THE EFFECT OF RISK MANAGEMENT ON FINANCIAL PERFORMANCE OF COMMERCIAL BANKS IN KENYA

BY

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DECLARATION

This research project is my original work and has not been presented for examination in any other university.

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DEDICATION

I dedicate this creation to my family for their unwavering support during the whole process of completing it.

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ABBREVIATIONS

ANOVA:	Analysis of Variance
CBK:	Central Bank of Kenya
CRB:	Credit Reference Bureau
Ksh:	Kenyan Shilling
NIM:	Net Interest Margin
ROA:	Return on Assets
ROE:	Return on Equity
SACCOs:	Savings and Credit Cooperative Society

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ABSTRACT

As a result of the rising volatility of money markets, financial inventions, and the expanding importance of financial instruments associated with financial intermediation, risk management is becoming an essential subject in the banking sector. Risk management frequently leads to improved financial performance since risk management and risk control allow a company to save money. The effect of risk management on financial performance Kenya's commercial banks was the study objective. The technique of descriptive research was applied for the research. The secondary data sources in form of annual Bank Supervision Report aided in the collection of secondary data which covered a 5-year duration from 2016 to 2020. SPSS version 27 and STATA helped in data analyses and the outcomes were given in form of tables, regressions, correlations, ANOVA and T-test. The study concluded that there was a positive relationship between financial performance and liquidity risk management though the relationship was weak and insignificant. Credit risk management had a positive relationship with financial performance though it was weak and insignificant. Operating risk management had a positive relationship with financial performance though it was insignificant. Equity risk management had a positive relationship with financial performance of commercial banks which was significant. Bank size had a positive relationship with financial performance of commercial banks which was significant. The study recommends that commercial banks should maintain the right amount of liquidity so that they don't suffer from panic withdraws by the customers but at the same time ensure that they advance enough credit to their customers to increase their interest income. Commercial banks should keenly monitor their customers' credit reports so that they advance credit to credit worthiness customers. Commercial banks should come up with proper internal controls and procedures to reduce cases of banks' fund, forgery, cheque fraud, hacking and acquiring unauthorized information. The banks should invest in research and development as well as in relevant innovations so that they can increase their equity. The bank should invest in emerging technologies and e-marketing so that they can increase their size at lower costs in terms of customer numbers and the numbers of branches.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

As a result of increasing financial market volatility, financial innovations, the growing role of financial products in the process of financial intermediation, and significant financial losses suffered by banks without risk management systems, risk management has become an important concept in the banking industry (Schonharl, 2017). Limited risk management, according to Hoffmann et al. (2019), makes banks more vulnerable to shocks than they otherwise would be, and is undoubtedly a major determinant in bank financial performance. Hoffmann et al. (2019) went on to say that financial institutions' risk management is mostly determined by their financial performance, thus institutions with declining net worth lower their hedging and institutions in financial difficulty dramatically reduce risk management. Further, a lack of risk management exposes financial organizations, particularly those with limited resources, to a variety of hazards, which have a detrimental influence on their financial performance (Kimani, 2018).

The Risk Management theory, Finance Distress theory and Performance theory will be used in this study. The Finance Distress hypothesis was proposed by Baldwin Scott (2017), who stated that when a company's business deteriorates to the point that it can no longer pay its financial obligations, the company is in financial distress. The idea of performance was established by Mento, Locke, and Klein (1992), who believe that when people or organizations set more challenging goals, they perform better. On the other side, if the established goals are simple, an individual's or organization's performance will suffer. Markowitz is a proponent of risk management theory (1952). Effective risk management structures, according to Risk Management theory, assist

improved decision making by providing a thorough understanding of the risks and their potential consequences (Kempf, Kreuzberg & Memmel, 2002).

Like other financial institutions, commercial banks play a very important economic role in a country in the form of provision of loans for individual member's development, however their financial performance has been an issue of concern due to the risks involved (Ngunyu, 2019). In the year financial Year ended 31 December 2020, the banking industry had a poor result. Profit before tax for the industry fell by 29.3% to Ksh.112.4 billion in the year ending December 2020, compared to Ksh.159.1 billion in the previous year. The drop in profitability was mostly due to a smaller growth in real income of 7.3 percent versus a 22.6 percent increase in total costs. A 177.2 percent rise in loan loss provisions was primarily responsible for the greater increase in overall expenditures (Central Bank Report, 2020). In terms of risk, substandard, doubtful, and loss loans and advances grew by 81.6 percent, 16.0 percent, and 32.1 percent in the year 2020, respectively. In 2020, the subprime, questionable, and loss categories amounted for 3.2 percent, 8.3 percent, and 3.1 percent of the loan book, respectively, up from 2.0 percent, 8.0 percent, and 2.6 percent in 2019 (Central Bank Report, 2020).

1.1.1 Risk Management

Risk management, according to Kanchu and Kumar (2013), is a method for anticipating, analyzing, and responding to a specific risk. Risk management entails not just lowering the possibility of terrible things happening, but also increasing the likelihood of positive things happening. Risk management is the act of identifying, assessing, managing, and monitoring possible hazards that might harm an organization's profits (Tschemernjak, 2004). Risk management is a systematic process including actions or activities aimed at reducing the likelihood of unwanted circumstances occurring and/or reducing their adverse implications (Wang & Hsu,

2009). Risk Management has been described as all the things you need to do to make the future sufficiently certain (Krause & Tse, 2016). Risk management in this study will be the measures put in place by the commercial banks to identify, analyze and respond to risks so that their financial performance is not negatively affected by risks.

Risk management is unquestionably important in financial organizations such as commercial banks, and it necessitates scrutiny by shareholders, regulators, practitioners, and academics, as many large losses have occurred because of inadequate risk management (Dionne, 2017). According to Bwoma, Muturi, and Mogwambo (2017), it is important for financial organizations to have a risk management policy because there is a rising understanding that developing a risk management policy is critical for long-term growth. According to Osayi, Ezuem and Daniel (2019) risk management if wrongly approached can contribute to deteriorating or worsening of commercial banks' portfolio of assets. However, if risk management approach is effectively and timely engaged, it has the potentials of perfecting any deteriorating assets in banks' portfolio investment performance. Commercial banks operate at a high risk since they deal with cash having an unsecured value. They also provide additional services to their customers, like lending and receiving deposits, increasing their risk exposure in the commercial world. As a result, commercial banks must control their risk exposure and undertake thorough borrowers' analyses before making loans (Schonharl, 2017).

Sleimi (2020) measured risk management practices in terms of risk identification, understanding risks, risk monitoring and risk assessment. Mutuku (2016); Wanjohi, Wanjohi and Ndambiri (2017) indicated that risk management practices were operationalized in terms of management environment, risk measurement, risk mitigation, risk monitoring, adequate internal control and capital adequacy. Abdi

(2017) indicated that the risk management practices were market risk management, liquidity risk management and operational risk management. Ng'aari (2016) categorized risk management practices liquidity risk management, credit risk management and operational risk management. Ewool and Quartey (2021) evaluated risk management practices in terms of risk identification, risk control, risk monitoring and risk appraisal. To measure the adequacy of the risk management practices in commercial banks in Kenya, the study used liquidity risk management, market risk management, interest risk management and credit risk management.

1.1.2 Financial Performance

According to Englund and Graham (2019), an organization's financial performance is its ability to achieve defined objectives successfully via the utilization of available tangible and intangible resources. Financial performance refers to a company's level of operations during a specific time, as expressed in terms of profits and losses over that time period (Mulwa, 2015). Financial performance is a monetary indicator of an organization's success of its objectives, policies, and activities. It refers to a company's financial health and may be compared to other companies in the same sector (Frederic, 2014). One of the most important aspects of a firm is its financial performance, which determines its competitiveness, economic feasibility, management's commercial interests, and the trustworthiness of current and prospective contracts (Fatihudin & Mochklas, 2018). Financial performance in this study will be the level of operations in commercial banks in Kenya across the years.

All organizations, including commercial banks, have financial success as one of their primary goals. A strong banking industry is critical to the economy's stability since financial problem reduces banks' ability to absorb adverse economic conditions, threatening their solvency (Matayo & Muturi, 2018). Financial performance enables

commercial banks yield resources from operations over a specific duration (Odhiambo, 2019). Shareholders are rewarded for their investment when the company does well financially. As a result, more investment is encouraged, resulting in economic development. Poor banking performance may lead to bank collapse and crisis, both of which have negative consequences for growth in the economy (Mishra & Mohanty, 2018). Improved financial performance allows lenders to recoup all costs or earn a profit, allowing them to establish institutions that can self-sustain for a long time without relying on government subsidy or donor funding (Wanjohi, Wanjohi & Ndambiri, 2017). The purpose of evaluating a bank's financial performance is to ascertain its operating efficiency and ultimate financial position, as well as to assess its asset quality, management efficiency and achievement of its goals, and to also determine its earning quality, liquidity, and solvency position (Fatihudin & Mochklas, 2018).

In the eyes of Investors & shareholders are judged on how much better off they are already at the conclusion of the term than they had been at the beginning (Fatihudin & Mochklas, 2018). It's generally calculated using measures from the income and financial position reports, as well as data on stock prices (Njeru, 2018). Return on assets (ROA), return on equity (ROE), and Net Interest Margin (NIM) are all financial performance indicators (Ngunyu, 2019). Financial performance can be measured through various financial measures such as profit after tax, ROA, ROE, earnings per share and any market value ration that is generally accepted (Mulwa, 2015). The financial performance of commercial banks is measured in terms of the ROA and ROE (Odhiambo, 2019). The financial performance in this study regarding commercial banks in Kenya will be measured in terms of return on assets.

