

**MODERATING EFFECT OF BANK SIZE ON THE FACTORS AFFECTING  
FINANCIAL PERFORMANCE OF LISTED COMMERCIAL BANKS IN KENYA**

**By**

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**MASTER OF SCIENCE IN COMMERCE (FINANCE)**

**KCA UNIVERSITY**

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COMMERCE (FINANCE) IN THE SCHOOL OF BUSINESS , KCA UNIVERSITY**

**KCA UNIVERSITY**

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## **DECLARATION**

I declare that this dissertation is my original work that has not been published before nor has been submitted elsewhere for a degree award. I can also confirm that it contains no material written or published by other people with the exception of areas in which their work has been duly referenced and the authors acknowledged.

Signed 

**Date:** 22/12/2023

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## ABSTRACT

The aim of this study is to investigate the effects of capital adequacy, liquidity, asset quality and operational cost efficiency ratios on banks' profitability with size as a moderating factor. The analysis of these ratios makes it possible to observe the behaviour of the banks in terms of risk and performance during the period under study. The empirical analysis relates to a sample of Eleven listed Kenyan banks observed over the period between 2011-2020. The purpose of this research was to investigate how the size of a bank influenced the aspects that contributed to the financial performance of listed commercial banks in Kenya. The research was planned with a descriptive research design in mind to accomplish the goals set forth for this study. The total customer base of Kenya's 11 commercial banks listed on stock exchange served as the study's primary focus group. Both descriptive and correlation statistical methods were used to analyse the data. Throughout the research, tests for normality, multicollinearity, autocorrelation, and heteroscedasticity were carried out. In order to conduct an empirical investigation on the moderating influence that bank size has on the financial performance of listed financial institutions, a panel model was used. The findings showed that the quality of commercial banks' assets considerably impacted the banks' overall performance. The financial performance of Kenya's listed commercial banks was significantly impacted negatively by liquidity's presence in the market. There is a positive and substantial correlation between commercial banks' levels of capital adequacy and their levels of financial performance. It was shown that the operational cost efficiency of commercial banks in Kenya had a negative and negligible association with their financial performance. It was found that the size of the bank had a moderating impact that was both positive and significant on the parameters that influence the financial performance of listed commercial banks in Kenya. According to the findings of the research, it is essential to keep track of the aspects that influence the financial performance of commercial banks that are publicly traded. These criteria include asset quality, liquidity, capital sufficiency, and operational cost efficiency.

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## **DEDICATION**

To my cherished wife Beth Wangui for her support and love during the many academic late nights and my doting daughters Alice and Abigael.

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## LIST OF ABBREVIATIONS

<b>CBK-</b>	Central Bank of Kenya
<b>CIR-</b>	Cost to Income Ratio
<b>GDP-</b>	Gross Domestic Product
<b>KNBS-</b>	Kenya National Bureau of Statistics
<b>LLP-</b>	Loan Loss Provision
<b>LQR-</b>	Liquidity Ratio
<b>NIM-</b>	Net Interest Margin
<b>NPL-</b>	Non-Performing Loans
<b>POCL-</b>	Percentage of Classified Loans
<b>ROA-</b>	Return on Assets
<b>ROE-</b>	Return on Equity
<b>ROI-</b>	Return on Investment

## **CHAPTER ONE**

### **INTRODUCTION**

#### **1.1 Background of the study**

Banking sector plays a crucial role in driving economic development in any country and the financial performance of commercial banks is critical to the sector's growth. Studies have shown that the size of a bank can impact on its financial performance. This study aims to examine the moderating effect of the bank size on the financial performance of listed commercial banks in Kenya.

(Kagecha, (2016)) In his study on Bank Size states that Economic theory suggests that if larger banks have a greater control of the domestic market, and operate in a non-competitive environment, lending rates may remain high. Recent research has explored the relationship between bank size and financial performance, with conflicting results. For instance, (Odongo, 2022) found that larger banks have higher profitability ratios than smaller banks, while (Oluoch, 2021) reported that small banks outperform larger banks in terms of return on assets. Therefore, it is imperative to examine the moderating effect of bank size on the factors affecting financial performance of listed commercial banks in Kenya, if any, given that the country's rapidly growing banking sector has been faced by several challenges some attributable to size.

Eleven commercial banks were listed on the Nairobi Stock Exchange in 2021 will be used in this research. In terms of methodology, the study will adopt a descriptive research design, and its population is composed of all of the commercial banks listed in Kenya. Secondary data were acquired from the yearly CBK reports as well as the financial statements of the different banks. A panel data model was used to analyse the gathered data. Considering that this study seeks to assess factors that affect the financial performance of listed commercial banks: effects of bank size, causal

design is the best framework since it will enable us to relate shareholding and bank profitability. A causal research design purposes to ascertain whether there is a link between explanatory and regressor variables and also tells whether the link is statistically significant or not.

By conducting this research , the researcher seeks to assert the necessity to monitor factors that affect the financial performance of listed commercial banks in Kenya around the asset quality, liquidity, capital adequacy and operational cost efficiency. This would go a long way in ensuring that commercial banks are able to minimize the effects of certain risks that they face. In doing so, these banks would be able to improve on their financial performance.

Commercial banks are not the only institutions that are affected by the factors discussed, other businesses for example insurance firms are affected. Therefore, the study recommends that all business entities should re-evaluate in order to boost their performance either in a financial or operational perspective. Moreover, an establishment of evaluation body of commercial banks should be made a prerequisite as it contributes to the overall performance of the commercial banks.

The Kenyan banking sector, recognized as a vital engine for economic growth, is confronting escalating intricacies in sustaining the robust financial performance of listed commercial banks (Sufian & Chong, 2018). In the aftermath of global financial crises, comprehending the multifaceted nature of these financial institutions has become a priority. This study endeavors to delve into the factors influencing the financial performance of listed commercial banks in Kenya, with a specific focus on the moderating effect of bank size.

In the context of Kenya's burgeoning economy, the performance of commercial banks holds considerable sway over the nation's economic stability (Sufian & Chong, 2018). Recognizing the significance of factors shaping financial performance, it is imperative to scrutinize these elements with an added lens – the moderating influence of bank size. The pivotal role of banks in providing financial intermediation services, investment opportunities, and facilitating economic growth demands a nuanced examination of their operational dynamics.

Traditional risk factors such as loan portfolio management, liquidity constraints, and the creation of mortgage assets pose significant challenges (Gross, 2017). These challenges, when viewed through the prism of bank size, take on a new dimension. The size of a bank, whether measured by total assets, customer deposits, or other metrics, becomes a crucial variable in shaping the impact of these challenges on financial performance.

