**

Heteroscedasticity diagnostics were conducted using Breusch-Pagan (1980) procedure. Table 4.5 depicts corresponding findings.

**Table 4.5: Heteroscedasticity Test**

<b>Test</b>	<b>Statistic</b>	<b>Sig.</b>
Breusch-Pagan test	115.115	0.162

**Source: Survey Data, 2025**

Outcomes in Table 4.5 denotes that Breusch-Pagan test had a statistic value of 115.115 and significance value of 0.162. This implies no statistical evidence of heteroscedasticity within the data since the significance value is more than 0.05. Therefore, it can be assumed that there was constant variance in the residuals that can result to valid analysis.

#### 4.4 Regression Analysis

The study used panel regression analysis to test the effect of the independent variables and dependent variable. Table 4.6 shows the results.

**Table 4.6: Regression coefficients**

<b>Financial performance (FP)</b>	<b>Coef.</b>	<b>Std.Err</b>	<b>Z</b>	<b>P&gt; zI</b>	<b>95 Conf.</b>	<b>Interval</b>
Operational risk (OR)	-9.116	3.201	0.218	0.002	5.002	15.231
Credit risk (CR)	4.162	4.034	0.119	0.004	4.120	11.229
Liquidity risk (LR)	-8.884	2.207	0.306	0.002	-2.415	5.6637
Market risk (MR)	7.009	1.116	0.224	0.001	3.374	12.323
_cons	14.021	3.054	0.399	0.002	12.227	42.226
Wald $\chi^2(3) = 19.001$ ; Prob > $\chi^2 = 0.002$ ; Pseudo R-sq. = 0.799						

Source: Survey Data, 2025

#### Optimal Model

The model obtained is;

$$FP_{it} = 14.021 - 9.116OR_{it} + 4.162CR_{it} - 8.884LR_{it} + 7.009MR_{it} + \epsilon$$

Where;

$FP_{it}$  = Financial performance

$OR_{it}$  = Operational Risk

$CR_{it}$  = Credit Risk

$LR_{it}$  = Liquidity Risk

$MR_{it}$  = Market Risk

$\acute{\epsilon}$  =Error term

The Wald test statistic,  $\lambda^2(3) = 19.001$ , shows financial risk's strong relationship with Kenya's Tier III commercial banks financial performance. The  $\text{Prob} > \lambda^2 = 0.002$  indicate that operational, credit, liquidity and market risks had a statistically significant relationship with Kenya's Tier III commercial banks financial performance. The Pseudo R-squared value was 0.799 showing that the variables explained a 79.9% variation in Kenya's Tier III commercial banks financial performance. Therefore, remaining 20.1% could account for other risks not studied.

#### **4.3.5.2 Test of Hypotheses**

The study examined the following null hypotheses at 95% level of significance.

**HO<sub>1</sub>: Operational risk has no significant effect on financial performance of Tier III commercial banks in Kenya,**

Empirical evidence from the analysis pointed to -9.116 leverage coefficient, 3.201 standard error, 0.218 Z-value and 0.002 p-value. The finding proves that operational risk significantly affected Kenya's Tier III commercial banks financial performance, rejecting the null hypothesis. The outcome aligns with Lyambiko (2019) examination of operational risk management impacts on Tanzania's 36 commercial banks financial performance as of December 31, 2013. The findings revealed varying independent variables' correlations, indicating that effective operational risk management positively affected their returns.

**HO<sub>2</sub>: Credit risk has no significant effect on financial performance of Tier III commercial banks in Kenya,**

The examination established credit risk significantly impacted Kenya's Tier III commercial banks financial performance based on finding of a leverage coefficient of 4.162, the standard error of 4.034, 0.119 Z-value and 0.004 p-value. The finding proves that that null hypothesis could be

rejected. The finding is consistent with Ukpong and Essien (2020) who ascertained credit risk impacts on Nigeria's largest publicly listed commercial banks fiscal outcomes, by Ex-post facto design. The findings indicated that rising exchange and interest rates led to decreased return on assets, concluding that higher interest rates negatively impact bank performance.