1.1.3 Risk Management Practices and Financial Performance

Risk management usually leads to improved financial performance since regulatory requirements and risk control allow a company to save money (Banks, 2018). Banks (2018) goes on to say that through controlling risks, managers may improve the firm's worth by guaranteeing the firm's continuing financial performance. To minimize financial losses and insolvency, proper risk management is critical in every bank's daily operation. When looking at risk management on the financial performance in the banking industry, Imane (2019) discovered that liquidity, credit, and operational risk management have quite a significant and negative effect on financial performance, whereas market risk management had a positive and significant impact. According to Mutuku (2016), appropriate risk management practices in Kenyan banks would result in financial performance. Commercial banks must thus devote greater resources to risk management to enhance their financial performance.

According to Kamil, Ismail and Isa (2020), the financial industry is quickly expanding and increasing prominence in the global financial landscape. They stated that risk management is critical to the banks' financial performance since they are engaged in the financial intermediaries. The financial sector is a hazardous business and various risk variables, such as credit, liquidity, operational and market risks, have been recognized as important to ensuring that a bank's position remains maintained despite the industry's tremendous competition (Odhiambo, 2019). The effectiveness of risk management is important to a financial organization's existence and profitability. Furthermore, financial institutions must practice cautious risk management to minimize financial distress that might develop to a full-fledged financial catastrophe. Banks must also guarantee that the risk management approaches they use, such as risk identification

and management, do not contradict with the bank's objectives (Wanjohi, Wanjohi & Ndambiri, 2017).

Osayi, Ezuem and Daniel (2019) noted that the financial industry has experienced huge and dramatic losses occasioned by risk management failures. Firms which were doing well suddenly disclosed huge losses because of poor credit possible risks, interest rate strategies made, or financial vulnerabilities which may have been adopted to hedge financial risk. It was also noted that risk management if wrongly approached can contribute to deteriorating or worsening of portfolio of assets (Witzany, 2020). However, if risk management approach is effectively and timely engaged, it has the potentials of enriching any deteriorating assets portfolio investment performance. This is more so as better risk management in terms of managed fund, reduction in cost of bad and doubt loans and market risk results in better banks portfolio investment performance (Imane, 2019). Firms should practice prudential risk management approach to safeguard their assets to protect both the stakeholders and shareholders' interests. Risk management is to enhance the quantitative assessment and management of risks such as liquidity, leverage, market, financial, solvency and credit risks which affect financial performance (Inegbedion, Vincent & Obadiaru, 2020).

1.1.4 Commercial Banks in Kenya

Commercial banks are financial entities that are legally permitted to accept and lend money to corporations, organizations and individuals. The Central Bank of Kenya (CBK) licenses, supervises, and regulates their operations (Central Bank Report, 2020). Kenya's banking industry consisted of 42 institutions as of December 31, 2020 (41 commercial banks and one mortgage finance company). The banking sector's total assets reached Ksh.5.4 trillion on December 31, 2020, up from Ksh.4.8 trillion during December 2019, representing a 12.4 percent increase. There were 20 local

private commercial banks and two local public commercial banks in operation, accounting for 66.8% and 0.6 percent of total assets, respectively. Foreign ownership was represented by 17 active commercial banks, which accounted for 32.6 % of the industry's assets (Central Bank Report, 2020).

Commercial banks use a variety of risk management strategies that are influenced by their ownership, credit policies, credit scoring systems, regulatory environment and management styles; all of which influence financial success. Commercial banks have faced hazards throughout the years; by 2020, substandard, questionable, and loss loans and advances had grown by 81.6 percent, 16.0 percent, and 32.1 percent, respectively. In 2020, the risky, doubtful and loss categories amounted for 3.2 percent, 8.3 percent, and 3.1 percent of the loan book respectively, up from 2.0 percent, 8.0 percent, and 2.6 percent in 2019. This is an indication that the commercial banks in Kenya have been facing risks and thus the need for risk management practices to identify, analyze and respond to the risks effectively (Central Bank Report, 2020). In the year ended December 2020, the banking industry had a poor result. Profit before tax for the industry fell by 29.3% to Ksh.112.4 billion in the year ending December 2020, compared to Ksh.159.1 billion in the previous year. The drop in profitability was mostly due to a smaller rise in total income of 7.3 percent versus a 22.6 percent increase in total costs. It was noted that there was 177.2 percent rise in loan loss provisions was primarily responsible for the greater increase in overall expenditures (Central Bank Report, 2020).

1.2 Research Problem

As a result of the rising volatility of money markets, financial inventions, and the expanding importance of financial instruments associated with financial intermediation, risk management is becoming an essential subject in the banking sector

(Schonharl, 2017). Risk management frequently leads to improved financial performance since risk management and risk control allow a company to save money (Banks, 2018). Banks (2018) goes on to say that through controlling risks, managers may improve the firm's worth by guaranteeing the firm's continuing financial performance. To minimize financial losses and insolvency, effective risk management is critical in every bank's daily operation (Imane, 2019). Financial institutions must practice sound risk management to avoid financial distress that might escalate to a full-blown financial catastrophe. To have an influence on financial performance, banks must also ensure that risk management approaches do not contradict with the bank's values (Kamil, Ismail & Isa, 2020).

Like other financial institutions, commercial banks play a very important economic role in a country in the form of provision of loans for individual member's development, however their financial performance has been an issue of concern due to the risks involved (Ngunyu, 2019). In Kenya, Commercial banks have faced hazards throughout the years; by 2020, substandard, questionable, and loss loans and advances had grown by 81.6 percent, 16.0 percent, and 32.1 percent, respectively. In 2020, the subprime, questionable, and loss categories amounted for 3.2 percent, 8.3 percent, and 3.1 percent of the loan book, respectively, up from 2.0 percent, 8.0 percent, and 2.6 percent in 2019 (Central Bank Report, 2020). In the yea financial year ending December 31, 2020, the banking industry had a poor result. Profit before tax for the industry fell by 29.3% to Ksh.112.4 billion in the year ending December 2020, compared to Ksh.159.1 billion in the previous year. The drop in profitability was mostly due to a smaller rise in total income of 7.3 percent versus a 22.6 percent increase in total costs. A 177.2 percent rise in loan loss provisions was primarily responsible for the greater increase in overall

expenditures (Central Bank Report, 2020). As a result, commercial banks must devote greater resources to risk management to improve their financial performance.

While examining financial risk management practices and financial performance of Islamic banks in Pakistan, Ashraf, Yazid and Remli (2021) concluded that an effective risk management culture will assure their competitiveness and survival in a world full of uncertainties and crises. The study, on the other hand, was conducted in a global context and focused on financial risk management practices. Credit risk management and financial performance of deposit-taking savings and credit co-operative societies in Kenya were studied by Bwire and Omagwa (2019), who discovered that credit monitoring had a substantial impact on deposit-taking SACCOs' financial performance. However, although the above study was a local study it was limited to credit risk management and left out other types of risk management and its context was not in commercial banks. Because the findings on risk management practices and financial performance have been varied, the study aimed to bridge the research gap by answering the following question; what is the effect of risk management on financial performance of commercial banks in Kenya?

1.3 Research Objective

The objective of the research was to determine the effect of risk management on financial performance of commercial banks in Kenya.

1.4 Value of the Study

Risk Management theory implies that an effective risk management framework promotes improved decision making through a thorough knowledge of risks and their expected impact on companies, therefore the study will bring value to theory. As a result, the theory will assist businesses in identifying, assessing, and managing risks, as uncontrolled risks can have a detrimental influence on stakeholder value. The study will

support the Finance Distress theory because it will assist companies in avoiding financial distress since when a company's business deteriorates towards the point that it can no longer pay its financial obligations, its performance suffers. The research will strengthen performance theory, allowing businesses to develop effective goals and strategies that will assist them improve their financial performance.

The study will help the policy makers in the banking industry come up with effective risk management strategies to reduce the risks exposed to the commercial banks in Kenya. The institutions involved in policy making such as the Credit Reference Bureau (CRB) and Central Bank of Kenya will be able to develop strategies such as credit information sharing among the commercial banks and come up with policies that may help mitigate the risks exposed to commercial banks.

The study will be relevant to the commercial banks in Kenya s it will help identify the potential risks exposed to them and which in turn affect their financial performance. The commercial banks will be able to support their risk management department so that it can effectively detect, identify, and manage the risks exposed to them and in turn mitigate the negative consequences resulting from risks.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

The purpose of this chapter is to assess the impact of risk management strategies on the financial performance of Kenyan commercial banks. There includes an empirical review of research related to risk management techniques and financial performance, as well as a conceptual framework and a summary of the literature study.

2.2 Theoretical Review

The theoretical review focuses on major theories that include Risk Management theory, Finance Distress theory and Performance theory.

2.2.1 Risk Management Theory

The proponent of Risk Management theory is Markowitz (1952) who indicated that investor portfolio selection as a problem of utility maximization under conditions of risks and uncertainty which is crucial in establishing the relationship between risks and returns. The Risk Management model, according to Wenk (2005), includes risk identification, risk assessment and risk prioritization. Following that, resources are used in a coordinated and cost-effective manner to reduce, monitor, and manage the likelihood and/or impact of unfavorable occurrences, or to optimize the execution of opportunities (Ranong & Phuenngam, 2009). Superior financial performance, a better foundation for strategy formulation, enhanced service delivery, and a competitive edge are just a few of the advantages (Wenk, 2005).