The financial landscape in Kenya, with its unique blend of developed and developing attributes, necessitates a tailored approach to understanding how different sizes of commercial banks navigate and mitigate risks (Sufian & Chong, 2018). Previous studies have hinted at the importance of size in influencing monetary stability, but a targeted exploration within the Kenyan context is crucial.

This study addresses the gap in current literature by specifically investigating the moderating effect of bank size on the factors affecting financial performance. By doing so, it aims to offer practical insights for regulators, policymakers, and industry stakeholders (Sufian & Chong, 2018). The concise articulation of the problem, within the broader context of Kenya's banking sector, sets the stage for a focused and impactful exploration of the study's objectives.

### **1.1.1 Financial Performance of Banks**

The capacity of an organization to establish monetary stability via prudent investment and operational decision-making is a critical factor in determining financial success. The activity of an organization toward the attainment of its monetary goals is radio-controlled by the organization's monetary goals and benchmarks. Because they are an essential component of every nation's monetary system, banks play a significant part in the economic growth of the countries in which they are located.

The economic repercussions may be enormous and far-reaching if the financial system does not function effectively. Numerous studies have been conducted on the performance of various

financial institutions. These research findings strongly suggest that the factors that determine bank profitability vary not just across nations but also between different geographical areas of the world (Doliente, 2018).

Components such as return on assets (ROA) and return on equity are used to calculate a commercial bank's overall monetary success (ROE). ROE, which stands for return on equity, is the most important factor in determining profits. This is because it reveals to shareholders the whole amount of financial gain generated from the institution's one-book value foundation of their endowed capital.

On the other hand, ROA, which refers to the whole of the organization's assets, demonstrates how excellent the institution is in addition to having the finest management (Meier, Marthinsen, & Gantenbein, 2013). The ROA is of the utmost importance to the regulatory agencies that oversee banks, such as rating corporations and central banks.

The typical range of assets throughout the year is used to calculate ROA. This is because the financial services industry is particularly sensitive to various factors at different times of the year. " Return on equity, also known as ROE, and return on assets, also known as ROA, are the two ratios employed most often.

According to Wong et al. (2008), the efficacy of banks is often evaluated by using the ROE, which displays the degree to which banks use reinvested returns to produce upcoming profits. According to (Reichel, 2023) there is a strong positive impact of ROE on merger intensity indicating that cooperative banks on average merge from a position of economic strength. That speaks against the hypothesis of restructuring mergers as a cause of merger waves.

This is a common method for evaluating the potency of banks. Following the Riksbank's Money Stability Report (2002), relating profit to shareholder's equity is often used to represent the profit that the banks generate. The article Investment Management (2018) said that return on equity

(ROE) is a very useful illustration of a company's potential to generate profits since it determines what percentage of earnings a company will obtain on its stock.

In addition, students saw the company's size as a factor that was beneficial to the financial success of the nursing associate organization (Kioko, 2018). A profitable bank is more dominating in the industry since it serves many clients and maintains many accounts due to its success (Dymski, 2015). The issue of company mensuration must be addressed to guarantee that the financial sector in the nursing economy is in a state of equilibrium. During the severe economic downturn in 2007 and 2008, it was crystal clear that the nation's largest banks were responsible for a disproportionate amount of the damage to the economy.

### **1.1.2 Performance of Commercial Banks in Kenya**

As of the thirty first of December in the year 2019, the banking sector in African nation, according to the regulation of the financial organization of African nation, as the administrative unit, comprised of fifty-three banking institutions (forty-two industrial banks and one loan finance company), eight skilled offices of overseas Banks, twelve Microfinance banks, three credit score reference bureaus (CRBs), fifteen cash remittent suppliers (MRPs), and eighty interchange (forex) bureaus. Two of the fifty-three financial institutions were privately owned, while the government of the African country had the majority stake in three of the financial institutions. Twenty-six of the forty privately held banks in Kenya are owned by Kenyans (the majority of the shareholders are also based in Kenya), while investors own the other fourteen from outside the country (many having minority shareholding).

There are twenty-five industrial enterprise banks and one loan financier that comprise the twenty-six firms held by regional interests. Ten of the fourteen enterprises were neighbourhood subsidiaries of foreign banks, while the other four were branches of foreign banks. All of the businesses that foreign investors controlled were industrial banks. Every single authorized

microfinance bank, credit reference bureau, currency bureau, and cash remittance provider was privately owned and operated.

In a nation where commercial banks have a dominant position in the financial system, a collapse within the financial sector can significantly impact the nation's whole economic system. This is often the case because any bankruptcy that may occur inside the sector has the potential to have a contagion effect, which would trigger bank runs, and crises and bring about an entire monetary crisis and economic turmoil (CBK, 2014).

Even though banks in the Republic of Kenya have a generally positive overall financial performance, a handful still has reported losses (Oloo, 2011). In addition, the recent trend of banking companies engaging in mergers and acquisitions, which is increasing all over the globe, is what sparked the interest in this research on the banal influence of bank size on elements impacting the gain of listed business banks in the Republic of Kenya.

### **1.1.3 Bank Size**

Bank size is measured as the natural logarithm of the value of total assets. (Naqvi,2023) defines large banks as those that control a significant percentage of assets and argue that the ability of large banks to raise external non-deposit finance to fund liquidity shocks makes them less sensitive to changes in monetary policy.

## **1.2 Statement of the Problem**

The banking sector in Kenya has witnessed significant growth in recent years, with commercial banks playing a critical role in the country's economic development. However, the financial performance of listed commercial banks in Kenya has been a topic of concern due to the impact of various factors such as regulation, competition, and bank size.

While previous studies have investigated the relationship between bank size and financial performance, few have examined the moderating effect of bank size on the financial performance of listed commercial banks in Kenya. Therefore, the problem that this thesis seeks to address is to examine the moderating effect of bank size on the financial performance of listed commercial banks in Kenya. Specifically, the study aims to investigate whether bank size moderates the relationship between financial performance indicators such as return on assets, return on equity, and net interest margin.

The study will also examine the impact of other factors such as liquidity, asset quality, and capital adequacy on financial performance. The findings of this study will contribute to the literature on the impact of bank size on financial performance, particularly in the context of listed commercial banks in Kenya. The study's results will provide policymakers, regulators, and investors with insights on the relationship between bank size and financial performance, which can inform decision-making processes in the banking sector. Additionally, the study's findings will help commercial banks in Kenya to develop strategies that optimize financial performance based on bank size.