**HO<sub>3</sub>: Liquidity risk has no significant effect on financial performance of Tier III commercial banks in Kenya,**

Empirical results unveiled a -8.884 leverage coefficient, 2.207 standard error, 0.306 Z-value and a 0.002 p-value. The finding implies that liquidity risk significantly affected Kenya's Tier III commercial banks fiscal performance. The finding is in line with Ratemo and Ndede (2021) who investigated liquidity risk impacts on 42 Kenya's commercial banks financial performance, using causal research and bank records secondary data from CBK and revealed that bank size positively impacts financial performance, while asset quality negatively affects it. Additionally, money supply was found to moderate liquidity risks connection with overall bank performance.

**HO<sub>4</sub>: Market risk has ni significant effect on financial performance of Tier III commercial banks in Kenya,**

The examination finding's indicated a leverage coefficient of 7.009, 1.116 standard error, 0.224 Z-value and 0.001 p-value. The finding indicates that market risk significantly affected Kenya's Tier III commercial banks financial performance, therefore, rejecting the null hypothesis. The finding agree with Siddique, Khan & Khan (2022) who examined market risk management influences on banking factors on South Asian commercial banks financial performance, using secondary data from 19 banks (10 from Pakistan and 9 from India) from 2009 to 2018. The outcomes exhibited that higher levels NPLs, CIR and LR detrimentally impacted financial success,

indicated by ROA and ROE. On the other hand, the capital adequacy ratio (CAR) and asset-liability ratio (ALR) showed a positive association with overall performance.

## CHAPTER FIVE

### SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

#### 5.1 Introduction

The chapter expounds on key insights into a summary, draws conclusions, offers actionable recommendations and outlines areas for future inquiry.

#### 5.2 Summary of Finding

The general objective of the study was to ascertain financial risks impacts on Tier III Kenya's commercial banks' financial performance. The financial risks studied included; operational, credit, liquidity and market risks. Secondary data was utilized and amassed using secondary collection sheet from Kenya's Tier III commercial banks annual financial statements. Descriptive and inferential statistics were used in analyzing data. A concise results' summary is presented herein;

The first objective of the study sought to examine operational risk impacts on Tier III Kenya's commercial banks' financial performance. Operational risk was revealed to positively significantly affect Kenya's Tier III commercial banks financial performance. A notable difference in operational risks was observed among the Tier III commercial banks in Kenya that were analyzed, indicating that while some of these banks maintain a lower ratio of expenses to income, others face considerably higher operational risks.

The second objective of the study sought to ascertain credit risk impacts on Kenya's Tier III commercial banks financial performance. It was established that credit risk positively and significantly impacted Kenya's Tier III commercial banks financial performance. The credit risks associated with Tier III commercial banks in Kenya exhibited a considerable variation, indicating a potential concern regarding the loan performance in relation to the financial health of these banks.

The third objective of the study endeavored to examine liquidity risk impacts on Kenya's Tier III commercial banks financial performance. Liquidity risk was established to positively significantly impact Kenya's Tier III commercial banks financial performance. A significant difference in liquidity risk was observed among these banks, highlighting the necessity for efficient monitoring of liquidity levels to effectively mitigate potential financial risks.

Lastly, the fourth objective of the study sought find out market risk impacts on Kenya's Tier III commercial banks financial performance. Market risk was revealed to positively significantly impact Kenya's Tier III commercial banks financial performance. A significant variation in market risk was observed among Tier III commercial banks in Kenya, indicating a potential shift in financial performance as a result of fluctuations.

## **5.2 Conclusions of the Study**

This study substantiates the position that operational risks have the potential to result in operational failures, which may incur additional costs for mitigation and compliance, thereby placing financial strain on banks. Service disruptions can lead to the loss of business opportunities, as any transaction process missed due to system failures can result in revenue loss and diminished customer trust. Furthermore, non-compliance with regulatory requirements may lead to penalties or sanctions, which could further reduce the profitability of banks.