Aven and Aven (2015) critique the "no-goal-no-risk" approach to risk management that has been popular in recent years. Throughout the company, arbitrary objectives are set, according to Aven & Aven (2015). Risks are then handled considering these locally defined objectives, regardless of whether they are appropriate for the company. Aven and Aven (2015) also stated that the firm's risk management objectives may differ

significantly from whatever the company's shareholders would want, leading either in too much or less risk management. The idea is important to this study because an effective risk management system facilitates improved decision making by enhancing financial performance through a better knowledge of risks and their anticipated effects.

2.2.2 Finance Distress Theory

Campbell, Hilscher and Szilagy (2005) proposed the Finance Distress theory, which stated that stocks of financially troubled companies perform poorly compared to equities of financially sound companies. The theory of financial distress aims to explain to stakeholders the advantages and difficulties that may arise because of financial crisis (Kalckreuth, 2005). According to Baldwin and Scott (2017), a company is in financial distress when its business has deteriorated to the point where it can no longer pay its financial obligations. Inability to pay contractual debt commitments is a significant indicator of a company's financial hardship (Wruck, 2020).

The criticism of Finance Distress theory is that some firms may be unable to detect the stage that they are in financial distress and thus be unable to put measures to solve issues of financial distress. This is because financial distress is time-varying which implies that once entering it, the company does not stay in the same state until it is liquidated or until it recovers (Wruck, 2020). In the case of banks, inability to provide cash to depositors and loans to borrowers as and when the demand may constitute a liquidity crisis (Boritz, 2015). By providing appropriate information regarding risk in banks would help reduce financial distress.

2.2.3 Performance Theory

The idea of performance was established by Mento, Locke, and Klein (1992), who believe that when people or organizations set more challenging goals, they perform better. On the other side, if the established goals are simple, an individual's or

organization's performance will suffer. When a person or organization is dedicated to accomplishing their objectives and does not have any competing objectives. The attainment of the aim is therefore a positive outcome. According to Ketchen and Shook (2017), Performance theory is guided by five key principles: clarity, commitment, challenge, task complexity and feedback. As a result, it is becoming a more important part of personal growth and business management. All elements of establishing efficient organizations are covered by performance theory (Iwoye, 2012).

Performance theory has been criticized. To begin with, it has been characterized as time consuming and costly to implement since a variety of issues must be addressed for organizations to reach their objectives. These include hiring the appropriate individuals with the necessary knowledge and skills, requiring training for career advancement and productivity of an organization, and incurring costs (Ketchen & Shook, 2017). Internal rivalry risk is introduced by performance theory, as employees frequently compete with one another (Kiresuk, Smith & Cardillo, 2014). The idea will be helpful in assessing the impact of risk management practices on commercial banks' financial performance in Kenya.

2.3 Determinants of Financial Performance

This section of the literature investigates the factors that influence financial performance. Risk management, capital adequacy, bank liquidity, management efficiency, and bank size are the key aspects found in this study.

2.3.1 Risk Management

Risk management is a critical component in determining a firm's financial success, thus a good risk method of control and strategy must be in place to identify, avoid and mitigate the risks that organizations face in their operations (Witzany, 2020). Commercial banks operate at a high risk since they deal with cash having an unsecured

value. They also provide additional services to their customers, like as financing and collecting deposits, which raises their exposure to risk in the corporate environment, affecting their financial results (Odhiambo, 2019). Risk management that is effective may significantly reduce operating expenses and as a result enhance financial performance. To avert a banking collapse, commercial banks must evaluate what risk management strategies their companies have implemented (Ewool & Quartey, 2021).

2.3.2 Capital Adequacy

Bank capital is the difference in the value of the bank's asset and its liabilities, or debts (Barus et al., 2017). Capital adequacy relates to the quantum of fund that are needed and retained by a financial institution to effectively conduct its financial transactions prudently. The core capital of a bank depends on the size of the bank, the operation risks of the bank, lending policy and the managerial capabilities of the bank (Baldwin, Alhalboni & Helmi, 2019). Banks with a relatively high amount of money to cater for their operations tend to perform better than those with strained resources. Therefore, the commercial banks should maintain adequate levels of capital to cater for these uncertainties. Capitalization is a measure of the ratio of shareholders equity to total assets and is considered the most important indicator of capital adequacy (Musyoka, 2017).

2.3.2 Bank Liquidity

Liquidity is the measure of how first an asset in a firm can be turned into cash. If an entity can meet its obligations, then the entity is operating efficiently and efficient management of the resources will improve financial performance (Musiega et al., 2017). Commercial banks' insufficient liquidity is one of the leading causes of bank failure; yet, when commercial banks retain many liquid assets, they incur an opportunity cost of earning greater returns by investing with all those assets (Ochieng,

2018). Commercial banks must set a limit again for minimum cash reserves they can retain to guarantee that clients are supplied smoothly. A bank with stable earnings is thus preferred since it can perform these duties and so generate more money (Ngunyi, 2019). Liquidity in the commercial banks is normally assessed from customer deposits and the total assets, the higher the customer deposit to total assets the higher the liquidity.

2.3.3 Management Efficiency

This is a qualitative factor that refers to the management style, procedures, policies in place as well as firm discipline, competency, and personnel quality. This has an impact on the bank's capacity to effectively utilize the resources at its disposal in order to achieve defined objectives, optimize profits and decrease expenses (Kamande, 2017). The management of the commercial banks should ensure that the bank's operational expenses are kept as minimal as possible while at the same time ensuring the profits are maximized (Muhindi & Ngaba, 2018). According to Ochieng (2018), the most important aspect in improving commercial bank performance is asset and liability management. The management should put adequate control systems to monitor the operations in the commercial banks. Management efficiency is measured by earnings growth rate.

2.3.4 Bank Size

Commercial bank asset size is a key indicator of financial success because banks with a big asset size can expand their market geographically to areas where competition is low and where the market is completely unexplored (Mwangi, 2018). Such a strategy would significantly enhance the bank's client base, which would result in higher customer deposits (Bwire & Omagwa, 2019). Increased client deposits indicate that the bank has more lending capacity, resulting in better profit margins. Larger banks can

also benefit from economies of scale because of their size (Imane, 2019). The premise that larger banks can create more strategic alliances and invest in more projects suggests that there is room for financial performance improvement (Mishra & Mohanty, 2018).

2.4 Empirical Studies

From 2006 to 2015, Vuong, Vu, and Mitra (2017) investigated the influence of capital structure on company financial performance in the United Kingdom. The research was carried out utilizing data from 739 UK very big and large listed businesses on the London Stock Exchange, yielding a total of 7390 observations. To determine the connection between the variables, a regression model was developed. It was discovered that capital structure has a favorable link with business performance, as firms' performance is negatively impacted by excessive debt utilization. However, there is a gap because the previous study was conducted in a global setting and focused on capital structure, whereas the current study examines the impact of risk management practices on commercial banks' financial performance in Kenya.

Wickramasinghe and Gunawardana (2017) utilized a survey research methodology to investigate the impact of cash flow risk management methods on long-term financial performance in Sri Lanka. In Sri Lanka, there were 295 firms listed on the Colombo Stock Exchange. The secondary data was gathered from 65 firms in a random sample using annual reports. E views was used to analyze the data and a regression model was created. The study discovered a link between cash flow risk management techniques and financial performance that was both favorable and substantial. However, there is a gap because the previous study was conducted in a global context and focused on cash flow risk management practices, whereas the current study focuses on the impact of risk management practices on commercial bank financial performance in Kenya.

Ashraf, Yazid and Remli (2021) focused on the impact of financial risk management practices on Islamic banks performance in Pakistan where a descriptive research design was used and both primary and secondary data was used. The target population was 22 Islamic banks, and a census was undertaken. A multiple regression and correlation analysis was used. It was established that the practices of Islamic banks in Pakistan indicated better financial risk management resulting to better financial performance. However, there is a gap because the study was conducted in a global context and was confined to Islamic banks and financial risk management, whereas the current study focuses on the impact of risk management practices on commercial banks' financial performance in Kenya.

Atsakpo (2019) utilized a survey study methodology to examine the impact of risk management techniques on the financial performance of insurance firms in Ghana. The target population was 600 participants, and the sample size was 60 firms. A regression model was used, and findings revealed that risk identification and mitigation influence financial performance most. Risk identification, risk mitigation and risk monitoring significantly influenced financial performance of the companies. However, there is a gap because the study was conducted in a global context and focused on insurance firms, whereas the current study focuses on the impact of risk management practices on the financial performance of Kenyan commercial banks.

Fadun and Oye (2020) investigated the effects of operational risk management on financial performance using a case study of 20 commercial banks in Nigeria. A regression model was used in the study, which used a longitudinal (panel) research approach. The findings indicated a favorable link between operational risk management practices and bank financial performance, implying that bank employees should get frequent risk management and control training. However, there is a gap because the

study was conducted in a global context and the focus was confined to operational risk management, whereas the current study focuses on the impact of risk management practices on commercial bank financial performance in Kenya.

Muriithi (2016) investigated the impact of financial risk on commercial banks' financial performance in Kenya. The quantitative research approach was used, using 43 commercial banks in Kenya as the target population. The correlation and regression models were used to analyze the panel data. The generalized technique of moments, as well as the estimate of random effects and fixed effects, were introduced. Credit, liquidity, market, and operational risks all have a substantial negative impact on return on equity, according to the research. However, there is a gap since the previous study focused on the impact of financial risk on financial performance, whereas the current study examines the impact of risk management practices on the financial performance of Kenyan commercial banks.

Kagunda (2018) investigated the impact of liquidity risk management techniques on deposit-taking SACCOs' financial performance in Nairobi, Kenya. The study used descriptive research design and the targeted population was 41 SACCOs. The study relied on secondary data sources and descriptive and inferential statistics were employed. The study employed panel regression analysis model using SPSS version 24. The study concluded that asset quality management practice, capital adequacy practice and capital leverage practice had an influence on the financial performance. However, there was a gap because the previous study was confined to liquidity risk management and focused on deposit taking SACCOs, whereas the current study examines the impact of risk management practices on commercial bank financial performance in Kenya.