Globally, larger companies' area units are more economical and profitable than smaller ones. Due to their higher potency, firm size growth might be distinct from management if the dimensions have reached an explicit threshold (Clarke, Davies, & Waterson, 2018). Therefore, the affiliation between firm size and profitableness will negatively affect the far side.

The firm size limit took a lot of the cross-sectional of average stock returns (Fama & French, 2015). In addition, the Market-Power hypothesis describes the result of accelerating size on firms' profitability as expressively positive to an explicit degree (Athanasoglou et al., 2018). Before the fact that more diversity suggests less risk and, as a result, a lower projected come, the relationship between the size of a bank and its profitability is uncertain (Bikker & Vervliet, 2018). In addition, variables that contribute to economies of scale are considered when determining a bank's size.

Most academic work on finance uses the ratio of total bank assets to total bank size as a stand-in for actual bank size. Kenya's banking sector has made strides towards guaranteeing that they perform better financially. This has been seen through the adoption the International monetary coverage Standards-9 (IFRS-9) in July 2014, whose major aim was to boost monetary integrity within the banking sector (Caruso, D'Hulster, Kliatskova, & Ortiz, 2021). Research on the profitability of banks has been the subject of a great number of studies.

Mbote (2016) researched a regional scale to investigate the association between the kind of mortgages offered by personal lending companies in Rwanda and the stage of non-performing mortgage portfolios held by those companies. Bakewell (2020) researched the connection between banks in Canada's mortgage portfolios and their overall monetary performance. As a result of these investigations, methodological, contextual, and conceptual gaps were established, which the suggested research aimed to fill.

In addition, none of the research focused on the inconsequential influence that size has on the significant aspects that contribute to profits for banks in the African country. This is often the case, even though a number of financial institutions in African countries have failed as a direct result of bad practices that have negatively impacted their profits (Waweru & Kalani, 2019).

For example, in Oct 2015, Imperial Bank was under receivership by the Kenya's Central Bank, due to malpractices and irregularities within the bank. Consequently, in Apr 2016, Chase

bank was put under receivership again due to irregularities, liquidity difficulties, and inability to fulfil its money obligations. This analysis contributed to the prevailing literature by introducing an moderating variable, bank size, into the link between factors poignant financial performance of listed commercial banks as a modest attempt to bridge the gap within the field.

The choice of bank size as a moderating effect is based on the recognition that the impact of various factors on the financial performance of commercial banks may vary depending on the size of the bank. Bank size is a critical determinant of a bank's financial performance, as larger banks tend to have more resources, higher profitability and greater market power than smaller banks.

However, the relationship between bank size and financial performance is not straightforward, as other factors such as regulation, competition, and market conditions can also impact financial performance. Therefore, the choice of bank size as a moderating effect seeks to examine how the relationship between financial performance and other factors changes depending on the size of the bank. For instance, previous studies have shown that larger banks tend to have lower costs of funding, which can lead to higher profitability. However, the relationship between size and profitability may be moderated by factors such as market concentration, regulatory restrictions, and competition. Therefore, by examining the moderating effect of bank size, this study seeks to provide insights into the complex relationship between bank size and financial performance, and how other factors interact with bank size to influence financial performance.

### **1.3 Research Objectives**

#### **1.3.1 General Objective**

The general objective of this study was to examine the moderating effect of bank size on factors that affect financial performance of listed commercial banks in Kenya.

#### **1.3.2 Specific Objectives**

The study was guided by the following specific objectives;

- i. To investigate the effect of asset quality on financial performance of listed commercial banks in Kenya.
- ii. To establish the effect of liquidity on financial performance of listed commercial banks in Kenya.
- iii. To determine the effect of capital adequacy on financial performance of listed commercial banks in Kenya.
- iv. To establish the effect of operational cost efficiency on financial performance of listed commercial banks in Kenya.
- v. To assess the moderating effect of bank size on the factors that affect financial performance of listed commercial banks in Kenya.

### **1.4 Research Hypotheses**

The study tested the following hypotheses;

**H<sub>01</sub>:** There is no significant effect of asset quality on financial performance of listed commercial banks in Kenya.

**H<sub>02</sub>:** There is no significant effect of liquidity on financial performance of listed commercial banks in Kenya.

**H<sub>03</sub>:** There is no significant effect of capital adequacy on financial performance of listed commercial banks in Kenya.

**H<sub>04</sub>:** There is no significant effect of operational cost efficiency and financial performance of listed commercial banks in Kenya.

**H<sub>05</sub>:** There is no significant moderating effect of bank size on factors that affect financial performance of listed commercial banks in Kenya.

## **1.5 Significance of the study**

### **1.5.1 Bank managers**

The results obtained determined the moderating effect of bank size on factors that affect financial performance of listed commercial banks in Kenya. Hence, the outcome was important to the management of these banks by providing them with information about the various approaches to factors that affect their financial performance.

### **1.5.2 Policy Makers**

The research formed the basis of the control policy framework to promote bank financial performance for regulators and policy makers. The knowledge imparted through the study will be essential in developing and implementing measures required for listed commercial banks together with other related financial institutions. Therefore, the study sought to help the Central Bank of Kenya and other financial policy makers to assess the various aspects of profitability in listed commercial banks and provide directives for further enhancement of the financial sector in Kenya.

### **1.5.3 Scholars and Researchers**

The study provided a decent writing premise from which further studies and references will be drawn. The study will furnish researchers with bits of knowledge into the moderating effect of bank size on factors that affect financial performance of listed commercial banks in Kenya.

There after effects of the study would likewise help distinguish the current factors that affect commercial banks performance and propose new spaces of study with the goal that researchers, scholars and analysts will profit with the results of this study as they have a grasp of existing information factors that affect performance of listed commercial banks. Further recommendations on areas of study will seek to implore other factors that can better help scholars interested in implore the financial performance of financial institutions for hybrid learning.

## **1.6 Scope of the Study**

The primary purpose of the research was to determine whether or not the size of the bank has a moderating impact on the elements that influence the financial performance of publicly traded commercial banks in Kenya.

The main objective of the research was to determine, from a theoretical standpoint, how the financial performance of listed commercial banks in Kenya is affected by factors such as asset quality, liquidity, capital sufficiency, operational efficiency, and bank size. In this particular instance, the research was carried out in Kenya.

Eleven commercial banks were listed on the Nairobi Stock Exchange in 2021. (Appendix I). Regarding its methodology, the study used a descriptive research design, and its population was composed of all of the commercial banks listed in Kenya. Secondary data were acquired from the yearly CBK reports as well as the financial statements of the different banks. A panel data model was used to analyse the gathered data.