The examination also concludes occurrence of credit risk in a situation whereby the bank does not effectively evaluate the borrower's creditworthiness resulting to increased number of loan defaulters which also leads to more provisioning costs for bad debts affecting negatively the bank's profitability. The higher the credit risk the more the cash reserves required limiting the capability of the bank and investment in growth opportunities. When the bank encounters a higher non-

performing loans it can lose investors which may possibly affect its capability to attract additional investments or deposits.

The study concludes that the existence of liquidity risk may compromise a bank's operational efficacy to manage its liquidity, leading to increased costs related to borrowed funds necessary to meet its obligations, which ultimately diminishes profit margins and impacts the bank's overall financial performance. Furthermore, liquidity risk can tarnish the bank's reputation, as it may struggle to optimally fulfill its obligations. During economic downturns, liquidity risk may compel banks to liquidate certain assets, resulting in substantial losses and adversely affecting their financial results.

The study concludes that interest rates fluctuations impact net interest income of banks, which constitutes their revenue stream. This can lead to a reduction in their ability to adapt to such changes, thereby influencing their financial performance. An increase in market rates raises the borrowing costs for customers, potentially leading to a higher number of loan defaults. Additionally, a sudden shift in currency value can lead to considerable losses, as many Tier III banks are involved in foreign currency transactions.

### **5.3 Recommendations of the Study**

The examination suggests that Tier III banks ought to improve their investment in technology by upgrading their information technology systems and implementing more advanced security protocols to reduce the risk of cyber threats. Furthermore, Tier III banks should increase the frequency of training programs for their employees to minimize human errors and improve adherence to regulations.

The analysis advocates for the strategic adoption by Tier III banks of a diversified loan portfolio to minimize more reliance of certain industries that could bring higher risks upon economic fluctuations. The Tier III banks should conduct a constant evaluation of borrower's financial health for proper identification of possible defaulters in advance. The Tier III banks should leverage technology to be guided by data analytics to AI-driven credit scoring models to have accurate credit assessments.

The study recommends that Tier III banks can properly manage liquidity risks by sustaining a diversified capital structure encompassing deposits, credit facilities and alternative funding streams. The banks can implement a stronger management of risk structures to assist in monitoring of their daily liquidity positions. The banks can do stress testing and analysis of events to come up with better contingency plans. The banks should also factor the regulatory environment provided by Central Bank of Kenya. They must follow to ensure their stability within the industry

The study also advises Tier III banks to strategically implement comprehensive structure managing risks, carry out a frequent stress test and have a more diversified lending portfolio to solve the possible losses. The Tier III banks should leverage technology aimed at enhancing ability in evaluating risk and enhance operational efficiency.

#### **5.4 Suggestions for Further Study**

The research underscores potential for further empirical exploration into non-examined financial risks affecting Kenyan commercial banks. It also advocates for comparative studies involving Microfinance institutions and SACCOs to enrich cross-institutional insights.

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**Appendix I: Secondary Data Collection Sheet**

<b>Financial Year Ending</b>	<b>ROA</b>	<b>Credit Risk NPLS ratio</b>	<b>Operational Risk Operating expenses/operating income</b>	<b>Market Risk Net interest margin</b>	<b>Liquidity Risk Liquidity ratio</b>
<b>2019</b>					
<b>2020</b>					
<b>2021</b>					
<b>2022</b>					
<b>2023</b>					

**Appendix II:** Kenya's Tier III commercial banks.

1. Numbering Name of the Bank
2. DIB Bank Kenya Ltd
3. Consolidated Bank of Kenya
4. Gulf African Bank Ltd
5. First Community Bank Ltd
6. Habib Bank A.G Zurich
7. African Banking Corporation Ltd
8. Charterhouse bank Ltd – Under statutory Management
9. Credit Bank Ltd
10. Victoria Commercial Bank Ltd
11. UBA Kenya Bank Ltd
12. Development Bank of Kenya
13. Access Bank Kenya Plc
14. Sidian Bank Ltd
15. Mayfair CIB Bank Limited
16. M-Oriental Bank Ltd
17. Guaranty Trust Bank (K) Ltd
18. Guardian Bank Ltd
19. Jamii Bora Bank Ltd
20. Spire Bank Ltd
21. Paramount Bank Ltd
22. Middle East Bank (K) Ltd

**CBK 2024**