Mohamed and Onyiego (2018) investigated the impact of risk management on commercial bank financial performance in Kenya, using commercial banks in Mombasa County as a case study. A descriptive and analytical research design was adopted, and the target population was 13 commercial banks. The data was analyzed using a multiple regression model, correlation analysis and ANOVA analysis. operational, credit, liquidity and interest rate risk management all had a substantial impact on commercial bank financial performance, according to the research. Nevertheless, a gap existed as the context of the above study was only on commercial banks in Mombasa County and used primary data while the current study focuses on all commercial banks where secondary data was used.

While evaluating the effect of credit risk management on financial performance of deposit taking SACCOs in Western Kenya, Kemunto, Kisavi and Momanyi (2020) adopted a correlational research design. A census of 19-deposit taking SACCOs for the period 2013 to 2017 yielding 95 data points. Before regression model was developed Normality, Multicollinearity and Autocorrelation tests were carried. It was discovered that there was a link between the non-performing loan ratio and deposit-taking SACCOs' financial performance. However, there is a gap because the previous study was confined to credit risk management and focused on deposit taking SACCOs, whereas the current study examines the impact of risk management practices on commercial banks' financial performance in Kenya.

Kachumbo (2020) focused on determinants of financial performance of commercial bank Fintechs in Kenya. The positivist philosophical approach was adopted and the panel data study design was used. The population of the study was 33 banking Fintechs and 10 commercial banks where a census was adopted. Secondary data was used and STATA software was used to analyze the data. The study concluded that there existed

a significant effect between capital adequacy, number of customer deposits, size of loan and financial performance of commercial banks. However, there is a gap because the study concentrated on Fintechs in Kenya and did not look at the impact of risk management practices on commercial bank financial performance in Kenya.

2.5 Conceptual Framework

The independent variables are liquidity, credit, equity, and operating risk management. The moderating variable was the bank size while the dependent variable was financial performance.

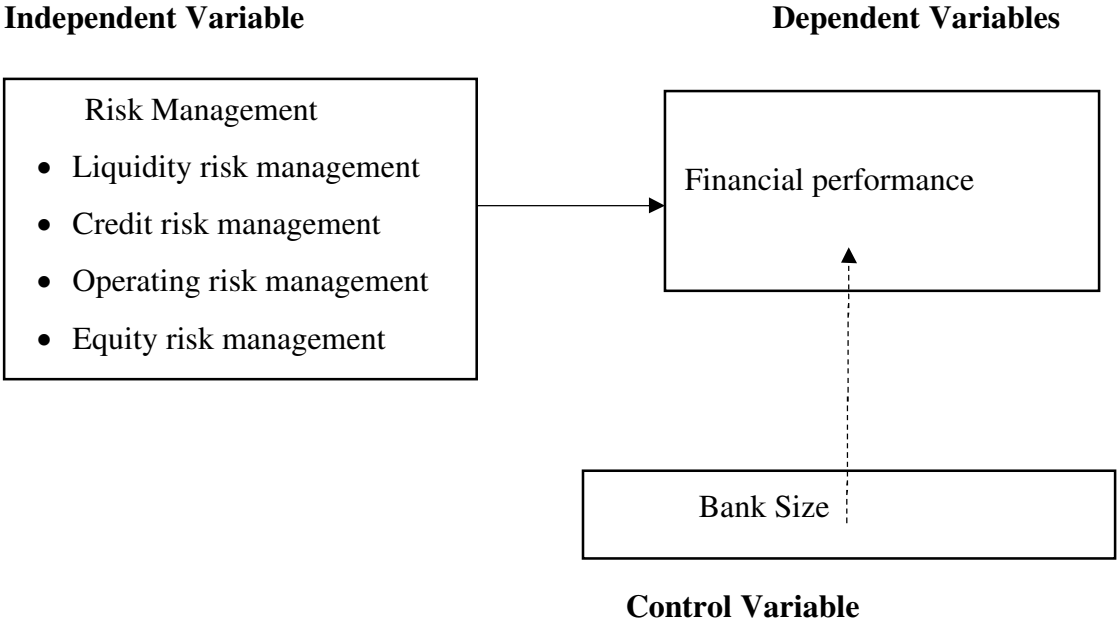

Figure 2.1: Conceptual Framework

2.6 Summary of Literature Review

Wickramasinghe and Gunawardana (2017) found a positive and substantial link between cash flow risk management practices and long-term financial success in publicly listed companies in a global context. Ashraf, Yazid and Remli (2021) indicated better financial risk management resulted to better financial performance. According to Atsakpo (2019), risk identification, risk mitigation and risk monitoring have a substantial impact on a company's financial success. According to Fadun and Oye (2020), there is a favorable correlation between operational risk management techniques and bank financial performance.

Credit, market, liquidity, and operational risks have a substantial negative impact on return on equity according to Muriithi (2016). Kagunda (2018) concluded that asset

quality management, capital adequacy practice and capital leverage practice had an influence on the financial performance. Operational, credit, liquidity and interest rate risk management all have a substantial impact on financial performance, according to Mohamed and Onyiego (2018). It is evident that there is a knowledge gap regarding the impact of risk management practices on the financial performance of Kenyan commercial banks.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

The methodology approach that was utilized in this study is explained in this chapter. It included the researcher's research design, data collection techniques, and analysis for assessing the impact of risk management strategies on commercial banks' financial performance in Kenya.

3.2 Research Design

Kothari (2014) describes it as being a framework that is used in providing the appropriate solutions to the questions under research. The technique of descriptive research was applied for the research because it gives the researcher a room for obtaining large data volumes from a substantial population in a manner that is economical, easy, and effective through use of panel data (Saunders, Lewis & Thornhill, 2016). This technique was also favorable because it enabled the researcher use a number of variables within the same duration (Erik & Marko, 2011).

3.3 Data Collection

The study through the researcher collected data in form of secondary data by use of data collection sheet. The secondary data sources in form of annual Bank Supervision Report from the Central Bank of Kenya aided in the collection of secondary data. The data collected was in a form of time series data. The research covered a 5-year period from the year 2016 to the year 2020 from which data was derived. The data was used to ensure that there are enough data points for the research to ensure that the changes that have occurred in the commercial banks are accounted for. Data collected was in quantitative form for each of the parameters.

3.4 Data Analysis

Tools of analyzing data applied in this research hope to give solutions to the questions under research that include effect of risk management practices on financial performance of commercial banks in Kenya. Data that which was gathered from the study was edited, sorted and coded to ensure it is of accepted quality and it is also accurate. SPSS version 27 and STATA was used for analysis of this data.

3.4.1 Diagnostic Tests

3.4.1.1 Test for Autocorrelation

Since panel data was involved, the test for autocorrelation was important. There would be autocorrelation if the null hypothesis is accepted and no autocorrelation if the alternative hypothesis is accepted. If the null hypothesis is accepted, it means the error terms for the parameters will be linked or even have a covariance. The test of Breusch Godfrey was applied to test autocorrelation (Gujarati, 2014).

3.4.1.2 Heteroscedasticity

When heteroscedasticity is detected, there is no influence on unbiasedness or regression coefficient linearity. When the error term varies across independent variable, heteroscedasticity exists. The Breusch-Pagan test was used to determine whether heteroscedasticity exists in the data (Gujarati, 2014).

3.4.1.3 Multicollinearity

Multicollinearity occurs where the independent variables are linearly correlated and thus renders standard errors infinite (Gujarati, 2014). The researcher used the VIF test to see if there is appropriate and sufficient evidence that multicollinearity exists and is a cause for worry.

3.4.1.4 Test for Normality

The research data is expected to be normal before running a regression analysis. Since the non-normal distribution of research data can lead to inefficient and biased estimates. The Shapiro wilk test was used.

3.4.2 Analytical Model

The regression model had a multivariate model as per the equation indicated below.

$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$

Where:

Y= Financial performance; measured by return on assets

β0 - Y intercept

$\beta_1 - \beta_4$ = Measure of the sensitivity of variable X to changes in financial performance

X_1 – Liquidity risk management; measured by total loans to total deposits

X_2 - Credit risk management; measured by non-performing loans to total loans

X_3 – Operating risk management; measured by operational costs to total operating income

X_4 – Equity risk management; measured by total equity to total assets

X_5 - Bank Size; measured by log of assets

ε – This is the regression equation Error term

3.4.3 Test of Significance

To test the hypothesis or whether there is evidence to concluded that the independent variables have an effect on the dependent variables ANOVA was used and the confidence level will be set at 95%. It seeks to solve the challenges that characterise the t-test and the test show relationship between variables. T-test was applied in determining individual significance of the predictor variables of this research. The interpretation of p values was done at a significance level of 5%. If the value of p is less than 0.05, the variables are significant.

CHAPTER FOUR: DATA ANALYSIS, RESULTS, AND INTERPRETATION

4.1 Introduction

The research's findings and analyses are presented in this chapter. The goal of this study was to see how risk management affected the financial performance of Kenyan commercial banks.

4.2 Descriptive Statistics

Descriptive statistics is a type of data analysis that helps to explain, illustrate, or summarize data in a comprehensible way so that patterns can emerge.