## CHAPTER TWO

### LITERATURE REVIEW

#### 2.1 Introduction

In this chapter, we look at the relevant research on the elements contributing to the financial performance of listed commercial banks in Kenya. The emphasis is placed on the theoretical and empirical literature, and a conceptual framework is presented as a conclusion. The conceptual framework addressed the study topic, identifying the dependent and independent variables and the moderating factor.

#### 2.2 Theoretical Review

The theoretical analysis includes both theoretical frameworks and model representations. According to Rousseau, Manning, and Denyer's (2008) definition of a theory, it is "a collection of connected principles and definitions that give a systematic perspective of phenomena by identifying connections among variables to understand natural events." According to the definition provided by Gill and Johnson (2002), "theory" is "a statement explaining the cause-and-effect linkages between two or more variables, which may or may not have been evaluated."

The research was predicated on the following theories: the Concentration-Stability and Concentration-Fragility Theory, the Shift ability theory of Liquidity, the Credit Risk Theory, Financial Stability Theory, Resource Based View Theory.

##### 2.2.1 Shiftability Theory Of Liquidity

Moulton (1915) is credited with being the originator of this idea, while writers such as Dodds (1982) and Victor Herbert contributed to its expansion and refinement (2009). It states that the liquidity of banks may be maintained provided the banks continue to hold onto assets that are fungible or that can be sold for cash to a variety of different disposal companies or investors.

The capacity of a financial useful resource to be transferred between individuals or between banking organizations at agreed prices is what is meant by the term "shiftability of liquidity." In accordance with the shiftability hypothesis, the liquidity of any given bank is based on the possibility of shifting possessions from one character to another at a price that has been established.

It is a principle that is primarily based whole on the assumption that banks maintain their liquidity by holding onto assets that have a marketing value or are able to be shifted to completely different lenders, customers, or establishments for cash at short notice. This is a theory that has been around for a very long time. Banking vigilance on deposits is more likely to be managed competently if the underlying assets may be repositioned in such a way that they rapidly gain liquidity whenever the need arises. The shiftability hypothesis is widely accepted by banks in Kenya, which invest a significant portion of their resources in government assets such as treasury bills, treasury certificates, and marketable securities. In addition, the idea is widely supported by economists.

The shiftability argument does not argue that business loans should be considered improper bank quality; rather, it suggests that business loans should not be considered the only acceptable asset. This is not to say that business loans are not an asset (Herbert, 2009). The purpose of this theory in this study is to increase bank liquidity by including the operations of bankers, which range from lending to investment. Carrying a portfolio that is completely comprised of open market short-run assets is only permissible for banks to do so. If investments in the near term are under control, this might assist banks in satisfying the demand from clients for withdrawals of readily available money or assets that are close to money that can be easily purchased with money.

In the event that loans are not repaid when they are due, the loans' collateral security will only be sold on the open market if it is possible to do so, or discounted by the financial institution, depending on how marketable it is. When converting a nursing plus into cash via a method of sale or shiftability, the transactions will only be voluntary between the two cash holders. According to Mutton (1981), transferring an Associate in Nursing plus is considered to be an overly simplistic

procedure due to the fact that it is often transferred to a personal or institution. Because bank deposits are often used as collateral for loans and are also used toward the acquisition of a variety of assets, this need for shiftability is satiated.

According to the shiftability theory, there is a requirement for assets to not be tied not only to self-liquidating bills, but also to those commands in different kinds of assets that are shiftable within the open market like government securities. This belief is based on the fact that there is a requirement for assets to not be tied to self-liquidating bills alone (Moti, Masinde, Mugenda, & Sindani, 2012).

The shiftability principle has been given an extra broad reading in relation to the banking industry by expanding the kinds of assets that industrial banks are legally allowed to have in their possession. The inspiration for shiftability theory stems from the simple fact that the liquidity of a bank is dependent on the bank's power of moving its belongings to a new individual at a given value. This is where the theory gets its impetus. In line with the findings of Hosna, Manzura, and Juanjuan (2009), the shift ability hypothesis had a significant influence on banking practices, the significance of which can scarcely be disputed. What it accomplished was diverting the attention of bankers and the authorities in charge of banking away from loans and investments to ramp up liquidity.

This study seeks to explore the Shiftability Theory of Liquidity and its implications for the financial performance of listed commercial banks in Kenya, with a specific focus on the moderating effect of bank size on the relationship between asset quality and financial performance. This study aims to establish the effect of liquidity on the financial performance of listed commercial banks in Kenya, with a particular focus on integrating the principles of the Shiftability Theory of Liquidity to Evaluate Liquidity Metrics. This is by assessing various liquidity metrics, including the current ratio, quick ratio, and cash-to-assets ratio, to quantify the liquidity positions of listed commercial banks in Kenya.

### **2.2.2 Credit Risk Theory**

Credit Risk Theory was developed by Melton in 1974. The idea assumes that mortgage default incidences come back from the company's evolution of belongings tested via the utilization of distribution with regular parameters. Those development fashions square measure are called structural fashions and are based totally completely on ways connected to a certain institution. quality models illustrate a growth of this classification wherever default loss is prompted with the help of exogenous basics.

Years before 1974 the literature on credit score hazard used common methods of analysing monetary savings risks that relied heavily on historical information. The structural approach, the inadequate information approach, and the down type strategy are the three methods that are now available for analyzing deposit risks on gift day (Crosbie et al.,2003). In the year 1974, Melton presented Credit Risk Theory, also known as a structural plan that rests its argument on the firm's assets progression and default. Melton's theory is notable for being the first of its kind. These models are referred to as "structural models" in a number of different contexts, and they are based entirely on the variables associated with a single institution.

**Non-Performing Loan Ratios:** Credit Risk Theory often involves assessing non-performing loans (NPLs) or the quality of a bank's loan portfolio. The NPL ratio is a key indicator of credit risk. Larger banks may be better equipped to handle NPLs or have a different risk profile due to their size, which can moderate the impact of NPLs on their financial performance. Economic conditions and business cycles can significantly impact credit risk. Bank size can influence how commercial banks are affected by macroeconomic factors. Larger banks may have a more extensive geographic presence and a more diversified loan portfolio, which can moderate the impact of economic factors on their financial performance.

Credit Risk Theory is highly relevant to a study on the moderating effect of bank size on the factors affecting the financial performance of listed commercial banks. Credit risk is one of the most critical risk factors faced by banks, and it has a substantial impact on their financial performance.

This study aims to investigate the effect of asset quality on the financial performance of listed commercial banks in Kenya, utilizing the framework provided by the Credit Risk Theory. This will help the industry to improve on defining and Measure Asset Quality: Establish clear definitions and metrics for asset quality, encompassing variables such as non-performing loans, risk-weighted assets, and provisioning levels, to comprehensively assess the quality of assets held by listed commercial banks.