Table 4.1: Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Net profit	195	-2,930	33,184	3,421	6,713
Total assets	195	0	758,345	104,907	153,590
Total loans	195	0	544,837	63,097	96,920
Total deposits	195	0	591,067	79,017	116,705
Non-performing loans	195	0	66,810	7,799	10,449
Operational costs	195	0	44,229	6,197	8,836
Operating income	195	0	71,641	10,222	14,550
Total equity	195	-1,820	111,271	16,852	23,261

Descriptive results showed that net profit trend of the banks in the 5-year period recorded a mean average of Ksh 3,421 million with the highest net profit recording at Ksh 33,184 million and the lowest at a loss of Ksh 2,930 million. The mean average value of total assets was Ksh 104,907 million with the highest recording at Ksh

758,345 million. The average total loans were at Ksh 63,097 million with the highest recording at Ksh 544,837 million. The average total deposits were at Ksh 79,017 million with the highest recording at Ksh 591,067 million. The average non-performing loans were at Ksh 7,799 million with the highest recording at Ksh 66,810 million. The average non-performing loans were at Ksh 7,799 million with the highest recording at Ksh 66,810 million. The average operational costs were at Ksh 6,197 million with the highest recording at Ksh 44,229 million. The average operating income were at Ksh 10,222 million with the highest recording at Ksh 71,641 million. The average total equity was at Ksh 16,852 million with the highest recording at Ksh 111,271 million.

4.3 Diagnostic Tests for Regression

4.3.1 Test for Autocorrelation

Table 4.2: Test for Autocorrelation

lags *(p)*	chi2	df	prob > chi2
1	5.837	1	0.119

If serial correlation is evident, the Breusch–Godfrey test will result in inaccurate conclusions being derived from other tests. We accept the null hypothesis that there is no serial connection since the p-value (0.119) is bigger than the significance threshold (0.05) based on the data. These results reveal that the variables did not have a serial correlation.

4.3.2 Test for Heteroscedasticity

Table 4.3: Test for Heteroscedasticity

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
Ho: Constant variance
Variables: fitted values of Y

chi2(1)	= 0.82
Prob > chi2 =	0.4268

To assess if heteroscedasticity occurred, the researchers used the Breusch Pagan test. When the chi value is greater than the critical value, which indicates that the model has evidence of heteroscedasticity, or when the p-value is less than 0.05, the null hypothesis is rejected, indicating presence of heteroscedasticity. The results revealed chi value of 0.82, indicating there is no indication of heteroscedasticity. Furthermore, the p-value of 0.34268 was greater than 0.05, indicating that research did not reject the null hypothesis of homoscedasticity and thus no heteroscedasticity existed.

4.3.3 Test for Multicollinearity

Table 4.4: Test for Multicollinearity

Variable	VIF	1/VIF
X5	2.18	0.458948
X3	2.17	0.461775
X4	1.14	0.873394
X1	1.09	0.917319
X2	1.02	0.97832
Mean VIF	**1.52**	

The data utilized in the study was evaluated for multicollinearity. The variance inflation factor (VIF) was used to calculate how much the variance is inflated. Collinearity refers to the fact that two variables are almost perfect positive linear of each other. The model is stated to be suffering from multicollinearity if the VIF score is greater than 10 or the threshold is greater than 0.2. The overall VIF was 1.52, which is less than 10 tolerance level, indicating that the research data did not demonstrate multicollinearity to be present.

4.3.4 Test for Normality

Table 4.5: Testing for Normality

Variable	Obs	W	V	z	Prob>z
Y	195	0.5499	65.685	9.616	0.0859
X1	195	0.48138	75.686	9.942	0
X2	195	0.06887	135.885	11.287	0
X3	195	0.16676	121.599	11.032	0.29602
X4	195	0.51852	70.265	9.771	0.38114
X5	195	0.79896	29.338	7.764	0

To determine whether the error term is normal or abnormal, the researcher conducted the Shapiro- Wilsk test. The null hypothesis is that the population is normally distributed, whereas the alternative hypothesis is that it is not. If the p-value is less than 0.05, the null hypothesis is rejected, and there is sufficient evidence to conclude that the data under consideration did not come from a normally distributed population.

The findings showed that financial performance had a (p-value = 0.0859), operating risk management had (p-value = 0.29602) and equity risk management had (p-value = 0.38114). The null hypothesis was not rejected and thus the above data came from a normally distributed population. Credit risk management, operating risk management and bank size had (p-value = 0) and hence we reject the null hypothesis and thus there is evidence that the data tested were not from a normally distributed population.

4.4 Correlations Analysis

Table 4.6: Correlations Analysis

		Financial performance	Liquidity risk management	Credit risk management	Operating risk management	Equity risk management	Bank Size
Financial performance	Pearson Correlation	1					
	Sig. (2-tailed)						
	N	195					
Liquidity risk management	Pearson Correlation	0.12	1				
	Sig. (2-tailed)	0.095					
	N	195	195				
Credit risk management	Pearson Correlation	0.038	-0.049	1			
	Sig. (2-tailed)	0.602	0.496				
	N	195	195	195			
Operating risk management	Pearson Correlation	0.016	0.093	0.036	1		.
	Sig. (2-tailed)	0.819	0.197	0.616			
	N	195	195	195	195		
Equity risk management	Pearson Correlation	.602**	.203**	-0.013	0.127	1	
	Sig. (2-tailed)	0	0.004	0.861	0.078		
	N	195	195	195	195	195	
Bank Size	Pearson Correlation	.394**	-0.104	-0.056	.683**	-0.136	1
	Sig. (2-tailed)	0	0.149	0.44	0	0.057	
	N	195	195	195	195	195	195

There was positive correlation between financial performance and liquidity risk management, as evidenced by the correlation factor of 0.12, which was statistically insignificant since the p value of 0.095 was more than 0.05. There was a positive link between credit risk management and financial performance, as evidenced by a correlation coefficient of 0.038, which was statistically insignificant since the p value of 0.602 was more than 0.05. According to the findings, there was an insignificant positive correlation between operating risk management and financial performance, as evidenced by a correlation coefficient of 0.016 and a p value of 0.819 that was more than 0.05.

There was substantial positive correlation between equity risk management and financial success, as evidenced by a correlation coefficient of 0.602 and a p value of 0 (less than 0.05). The study discovered a substantial positive correlation between bank size and financial success, as evidenced by a correlation coefficient of 0.394 and a p value of 0 (less than 0.05).

4.5 Regression Analysis

4.5.1 Model Summary

Table 4.7: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.721a	0.52	0.508	0.0522612

The correlation coefficient, R, revealed the link between the study variables. Based on the data, it was discovered that there was a significant positive association between the study variables, as evidenced by the value of 0. 721. The R2, or coefficient of determination, revealed that the independent components explained 52.0 percent of the variances in financial performance.

4.5.2 Analysis of Variance

Table 4.8: Summary of One-Way ANOVA Results

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	0.56	5	0.112	40.998	.000a
	Residual	0.516	189	0.003		
	Total	1.076	194			

(Critical value = 2.262)

The significance level for the population parameters was 0 in the table, indicating that the data may be utilized to form conclusions because the p value was 0.05. At a 5% level of significance, the overall model was declared significant since F computed (40.998) was above the F crucial (value = 2.262), indicating that all independent variables had a meaningful influence on financial performance.

4.5.3 Coefficients

Table 4.9: Coefficients

		B	Std. Error	Beta	t	Sig.
1	(Constant)	-0.003	0.03		-0.087	0.931
	X_1	0.003	0.002	0.073	1.394	0.165
	X_2	0.097	0.011	0.065	8.818	0
	X_3	0.348	0.073	-0.355	-4.782	0
	X_4	-0.156	0.017	-0.493	-9.146	0
	X_5	0.052	0.007	0.576	7.748	0

$$Y= -0.003 + 0.003X_1 + 0.097X_2 + 0.348X_3 + 0.156X_4 + 0.052X_5$$

When all independent variables are maintained at a constant zero, financial performance will be negative 0.003 units, according to the regression model. It was noted that when all other variables were held to a constant zero, a unit change in liquidity risk management would enhance financial performance by 0.003. It was noted that when all other variables were held to a constant zero, a unit change in credit risk management would enhance financial performance by 0.097. When all other variables were held to a constant zero, a unit change in operating risk management would enhance financial performance by 0.348. It was noted that when all other variables were held to a constant zero, a unit change in equity risk management would enhance financial performance by 0.156. When all other variables were held to a constant zero, a unit change in bank size would enhance financial performance by 0.052.

4.6 Discussion of Findings

There was a positive correlation between financial performance and liquidity risk management, as exhibited by correlation factor of 0.12 which was statistically insignificant as the p value of 0.095 was more than 0.05. The findings supported with who Kagunda (2018) revealed that there was a positive significant relationship between financial performance and liquidity risk management of deposit taking SACCOs' in Nairobi, Kenya. The findings differed with Laminfoday (2018) findings that found an insignificant negative association between liquidity risk management and financial returns of commercial banks in Sierra Leone.

The study found a positive correlation between credit risk management and financial performance as shown by correlation coefficient of 0.038, however the relationship was statistically insignificant as the p value of 0.602 was more than 0.05. The findings supported Zaidanin (2021) findings that found out that non-performing loans ratio have

a significant negative impact on commercial banks profitability in the United Arab Emirates. Githaiga (2015) also noted that credit risk had a weak and negative relationship with financial performance (ROA). The findings differed with Kemunto, Kisavi and Momanyi (2020) who found that there was a positive link between the non-performing loan ratio and deposit-taking SACCOs' financial performance.

There was an insignificant positive correlation between operating risk management and financial performance as shown by correlation coefficient of 0.016 and the p value of 0.819 which was more than 0.05. The results supported Fadun and Oye (2020) who showed that there is a positive relationship between operational risk management and the financial performance of banks. However, the results differed with Tassew and Hailu (2019) who found that operational risks have significant negative effects on financial performance of commercial banks in Ethiopia.