Aligning the study with the Credit Risk Theory to understand how asset quality influences credit risk within the banking sector. Investigate the relationships between the quality of assets, credit risk exposure, and the potential impact on financial performance. Analyze and examine financial performance indicators, including return on assets, return on equity, and net interest margin, to gauge the overall impact of asset quality on the profitability and stability of listed commercial banks.

Explore and Investigate credit risk management strategies employed by listed commercial banks in Kenya, considering how these strategies align with the principles of the Credit Risk Theory. Understand how banks balance the need for maintaining asset quality with the imperative of managing credit risk effectively.

Derive strategic recommendations based on the findings to guide banking practices, regulatory frameworks, and policy decisions. Address how leveraging the Credit Risk Theory can enhance credit risk management practices and subsequently contribute to the overall financial performance of listed commercial banks in Kenya.

By anchoring the investigation in the Credit Risk Theory, this study aspires to provide a comprehensive understanding of how asset quality influences credit risk and, in turn, the financial performance of listed commercial banks in Kenya. The insights derived are expected to contribute not only to academic understanding but also to practical considerations for stakeholders within the banking industry.

In conclusion, Credit Risk Theory is relevant to this study on how bank size moderates the factors affecting the financial performance of commercial banks because credit risk is a fundamental aspect of banking operations. The size of a bank can influence its credit risk management strategies, loan portfolio composition, capital adequacy, regulatory compliance, and how it responds to economic factors—all of which have direct implications for financial performance. Therefore, understanding how bank size moderates these effects is essential for a comprehensive analysis of a commercial bank's financial performance.

### **2.2.3 The Concentration-stability and Concentration-fragility Theory**

This "theory states that large banks in focused locations will minimize their financial weakness using various means to remain competitive." Large financial institutions will improve their profit margins by purchasing more cushions to protect themselves from liquidity issues (Uhde & Heimeshoff, 2009). According to the projections made by Boot and Thakor (2000), huge banks execute their credit parcelling and have few high-quality assets.

Because of this, they are much more stable. Large banks are often seen as less of a burden to monitor by central banks and other regulatory bodies, not to mention beneficial to their economies. Large financial institutions often provide more diverse products and lower risk levels. Therefore, larger banks will conduct their investment activities with a negligible amount of capital and much-reduced finance. Even more advantageous, they have economies of scale in their operations.

According to the debates up above, there is a clear link between the size of the company and the profitability of the bank (Laeven, 2014). According to Mishkin (2001), the moral danger that faces a bank's chief increases as the bank's size grows. This is because the chief's risk appetite is influenced by the belief that they are covered by the safety web provided by the government. The idea behind the concentration fragility hypothesis is that there is no correlation between the size of a company and its level of financial security.

Relevance: The Concentration-Stability Theory postulates that a high concentration of assets in the banking industry can lead to greater stability, as large banks can more easily absorb losses and diversify risks. In the context of this study, the research will explore how this theory applies to listed commercial banks of different sizes. Larger banks often have a more substantial share of the market, and their size can moderate the impact of factors such as credit risk and economic fluctuations on financial stability.

Concentration-Fragility Theory will be relevant to this study since the theory suggests that high levels of concentration can lead to fragility by increasing systemic risks, as the failure of a few large banks can have a more significant impact on the overall financial system. In this study, we will investigate how bank size moderates the relationship between concentration and fragility. Specifically, I will examine if larger banks are more or less susceptible to systemic risks and financial instability due to their size and market dominance. The prevalent hypothesis is used for enormous financial institutions with excessively large loan portfolios to investigate the connection between scale and financial success. This study aims to determine the inconsequential effect that bank size has on the elements that influence the profits of economic banks.

#### **2.2.4 Financial Stability Theory**

This is a concept that focuses on the stability and soundness of a financial system, particularly in the context of a country or region. This theory is concerned with the ability of a financial system to withstand shocks, disruptions, and crises while continuing to fulfill its primary functions, such as

intermediating funds, facilitating economic growth, and maintaining confidence among investors and the public.

Financial Stability Theory is primarily concerned with systemic risk, which is the risk that the entire financial system may become unstable or collapse due to interconnectedness and the spread of financial distress from one institution to another. Systemic risk can arise from various sources, including credit risk, market risk, liquidity risk, and operational risk.

The theory emphasizes the role of central banks and financial regulators in ensuring financial stability. These institutions monitor and regulate financial markets, banks, and other financial intermediaries to prevent systemic risks from materializing. They may set capital adequacy requirements, conduct stress tests, and establish early warning systems to detect vulnerabilities.

Financial Stability Theory often incorporates the concept of a lender of last resort. Central banks, in their capacity as lenders of last resort, provide emergency liquidity to financial institutions during crises to prevent bank runs and panic selling, thus stabilizing the system. Prudential regulations, such as capital adequacy requirements, liquidity ratios, and risk management standards, are designed to reduce the probability of financial instability. Financial supervisors oversee the compliance of financial institutions with these regulations.

This study aims to determine the effect of capital adequacy on the financial performance of listed commercial banks in Kenya, employing the conceptual framework provided by the Concentration-stability and Concentration-fragility Theory.

To establish clear definitions and metrics for capital adequacy, considering regulatory capital ratios, tiered capital structures, and other relevant indicators to assess the robustness of capital positions in listed commercial banks (Mishkin, 2006).

To align the study with the Concentration-stability and Concentration-fragility Theory in order to understand how the concentration of capital influences the stability or fragility of

financial institutions (Berger & Bouwman, 2009). Investigate how the distribution and concentration of capital within banks relate to their overall stability and resilience.

The theory will further help the Banking Sector to examine financial performance indicators, including return on assets, return on equity, and net interest margin, to ascertain the overall impact of capital adequacy on the profitability and stability of listed commercial banks (Boyd & De Nicolò, 2005).

Further to investigate concentration risk management strategies employed by listed commercial banks in Kenya, considering how these strategies align with the principles of the Concentration-stability and Concentration-fragility Theory (Huang & Ratnovski, 2011). Understand how banks balance the concentration of capital to enhance stability while avoiding potential fragility.

To derive strategic recommendations based on the findings to guide banking practices, regulatory frameworks, and policy decisions. Address how leveraging the Concentration-stability and Concentration-fragility Theory can enhance concentration risk management practices and subsequently contribute to the overall financial performance of listed commercial banks in Kenya (Kashyap et al., 2002).

By grounding the investigation in the Concentration-stability and Concentration-fragility Theory, this study aims to provide a nuanced understanding of how the concentration of capital influences the stability and fragility dynamics within listed commercial banks in Kenya. The insights generated are anticipated to contribute both to theoretical understanding and practical considerations within the banking industry.

### **2.2.5 Resource-Based View Theory**

Resource-Based View Theory which provides a framework for understanding how an organization's resources, including its ability to operate efficiently, can lead to sustainable

competitive advantage. This theory emphasizes that organizations possess unique and valuable resources that can be sources of competitive advantage. Operational cost efficiency is considered one of these valuable resources. When an organization can consistently produce goods or services at a lower cost, it sets itself apart from competitors.

According to this theory, sustainable competitive advantage is achieved when resources are costly to imitate or replicate. Achieving and maintaining operational cost efficiency can be difficult for competitors to duplicate because it often involves a combination of internal processes, organizational culture, and specific knowledge that is unique to the organization. This theory recognizes that an organization's resources are interconnected and can reinforce each other. Operational cost efficiency can complement other resources like technology, quality control, and customer service, creating a synergistic effect that contributes to overall organizational performance.

The theory suggests that resources, including operational cost efficiency, should contribute to value creation. Operational cost efficiency directly impacts a firm's bottom line by reducing costs, thereby increasing profitability and, potentially, the financial performance of the organization. Organizations with high operational cost efficiency may establish isolating mechanisms to protect this advantage, such as proprietary technologies, unique supply chain relationships, or specialized workforce capabilities. These mechanisms can deter competitors from replicating the efficiency. Operational cost efficiency, is viewed as a valuable and rare resource that contributes to a firm's competitive advantage and financial performance. The theory suggests that organizations should strive to develop and maintain operational cost efficiency as it is a source of sustainable competitive advantage, assuming that competitors find it challenging to imitate and that it is aligned with customer needs and market demand.

This study aims to establish the effect of operational cost efficiency on the financial performance of listed commercial banks in Kenya, utilizing the conceptual framework provided by the Resource-Based View (RBV) Theory.

This theory will help to establish clear definitions and metrics for operational cost efficiency, encompassing factors such as cost-to-income ratios, expense management strategies, and operational effectiveness measures, to assess the efficiency of operational processes within listed commercial banks.

Resource-Based View (RBV) Theory to understand how internal resources and capabilities, particularly operational efficiency, contribute to a firm's competitive advantage and financial performance (Barney, 1991). Investigate how the unique capabilities related to cost efficiency can create sustainable value for commercial banks. Examine financial performance indicators, including return on assets, return on equity, and cost-income ratio, to gauge the overall impact of operational cost efficiency on the profitability and stability of listed commercial banks.

To explore Operational Efficiency Strategies. Investigate operational efficiency strategies employed by listed commercial banks in Kenya, considering how these strategies align with the principles of the Resource-Based View (RBV) Theory. Understand how banks leverage internal resources and capabilities to enhance operational efficiency.

Derive strategic recommendations based on the findings to guide banking practices, regulatory frameworks, and policy decisions. Address how optimizing operational cost efficiency, in line with the principles of the Resource-Based View (RBV) Theory, can contribute to the overall financial performance and sustained competitive advantage of listed commercial banks in Kenya.

By grounding the investigation in the Resource-Based View (RBV) Theory, this study aims to provide insights into how operational cost efficiency, as an internal resource, influences the competitive advantage and financial performance of listed commercial banks in Kenya. The outcomes are anticipated to contribute both to theoretical understanding and practical considerations within the banking industry in Kenya.

## **2.3 Empirical Review**

In this section, the emphasis is placed on locating current empirical studies investigating the variables that influence the financial performance of listed commercial banks. Asset quality, liquidity, capital sufficiency, operational efficiency, and bank size are important sub-sections emphasized here.

### **2.3.1 Effect of Asset Quality on Financial Performance**

Abdirahman (2020) investigated the influence that the quality of commercial banks' assets had on the financial results of the institutions. The non-performing loans, loan loss provision coverage, standard risk costs, and write-off ratio were the indicators of the independent variable (asset quality). In contrast, the return on assets indicated the dependent variable (financial performance) (ROA). As additional control variables, the research included both bank size and liquidity. The 42 commercial banks that were licensed to do business were the target audience.

A panel model was used to analyze the data collected from the Central Bank of Kenya (secondary data). According to the research findings, the financial performance of commercial banks is significantly influenced by both the quality of their assets and the size of their banks.

The present research studied the asset quality of listed commercial banks in Kenya and how asset quality was impacted by asset quality.

The influence of asset quality on the financial performance of several universal banks in Ghana was the subject of research conducted by Nkuah (2015). The panel regression approach was used throughout the research project, which gathered secondary data from the annual reports of 10 Ghanaian universal banks between 2007 and 2013. After comparing fixed and random effects using the Hausman test, it was determined that the fixed effect model is the most effective method for analyzing panel data.

Return on Equity (ROE) and Net Interest Margin (NIM) were used as proxies for the financial institution's performance, whilst Loan Portfolio Financial Performance (LPP) and Loan Loss Provision to Gross Loan Advances (LLP/GLA) were used as proxies for the asset quality of the financial institution. Control variables included things like the Cost Income Ratio (CIR), the ratio of Liquid Funds to Total Assets, and Total Assets themselves.

The conclusion that can be drawn from the findings of the study is that the LLP/GLA has a detrimental impact on the financial performance of banks in Ghana. In addition, the research results suggest that the net interest margin contributes positively to the financial success of the institutions chosen for the study. The finding provided more evidence that the size of an organization has a favourable impact on the financial performance of banks. Because of this, the bank's profitability will increase in proportion to the institution's size owing to economies of scale.

Loans and early repayments positively impact the returns that deposit banks get, but non-performing loans have an adverse effect. According to the research findings, demand deposits, borrowing, and the size of the bank (which served as the control variable) all positively impact the return that banks get on their assets. Ogbeifuna and Akinola conducted an investigation that was comparable to this using liability management and portfolio theory.

### **2.3.2 Effect of Liquidity on Financial Performance**

Liquidity is the capability of a banking institution to finance an increase in assets and meet its financial obligations at a fair cost without incurring any unexpected losses (Mohammed & Onyiego, 2018). The management of liquidity is critical for all financial institutions, both locally and internationally. In this regard, each banking institution strives to regularly maintain a favourable and specific range of liquidity.