The study found a positive significant correlation between equity risk management and financial performance as shown by correlation coefficient of 0.602 and the p value of 0 which was less than 0.05. The results supported Rehman et al. (2019) findings that the critical success factor for financial institutions lies in their realization of the importance of equity risk management which has an impact on performance. The findings differed with Mwanthi (2019) that holding too much equity in a company has an insignificant impact on a commercial banks' performance as this reduces their credit portfolio.

There was positive significant correlation between bank size and financial performance as shown by correlation coefficient of 0.394 and the p value of 0 which was less than 0.05. Commercial bank asset size is a key indicator of financial success because banks with a big asset size can expand their market geographically to areas where competition is low and where the market is completely unexplored (Mwangi,

2018). Konya (2018) results indicated that bank size plays a major role in impacting on the financial performance of commercial banks in Kenya. The results differed with AlFadhli and AlAli (2021) who noted that there was an insignificant between bank size and financial performance of commercial bank.

CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The following discussions, conclusions and recommendations were drawn from the analysis and data gathered. The responses were based on the study's objectives. The goal of the study was to see how risk management affected the financial performance of Kenyan commercial banks.

5.2 Summary of Findings

Descriptive results showed that net profit trend of the banks in the 5-year period recorded a mean average of Ksh 3,421 million. The mean average value of total assets was Ksh 104,907 million and the average total loans were at Ksh 63,097 million. The average total deposits were at Ksh 79,017 million while the average non-performing loans were at Ksh 7,799 million. The average non-performing loans were at Ksh 7,799 million while average operational costs were at Ksh 6,197 million. The average operating income were at Ksh 10,222 million while average total equity was at Ksh 16,852 million.

There was positive correlation between financial performance and liquidity risk management, as exhibited by correlation factor of 0.12 which was insignificant as the p value of 0.095 was more than 0.05. There was positive association between credit risk management and financial performance, which was insignificant since the p value of 0.602 was greater than 0.05.

The correlation coefficient of 0.016 and the p value of 0.819, which was more than 0.05, revealed an insignificant positive association between operating risk management and financial performance. There was a substantial positive association between equity risk management and financial performance, as evidenced by a correlation

coefficient of 0.602 and a p value of 0 (less than 0.05). The study discovered a substantial positive association between bank size and financial performance, as evidenced by a correlation of 0.394 and a p value of 0 (less than 0.05).

According to the model summary, there was a significant positive association between the research variables, as shown by 0. 721. The independent factors explained 52.0 percent of the variances in financial performance, according to the R2. At a 5% level of significance, the whole model connection was declared significant since F computed (40.998) was larger than F crucial (value = 2.262), indicating that all independent variables had a meaningful influence on financial performance.

When all independent variables were held to constant zero financial performance would be at negative 0.003 units and when all other variables were held to a constant zero, a unit change in liquidity risk management would enhance financial performance by 0.003. When all other variables were held to a constant zero, a unit change in credit risk management would enhance financial performance by 0.097. When all other variables were held to a constant zero, a unit change in operating risk management would enhance financial performance by 0.348. When all other variables were held to a constant zero, a unit change in equity risk management would enhance financial performance by 0.156. When all other variables were held to a constant zero, a unit change in bank size would enhance financial performance by 0.052.

5.3 Conclusions

There was a positive relationship between financial performance and liquidity risk management though the relationship was weak and insignificant. The positive effect was due to the fact that proper management of liquidity enhances performance of commercial banks as holding appropriate amount of cash enables the banks to advance credit to their customers which increases interest income.

Credit risk management and financial performance had a positive relationship though it was weak and insignificant. This is because proper management of credit through having in place an appropriate credit policy ensures that the credit worthiness of the borrowers is evaluated, and this reduces the risks of loan default. This in turn reduces the level of non-performing loans which impact negatively on bank's performance.

The study found a positive correlation between operating risk management and financial performance though the relationship was insignificant. This is managing operational risks in banks reduces misappropriation of banks' fund, forgery, cheque fraud, hacking and acquiring unauthorized information which impact negatively on banks' performance.

The study found a positive correlation between equity risk management and financial performance of commercial banks where the relationship was significant. This is because proper management of the pooled fund belonging to shareholders increases their stock price values and enhances the banks' reputation and this in turn has a positive effect on the bank performance.

The study found a positive correlation between bank size and financial performance of commercial banks where the relationship was significant. This is because increased client deposits indicate that the bank has more lending capacity, resulting in better profit margins. Larger banks can also benefit from economies of scale because of their size and thus improve their financial performance.

5.4 Policy Recommendations

The study recommends that commercial banks should maintain the right amount of liquidity so that they don't suffer from panic withdraws by the customers but at the same time ensure that they advance enough credit to their customers to increase their interest income.

Commercial banks should keenly monitor their customers' credit reports so that they advance credit to credit worthiness customers and thus reduce the risks of loan defaults. The banks should also streamline their internal lending procedures so that their staffs don't collide with customers who are at risk of loan default and advance loans to them.

The banks should need to develop proper internal controls and procedures to reduce cases of banks' fund, forgery, cheque fraud, hacking and acquiring unauthorized information which impact negatively on banks' performance. They should also ensure that they recruit competent and honest staffs to reduce their operational risks.

The banks should invest in research and development as well as in relevant innovations so that they can increase their equity and thus have better returns for their shareholders which in turn increases the investors' confidence.

The bank should invest in emerging technologies and e-marketing so that they can increase their size at lower costs in terms of customer numbers and the numbers of branches. This will in turn increase their revenue and market share in the banking industry.

5.5 Limitations of the Study

The research encountered several limitations. The study was restricted to only 5-year duration from 2016 and June 2020, a longer term of the study might have captured periods of different financial significance such as booms and recessions. This may have likely given a longer time centre thus given a broader measurement to the issues involved. Future studies should consider increasing the duration of study.

Secondary data collected from the Bank Supervision and Banking Sector Reports from CBK was the only data used. The data for analysis was not readily available in one database; this made data collection to be a time and effort consuming exercise as the

researcher had to collect data from different sources. The study used four variables that is liquidity risk management, credit risk management, operating risk management, equity risk management, bank size and financial performance. The study therefore overlooked other variables such as market risks, security, and fraud risks management.

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APPENDICES: RESEARCH DATA

Appendix I: Research Data 2016

	Bank	Net profit	Total assets	Total loans	Total deposits	Non-performing loans	Operational costs	Operating income	Total equity
1.	KCB Bank Kenya Ltd	28,482	504,778	373,031	386,611	28,333	30,538	51,125	80,990
2.	Co-operative Bank of Kenya Ltd	18,024	349,998	241,395	277,275	11,273	25,990	43,510	60,046
3.	Equity Bank Kenya Ltd	22,778	379,749	221,039	259,472	15,457	30,972	51,850	52,341
4.	I & M Bank Ltd	12,764	164,116	132,497	178,448	15,038	15,161	25,381	43,905
5.	Absa Bank Kenya Plc	10,440	259,498	176,349	186,598	11,472	15,161	25,381	42,095
6.	Standard Chartered Bank Kenya Ltd	8,876	250,274	19,354	169,600	272	13,861	23,206	36,432
7.	NCBA Bank Kenya PLC	0	0	0	0	0	0	0	31,305
8.	Stanbic Bank Kenya Ltd	7,593	204,895	105,082	121,989	7,450	11,046	18,492	27,470
9.	Bank of Baroda (Kenya) Limited	6,910	82,907	4,339	104,160	816	9,746	16,316	30,238
10.	Citibank N.A. Kenya	6,033	103,324	40,170	103,741	1,855	8,880	14,866	19,629
11.	Diamond Trust Bank Kenya Limited	5,926	244,124	72,842	96,967	29,987	5,848	9,790	30,288
12.	Bank of India	3,876	69,432	5,582	62,486	856	6,064	10,152	14,225
13.	Prime Bank Ltd	2,336	68,085	27,683	64,874	805	5,198	8,702	10,834
14.	Family Bank Ltd.	2,185	65,338	54,624	41,473	6,193	4,115	6,889	9,536
15.	SBM Bank Kenya Ltd	1,445	55,996	4,009	38,156	1,193	3,487	5,838	9,775
16.	Gulf African Bank Ltd	796	47,815	41,075	49,313	10,794	3,899	6,527	5,060
17.	Guaranty Trust Bank Ltd	754	47,124	10,155	34,464	2,038	3,032	5,076	4,376
18.	Victoria Commercial Bank Limited	659	29,619	7,388	26,726	676	2,837	4,750	8,366
19.	Habib Bank AG Zurich	633	27,156	7,339	32,243	891	2,621	4,387	12,619
20.	National Bank of Kenya Ltd	622	22,422	103,535	16,562	7,013	1,906	3,191	2,965