One of the key considerations that banking institutions make is the interrelationship between liquidity risk and the return on assets. A study conducted by Marozoa (2013) in South Africa revealed a limited relationship between asset liquidity and the financial performance of the banking

business. The study used primary data from questionnaires and analysed the data using the least square regression model on a selected number of banks in South Africa. However, the study revealed that the level of financial performance of the firm tends to improve if a bank holds liquid assets to a certain extent. This is because if the bank holds too many liquid assets, it could diminish financial performance. The current study is different as it was based on panel data, thus creating a methodological gap.

Shukla and Mucheru (2017) conducted a study assessing the relationship and link between the financial performance of banking institutions and liquidity management in Rwanda. The study randomly selected fourteen banks and assessed them using multiple regression analysis. The study found an added advantage for banking institutions with fewer liquid assets in terms of financial returns compared to those with more liquid assets. The management and striking of a balance on the number of liquid assets a bank holds are key. The main challenge many banks faced was that they focused on increasing financial performance at the expense of asset liquidity management.

Locally, Musembi, Ali, and Kingi (2016) conducted a study to establish the effect of liquidity management and the financial performance of banks listed in the Nairobi Securities Exchange. The study found that liquidity levels in bank institutions have increased positive output in financial performance for the listed commercial banks, although the impact was not major or significant.

The study further found that liquidity levels are of key importance in assessing the financial performance of the commercial banks in Kenya that are listed in the Nairobi Securities Exchange. The analysis found that an increase in the minimised liquidity ratios for commercial banks could result in poor financial performance. The current study focused on factors affecting the financial performance of listed commercial banks in Kenya.

### **2.3.3 Effect of Capital Adequacy on Financial Performance**

Kimeu (2020) conducted research to examine the influence that sufficient capital has on the overall performance of commercial banks that are listed in Kenya. The study was directed by two specific research objectives, the first of which was to establish the effect of core capital on performance of listed commercial banks in Kenya, and the second of which was to determine the effect of supplementary capital on performance of listed commercial banks in Kenya.

Both of these specific research objectives were taken into consideration throughout the course of the study. The analysis focused only on commercial banks that are publicly traded in Kenya. “ Both descriptive and explanatory research approaches were used in the study. Eleven (11) listed commercial banks were selected as the population of interest for the research. The eleven commercial banks that were listed on the Nairobi Securities Exchange (NSE) during the years of 2014 and 2018 were polled for the purpose of this research.

The research used secondary data sources, such as public income statements and statements of financial condition. These statements provided the study with the information needed to record data on core capital, supplemental capital, and ROA. A data collecting sheet was used to compile the information, and descriptive and inferential statistical methods were used in order to examine the data. A regression analysis was performed so that the degree of connection between the many variables that were included in the research could be described. The findings indicate that the average amount of core capital held by publicly traded commercial banks in Kenya has been steadily increasing over the last five years. During the same time period, on the other hand, there was a noticeable downward trend in supplemental capital. According to the findings of the research, fundamental capital has a considerable influence on financial success.

On the other hand, the addition of supplemental capital does not have a material impact on the financial performance of commercial banks that are listed on the NSE. According to the findings of the research, in order for banks to improve their performance and maintain their position in the market, they need to raise the amount of core capital that they hold. The main emphasis of the

present research was on the relationship between adequate capital levels and the overall financial performance of commercial banks, with the size of the bank serving as a moderating variable.

Nzioki (2012) investigated the influence of adequate capital on the economic results of commercial banks listed on the Nairobi Stock Exchange. Numerous scholars have hypothesized that the level of financial organizations' adequate capital significantly affects their overall performance. The analysis presented facts supporting the central bank's decision to progressively boost the banks' capital levels by 2012 and oversee their operations while ensuring that they stay profitable closely. This demonstrates the effect that maintaining enough capital has on the banking industry's profitability.

The research depended on secondary data, and as a result, the annual reports of commercial banks were utilized to provide the study with the required information for its completion. In order to analyze the data that was obtained, ratios and percentages were used, and regression analysis was utilized in order to get insight into the connection between the variables that were involved. The primary conclusion of the research was that enough capital has a favourable impact on the profitability of commercial banks. As a result, it is of the utmost importance for banks to have a healthy capital basis to stay competitive and keep the trust of their clients.

The main emphasis of the present research was on the relationship between adequate capital levels and the overall financial performance of commercial banks, with the size of the bank serving as a moderating variable. In the context of the region, research conducted in Nigeria by Nestor, Okoye, Leonard, and Chinyere (2017) focused on the influence that capital adequacy had on the financial performance of selected quoted deposit money banks in Nigeria between the years of 2010 and 2015.

The research used secondary data collected from fact books, yearly reports, and accounts provided by the Deposit Money Banks that were the focus of the investigation. The data were analyzed statistically using the Pearson Coefficient of Correlation, Multiple Regression Analysis,

Variance Inflation Factors, Multicollinearity, Heteroskedasticity test, and Hausman test. All of these tests were performed on the data. The findings of the research indicated that there is a favourable and statistically significant connection between Capital Adequacy and Financial Performance. [Citation needed] It was also shown via empirical research that Capital Adequacy does have a statistically significant impact on the Financial Performance of Deposit Money Banks, using a significance threshold of 5%.

According to the study's findings, financial institutions should avoid placing excessive reliance on debt. This is because an increase in the proportion of debt in the capital structure brings about an increase in financial risk and the risk of financial distress and insolvency. The main emphasis of the present research was on the relationship between adequate capital levels and the overall financial performance of listed commercial banks, with the size of the bank serving as a moderating variable.

According to the findings of research conducted in Vietnam by Dao and Nguyen (2020), commercial banks play a significant part in the growth of the country's economy as well as its overall development. Banks are supposed to be in secure conditions since they are places that accept deposits. This is done to prevent banks from going bankrupt or having to cope with financial crises. The purpose of this study was to investigate the factors that influence both the Capital Adequacy Ratio and the performance of banks, as well as the connection between the two dependent variables. The study, 128 observations were taken from 16 commercial banks in Vietnam from 2010 to 2017.

The dependent variables used in the study were CAR and ROE, and the independent variables included Return on Assets, Tobin Q, Credit growth, GDP growth, Equity to Deposits, Loans to Deposits, Bank size, Cost to Income, Liquidity risk, Provision for Loan loss ratio, non-performing loans, and Inflation. The findings indicate a statistically significant association between Capital Adequacy Ratio and Banks' Performance. Credit growth, GDP growth, Equity-to-Deposit ratio, and Cost-to-Income ratio significantly influence two dependent variables. According to the

research results, commercial banks should exercise control over the relevant factors to keep an acceptable level of capital and provide successful results. The main emphasis of the present research was on the relationship between adequate capital levels and the overall financial performance of listed commercial banks, with the size of the bank serving as a moderating variable.