21	First Community Bank Ltd	601	22,403	15,538	21,755	2,840	1,689	2,828	3,077
22	African Banking Corporation Ltd	493	20,876	111,286	16,078	12,650	1,343	2,248	2,454
23	Middle East Bank (K) Ltd	302	17,033	9,389	15,696	196	1,559	2,611	2,215
24	Sidian Bank Ltd	222	16,418	30,902	13,685	5,359	1,256	2,103	2,997
25	Paramount Bank Ltd	162	16,254	10,400	11,773	1,322	1,105	1,849	10,996
26	Guardian Bank Limited	160	15,724	6,485	5,789	778	801	1,342	2,073
27	UBA Kenya Bank Ltd	158	14,962	10,767	12,938	2,141	1,126	1,885	2,460
28	M-Oriental Commercial Bank Ltd	105	14,705	12,826	8,095	994	845	1,414	1,644
29	Development Bank of Kenya Ltd	95	13,918	13,124	12,655	127	910	1,523	2,903
30	Credit Bank Ltd	62	13,803	9,926	12,313	787	888	1,487	3,869
31	Ecobank Kenya Ltd	50	12,508	104,302	9,492	5,072	628	1,051	2,143
32	Kingdom Bank Ltd	36	12,202	9,094	8,543	2,594	671	1,124	2,931
33	Consolidated Bank of Kenya Limited	-16	10,465	128,266	8,215	5,520	823	1,378	8,418
34	Mayfair CIB Bank Ltd	-41	9,920	13,317	9,135	2,459	845	1,414	1,557
35	Bank of Africa (K) Ltd	-101	9,427	57,975	8,000	7,015	476	798	1,192
36	DIB Bank Kenya Ltd	-277	5,601	15,864	6,937	1,617	563	943	1,403
37	HFC Ltd	-490	5,234	11,532	7,668	3,853	520	870	3,590
38	Spire Bank Limited	-968	4,671	2,790	1,947	69	390	653	1,817
39	Access Bank Plc	-2,889	5,261	5,329	3,996	158	217	363	7,307

Appendix II: Research Data 2017

	Bank	Net Profit	Total Assets	Total Loans	Total Deposits	Non-Performing Loans	Operational Costs	Operating Income	Total Equity
1.	KCB Bank Kenya Ltd	27,472	555,630	411,666	445,398	34,182	31,354	50,133	88,991
2.	Co-operative Bank of Kenya Ltd	16,502	382,830	139,406	285,990	17,621	26,454	42,297	61,906
3.	Equity Bank Kenya Ltd	23,086	406,402	221,698	298,703	12,615	28,494	45,559	68,227
4.	I & M Bank Ltd	7,516	183,953	126,983	134,247	435	15,766	25,208	43,559
5.	Absa Bank Kenya Plc	10,006	271,682	156,843	189,305	2,666	14,901	23,825	44,584
6.	Standard Chartered Bank Kenya Ltd	9,510	285,125	107,038	226,051	7,798	14,568	23,294	43,004
7.	NCBA Bank Kenya PLC	0	0	0	0	0	0	0	35,024
8.	Stanbic Bank Kenya Ltd	8,228	239,408	135,443	178,696	18,714	12,462	19,925	31,571
9.	Bank of Baroda (Kenya) Limited	6,373	96,132	68,153	77,694	27,658	10,599	16,947	20,177
10.	Citibank N.A. Kenya	5,676	98,232	7,741	65,461	809	10,244	16,380	28,938
11.	Diamond Trust Bank Kenya Limited	5,599	109,942	38,080	209,254	1,724	5,677	9,076	33,051
12.	Bank of India	5,053	76,438	5,680	100,165	592	5,677	9,076	17,900
13.	Prime Bank Ltd	2,675	69,051	3,242	58,951	1,438	5,255	8,403	11,625
14.	Family Bank Ltd.	1,977	56,631	118,459	47,627	10,571	4,457	7,126	14,338
15.	SBM Bank Kenya Ltd	849	62,127	0	44,825	0	3,792	6,063	5,612
16.	Gulf African Bank Ltd	740	53,456	0	36,981	877	3,437	5,495	7,048
17.	Guaranty Trust Bank Ltd	409	54,191	7,232	45,856	1,595	3,171	5,070	2,842
18.	Victoria Commercial Bank Limited	393	27,628	16,371	33,335	2,481	2,816	4,503	9,963
19.	Habib Bank AG Zurich	254	31,316	0	16,601	0	2,772	4,432	4,419
20.	National Bank of Kenya Ltd	241	25,985	33,589	26,105	3,535	1,885	3,014	8,609
21.	First Community Bank Ltd	228	24,804	21,456	18,886	10,359	1,707	2,730	2,375

22.	African Banking Corporation Ltd	216	19,302	6,867	20,104	13,265	1,574	2,517	1,709
23.	Middle East Bank (K) Ltd	203	18,708	6,345	14,140	8,287	1,308	2,092	3,160
24.	Sidian Bank Ltd	179	15,803	9,929	13,808	2,349	1,087	1,737	2,665
25.	Paramount Bank Ltd	116	17,360	13,746	13,120	778	998	1,595	3,028
26.	Guardian Bank Limited	96	14,465	18,887	14,783	2,106	887	1,418	1,760
27.	UBA Kenya Bank Ltd	58	16,320	10,303	11,485	1,421	865	1,383	2,930
28.	M-Oriental Commercial Bank Ltd	54	12,851	20,771	7,665	17	843	1,347	2,132
29.	Development Bank of Kenya Ltd	35	10,577	10,710	5,612	1,122	820	1,312	8,468
30.	Credit Bank Ltd	14	10,295	6,680	7,463	17,669	776	1,241	2,162
31.	Ecobank Kenya Ltd	-41	13,456	43,943	7,950	2,310	710	1,135	1,162
32.	Kingdom Bank Ltd	-297	11,745	0	8,855	0	621	993	1,169
33.	Consolidated Bank of Kenya Limited	-361	9,541	235	6,842	11,901	577	922	1,607
34.	Mayfair CIB Bank Ltd	-439	5,637	12,330	7,729	1,962	554	886	1,068
35.	Bank of Africa (K) Ltd	-633	6,505	26,430	6,822	3,917	554	886	3,447
36.	DIB Bank Kenya Ltd	-762	5,121	46,928	4,194	2,596	510	815	3,454
37.	HFC Ltd	-839	3,548	20,144	3,908	14,758	466	745	1,269
38.	Spire Bank Limited	-1,371	11,148	10,995	2,080	9,478	310	496	11,608
39.	Access Bank Plc	-1,434	2,610	291	1,285	0	244	390	6,439

Appendix III: Research Data 2018

	Bank	Net Profit	Total Assets	Total Loans	Total Deposits	Non-Performing Loans	Operational Costs	Operating Income	Total Equity
1.	KCB Bank Kenya Ltd	31,385	621,723	434,361	486,613	30,012	31,583	53,629	97,789
2.	Co-operative Bank of Kenya Ltd	17,587	408,304	257,566	304,593	28,953	27,920	47,409	60,587
3.	Equity Bank Kenya Ltd	24,382	438,509	231,026	341,782	17,064	29,477	50,053	68,319
4.	I & M Bank Ltd	8,725	229,161	118,271	177,250	9,271	14,651	24,878	38,339
5.	Absa Bank Kenya Plc	10,250	325,363	186,984	213,033	13,910	14,476	24,580	43,393
6.	Standard Chartered Bank Kenya Ltd	11,434	281,516	155,498	220,784	16,644	14,366	24,394	47,713
7.	NCBA Bank Kenya PLC	0	0	0	0	0	0	0	0
8.	Stanbic Bank Kenya Ltd	8,798	280,953	144,434	212,282	21,115	12,414	21,079	34,591
9.	Bank of Baroda (Kenya) Limited	5,643	123,014	133,166	102,007	21,661	11,668	19,813	20,415
10	Citibank N.A. Kenya	5,159	98,534	66,123	71,467	31,461	7,479	12,700	23,039
11	Diamond Trust Bank Kenya Limited	2,448	115,143	47,023	105,244	8,138	6,404	10,875	6,936
12	Bank of India	2,088	85,639	43,439	57,761	3,903	5,615	9,534	19,410
13	Prime Bank Ltd	956	62,689	49,215	49,256	13,334	4,913	8,342	13,191
14	Family Bank Ltd.	588	66,910	38,188	48,806	2,821	4,716	8,007	11,426
15	SBM Bank Kenya Ltd	565	70,648	23,602	51,044	16,311	3,509	5,959	6,938
16	Gulf African Bank Ltd	420	57,083	27,255	35,445	819	3,421	5,810	9,165
17	Guaranty Trust Bank Ltd	359	54,464	23,616	47,188	2,572	3,005	5,102	6,408
18	Victoria Commercial Bank Limited	348	49,081	22,810	30,181	696	2,698	4,581	6,736
19	Habib Bank AG Zurich	332	32,337	14,733	24,339	3,192	2,610	4,432	5,963
20	National Bank of Kenya Ltd	307	33,326	26,255	26,689	9,509	2,171	3,687	4,468
21	First Community Bank Ltd	292	25,323	18,620	16,760	4,232	1,689	2,868	8,453

22	African Banking Corporation Ltd	210	27,213	14,108	21,974	2,942	1,601	2,719	3,557
23	Middle East Bank (K) Ltd	169	25,329	13,440	20,525	1,113	1,689	2,868	4,037
24	Sidian Bank Ltd	158	21,521	13,342	16,390	2,526	1,294	2,197	3,039
25	Paramount Bank Ltd	151	17,805	19,153	14,392	1,347	1,294	2,197	2,863
26	Guardian Bank Limited	136	16,186	10,691	13,336	4,940	1,031	1,750	2,557
27	UBA Kenya Bank Ltd	105	17,880	9,112	15,541	6,344	899	1,527	1,271
28	M-Oriental Commercial Bank Ltd	24	15,332	9,715	12,964	960	833	1,415	2,174
29	Development Bank of Kenya Ltd	3	15,323	10,031	6,822	2,879	768	1,303	2,871
30	Credit Bank Ltd	7	10,515	10,027	7,405	2,539	768	1,303	3,065
31	Ecobank Kenya Ltd	-268	10,236	8,018	5,261	773	702	1,192	1,641
32	Kingdom Bank Ltd	-278	12,887	7,646	8,824	1,850	658	1,117	925
33	Consolidated Bank of Kenya Limited	-307	9,887	6,172	8,126	1,069	548	931	1,687
34	Mayfair CIB Bank Ltd	-352	8,351	6,451	4,787	581	504	857	1,769
35	Bank of Africa (K) Ltd	-383	6,857	3,064	5,615	1,227	526	894	1,020
36	DIB Bank Kenya Ltd	-395	5,251	6,109	3,198	2,686	461	782	1,945
37	HFC Ltd	-562	5,361	2,132	4,147	154	351	596	1,158
38	Spire Bank Limited	-98	9,223	3,184	7,090	603	373	633	-1,030
39	Access Bank Plc	-873	10,236	3,465	8,083	442	307	521	1,929

Appendix IV: Research Data 2019

	Bank	Net Profit	Total Assets	Total Loans	Total Deposits	Non-Performing Loans	Operational Costs	Operating Income	Total Equity
1	KCB Bank Kenya Ltd	33,184	674,302	468,258	536,830	34,786	33,052	55,151	92,608
2	Co-operative Bank of Kenya Ltd	20,326	449,616	281,516	330,113	31,156	24,367	40,658	77,088
3	Equity Bank Kenya Ltd	25,974	507,525	290,564	381,138	26,185	24,034	40,102	69,914
4	I & M Bank Ltd	12,012	254,252	281,516	195,841	30,516	22,963	38,316	47,015
5	Absa Bank Kenya Plc	11,857	374,109	244,395	242,375	13,519	16,181	27,000	44,079
6	Standard Chartered Bank Kenya Ltd	12,691	302,296	205,304	236,461	19,345	15,158	25,292	47,222
7	NCBA Bank Kenya PLC	9,290	464,891	163,859	360,305	12,892	15,086	25,173	69,416
8	Stanbic Bank Kenya Ltd	8,240	292,705	155,307	205,516	18,799	13,445	22,433	52,001
9	Bank of Baroda (Kenya) Limited	5,466	143,311	152,807	221,038	20,058	13,421	22,394	22,943
1	Citibank N.A. Kenya	5,647	96,570	144,483	119,341	25,175	7,400	12,348	24,455
1	Diamond Trust Bank Kenya Limited	9,279	287,251	60,677	81,345	8,244	6,163	10,284	11,705
1	Bank of India	2,799	62,543	54,389	97,079	4,126	5,211	8,695	19,047
1	Prime Bank Ltd	2,457	108,786	49,335	65,335	12,316	5,045	8,418	12,408
1	Family Bank Ltd.	1,352	78,857	45,822	58,332	4,555	3,950	6,591	15,532
1	SBM Bank Kenya Ltd	1,180	72,519	38,932	46,755	14,980	3,712	6,194	6,568
1	Gulf African Bank Ltd	1,137	15,358	27,226	66,321	1,116	3,379	5,638	7,877
1	Guaranty Trust Bank Ltd	669	36,072	27,068	50,573	3,613	3,141	5,241	9,152
1	Victoria Commercial Bank Limited	491	29,082	24,578	38,004	1,204	2,713	4,526	4,276
1	Habib Bank AG Zurich	385	24,823	24,542	33,329	4,783	1,904	3,176	6,356
2	National Bank of Kenya Ltd	300	21,541	24,118	27,350	8,998	1,856	3,097	8,808
2	First Community Bank Ltd	251	16,386	22,546	18,932	3,557	1,832	3,057	4,635

2	African Banking Corporation Ltd	243	75,378	20,115	27,818	3,258	1,689	2,819	3,689
2	Middle East Bank (K) Ltd	218	35,123	15,846	22,981	1,592	1,356	2,263	4,018
2	Sidian Bank Ltd	185	18,763	15,797	18,014	2,747	1,261	2,104	3,077
2	Paramount Bank Ltd	164	28,680	14,872	20,532	1,212	1,190	1,985	3,000
2	Guardian Bank Limited	106	16,088	13,608	17,347	4,699	1,047	1,747	2,741
2	UBA Kenya Bank Ltd	86	10,443	11,833	13,078	6,083	857	1,429	1,462
2	M-Oriental Commercial Bank Ltd	64	26,452	10,766	16,285	944	809	1,350	2,146
2	Development Bank of Kenya Ltd	64	12,394	9,892	6,029	3,341	809	1,350	3,950
3	Credit Bank Ltd	60	8,466	9,801	13,600	2,632	809	1,350	2,242
3	Ecobank Kenya Ltd	-23	57,083	8,929	9,188	1,411	738	1,231	3,043
3	Kingdom Bank Ltd	-56	9,318	7,455	8,796	2,196	595	993	2,000
3	Consolidated Bank of Kenya Limited	-366	8,652	7,313	8,479	1,263	547	913	1,778
3	Mayfair CIB Bank Ltd	-453	6,860	7,177	7,100	787	500	834	1,818
3	Bank of Africa (K) Ltd	-517	11,866	7,000	6,512	870	500	834	2,009
3	DIB Bank Kenya Ltd	-795	8,988	6,153	7,138	2,632	428	715	1,156
3	HFC Ltd	-821	112,029	5,114	7,293	50	405	675	1,040
3	Spire Bank Limited	-1,143	8,585	5,067	4,795	67	286	476	304
3	Access Bank Plc	-2,930	43,996	4,606	4,553	883	143	238	-552

Appendix IV: Research Data 2020

	Bank	Net Profit	Total Assets	Total Loans	Total Deposits	Non-Performing Loans	Operational Costs	Operating Income	Total Equity
1	KCB Bank Kenya Ltd	23,586	758,345	544,837	591,067	66,810	44,229	71,641	111,271
2	Co-operative Bank of Kenya Ltd	16,961	496,823	355,630	370,085	42,825	36,989	59,913	85,597
3	Equity Bank Kenya Ltd	14,207	667,650	307,324	502,423	51,781	30,536	49,460	86,697
4	I & M Bank Ltd	10,289	283,569	259,698	218,153	35,995	30,095	48,746	52,324
5	Absa Bank Kenya Plc	8,300	377,936	229,677	253,630	17,099	19,612	31,767	44,969
6	Standard Chartered Bank Kenya Ltd	7,018	325,873	176,597	256,498	25,038	19,203	31,104	50,219
7	NCBA Bank Kenya PLC	6,955	491,614	165,948	394,813	19,747	18,888	30,594	72,028
8	Stanbic Bank Kenya Ltd	6,237	318,986	160,665	216,805	20,178	17,717	28,697	41,857
9	Bank of Baroda (Kenya) Limited	5,791	166,313	152,711	135,000	22,337	17,408	28,197	26,677
1(	Citibank N.A. Kenya	5,480	106,454	74,774	48,874	26,438	10,105	16,368	22,134
1	Diamond Trust Bank Kenya Limited	3,942	312,189	63,111	79,193	9,391	7,681	12,442	54,032
1	Bank of India	2,733	75,129	51,151	9,224	6,342	6,926	11,218	11,936
1	Prime Bank Ltd	1,849	116,204	41,836	17,638	10,799	6,831	11,065	13,162
1	Family Bank Ltd.	1,326	90,591	44,531	6,202	4,838	5,289	8,566	17,853
1	SBM Bank Kenya Ltd	617	79,190	36,760	12,492	16,225	5,100	8,260	7,070
1(	Gulf African Bank Ltd	559	37,653	39,726	80,233	1,120	4,879	7,903	8,871
1	Guaranty Trust Bank Ltd	493	31,267	22,928	70,125	4,028	4,124	6,680	8,247
1	Victoria Commercial Bank Limited	480	37,890	25,442	28,286	1,679	3,179	5,150	6,745
1	Habib Bank AG Zurich	451	27,212	26,884	21,314	4,377	2,330	3,773	9,189
2(	National Bank of Kenya Ltd	313	126,842	21,850	13,238	8,689	2,336	3,783	5,419
2	First Community Bank Ltd	238	21,947	21,961	29,972	3,425	2,270	3,677	5,029

2	African Banking Corporation Ltd	147	32,643	20,409	21,749	2,337	2,150	3,483	3,816
2	Middle East Bank (K) Ltd	105	11,022	17,512	24,649	2,017	1,829	2,963	4,080
2	Sidian Bank Ltd	104	33,500	15,714	5,081	3,269	1,766	2,861	3,204
2	Paramount Bank Ltd	97	11,378	20,980	8,069	996	1,483	2,402	3,218
2	Guardian Bank Limited	77	16,858	14,572	9,523	5,258	1,325	2,147	2,051
2	UBA Kenya Bank Ltd	56	18,743	8,907	9,749	6,787	1,171	1,897	2,257
2	M-Oriental Commercial Bank Ltd	43	12,985	9,248	99,229	1,181	1,042	1,688	3,823
2	Development Bank of Kenya Ltd	19	17,222	10,149	9,265	3,420	1,051	1,703	2,834
3	Credit Bank Ltd	8	23,145	10,130	88,548	2,436	1,011	1,637	4,121
3	Ecobank Kenya Ltd	6	94,428	7,742	56,033	1,812	988	1,601	3,071
3	Kingdom Bank Ltd	-124	30,612	3,481	22,768	159	711	1,152	1,300
3	Consolidated Bank of Kenya Limited	-262	12,886	7,883	6,094	1,346	759	1,229	2,847
3	Mayfair CIB Bank Ltd	-352	12,729	6,847	18,819	836	831	1,346	1,837
3	Bank of Africa (K) Ltd	-680	44,917	7,639	27,977	790	718	1,163	1,911
3	DIB Bank Kenya Ltd	-693	13,263	3,827	10,149	2,711	705	1,142	1,274
3	HFC Ltd	-963	54,478	8,789	40,006	125	598	969	1,346
3	Spire Bank Limited	-1,257	5,114	5,056	4,793	129	538	872	-1,820
3	Access Bank Plc	-2,010	10,147	3,178	7,826	1,295	416	673	1,413