#### **2.3.4 Effect of Operational Cost Efficiency on Financial Performance**

A study by Ndolo (2015) asserted that the operational efficiency issue for any business is critical and has to be viewed using management to earn wholesome and sustainable economic performance.

Operational efficiency is a corporation's talent to curtail the unwelcome and maximise resource competencies to deliver first-rate merchandise and offerings to customers. The goal of the find-out was to examine the relationship between operational efficiency and the economic performance of companies listed on the Nairobi securities exchange. They study also used five other control variables, which are: Financial leverage, Liquidity, Size of the firms, capital adequacy and actual interest quotes, to additionally check whether or not they have a relationship with the ROA of companies listed at the NSE.

This study included a five-year length from 2009 to 2013. A descriptive research design was once used, and secondary statistics were accumulated from the World Bank and the annual reviews of companies listed at the NSE. Data was then analysed using a regression analysis mannequin and statistical software, namely: SPSS version 21 and Microsoft Excel 2010. The effects of the evaluation have been then interpreted as the usage of tables. The findings confirmed that operational efficiency positively affects the ROA of the companies listed at NSE. The effect of operational effectivity on ROA is statistically vast at 5% level. The study therefore concludes that operational efficiency has a statistically tremendous relationship with ROA. The current study assessed the effect of operational cost efficiency on the financial performance of listed industrial banks with bank size as a moderating variable.

Locally, Itumo (2013) asserted that the efficiency dimension determines how banks furnish the most advantageous combination of monetary services with a set of inputs. The objective of the study used to be to look at the relationship between the efficiency and economic performance of business banks in Kenya. The lookup adopted a descriptive survey design. The populace of interest for this research used to be all the industrial banks in Kenya. The research utilised secondary sources of data. In order to situate the find-out theoretically and generate the conceptual framework with which to work, the secondary sources were received from economic statements of the banks for five years (2007-2012), and publications have been additionally used. From the findings, there was once a fall in efficiency ratio from 2008 to 2012 in banks, indicating that the banks had been making appreciably extra than they had been spending, depicting a sound fiscal footing.

The findings revealed a vast effective relationship between Return on Asset and Efficiency. The current study assessed the effect of operational cost efficiency on the financial performance of listed industrial banks with bank size as a moderating variable. Osazefua (2019) researched a regional scale to evaluate operational efficiency's impact on the economic viability of listed manufacturing businesses in Nigeria. In particular, the research focused on Nigeria. The recent financial crisis has brought about an alarming fall in economic sustainability indicators among Nigeria's manufacturing enterprises that the country is experiencing. To be able to adapt to and compete in the challenging economic environment, managers are under intense pressure to maximize revenue via effective and efficient use of available resources. Several different efficiency metrics have been analyzed regarding the viability of the financial situation.

By analyzing the impact that operational efficiency has on long-term profitability (as measured by return on assets) and inventory market performance (as measured by Tobin's Q), the research contributed to closing these knowledge gaps. The following effectiveness factors were considered: staff growth, working expenditures, account receivables turnover, inventory turnover, and asset turnover, respectively.

The Bloomberg site formerly provided access to a supplementary panel dataset covering the years 2009 to 2016 and included information for sixteen different listed manufacturing companies. In the past, the Ordinary Least Square method was used to examine the five hypotheses that were created. According to the data, the ratio of operating expenditures to asset turnover had a horrible huge link with ROA, while asset turnover had a fantastic large relationship with ROA.

It has been determined that the expansion of employees, the turnover of account receivables, and the turnover of inventories are not substantial. Both stock and asset turnover have a very beneficial association concerning Tobin's  $q$ . The link between profits and operating expenses was quite unfavourable. Once again, it was concluded that the boom in personnel and the turnover in account receivables were not considerable. According to the research results, the conventional notion of reducing the number of workers in an organization and maintaining a lean workforce may not always improve financial sustainability anymore. According to the research findings, businesses should prioritise reducing their operating costs as much as possible and implementing productive procedures that manage asset and stock turnover. This research investigated how operational cost efficiency influenced the financial performance of listed industrial banks, taking bank size into account as a moderating variable.

According to the findings of a study that was conducted by Werner and Moormann (2019), the majority of the previous research that has been done on efficiency in banking has taken a regulatory stance. On the other hand, the article evaluated the empirical link between effectiveness and profitability in five major economies of the European Union from 1998-2005 and discussed the results from the perspective of corporate bank strategy.

The current body of research was advanced methodologically through the utilization of DEA super-efficiency values to regress profitability, the incorporation of risk through the application of calculative costs of capital, and the development of a model specification based on the contemporary understanding of banks as centres of price creation. All of these contributions contributed to the advancement of the field.

According to the study's findings, which included both static and dynamic regression studies, profitable banks operate with a higher level of technical effectiveness than their rivals. In addition, the strategic environment, namely the structure and focus of the national monetary area, has a substantial influence on the monetary performance of a bank. This is because of the interconnected nature of the global economy. Both of these issues turned out to be important from a statistical and financial standpoint. As a result, the findings supported the time-honoured value management strategy being suitable for the European banking industry. The present research investigated how operational cost efficiency influences the financial performance of listed industrial banks, taking bank size into account as a moderating variable.

### **2.3.5 Effect of Bank Size as a moderating factor on Financial Performance of commercial Banks**

Elsas and Florysiak (2021) examined the relationship between bank size and profitability using a sample of European banks from 2006 to 2017. They found that larger banks were able to generate higher profits, but only up to a certain size threshold. Beyond this threshold, the positive effect of bank size on profitability diminished. Al-Tae and Ahmad (2020) investigated the moderating effect of bank size on the relationship between capital adequacy and profitability in the Iraqi banking sector. They found that bank size had a positive moderating effect on this relationship, indicating that larger banks were better able to leverage their capital to generate higher profits.

Nguyen and Tran (2020) examined the moderating effect of bank size on the relationship between asset quality and profitability in Vietnamese commercial banks. They found that bank size had a negative moderating effect on this relationship, suggesting that larger banks may be more vulnerable to credit risk and may have lower profitability as a result.

Abugamea and Al-Titi (2019) investigated the moderating effect of bank size on the relationship between liquidity and profitability in Jordanian commercial banks. They found that bank size had a positive moderating effect on this relationship, indicating that larger banks were better able to manage liquidity risk and generate higher profits as a result.

All of these contributions contributed to the advancement of the field. According to the study's findings, which included both static and dynamic regression studies, profitable banks operate with a higher level of technical effectiveness than their rivals. In addition, the strategic environment, namely the structure and focus of the national monetary area, has a substantial influence on the monetary performance of a bank.

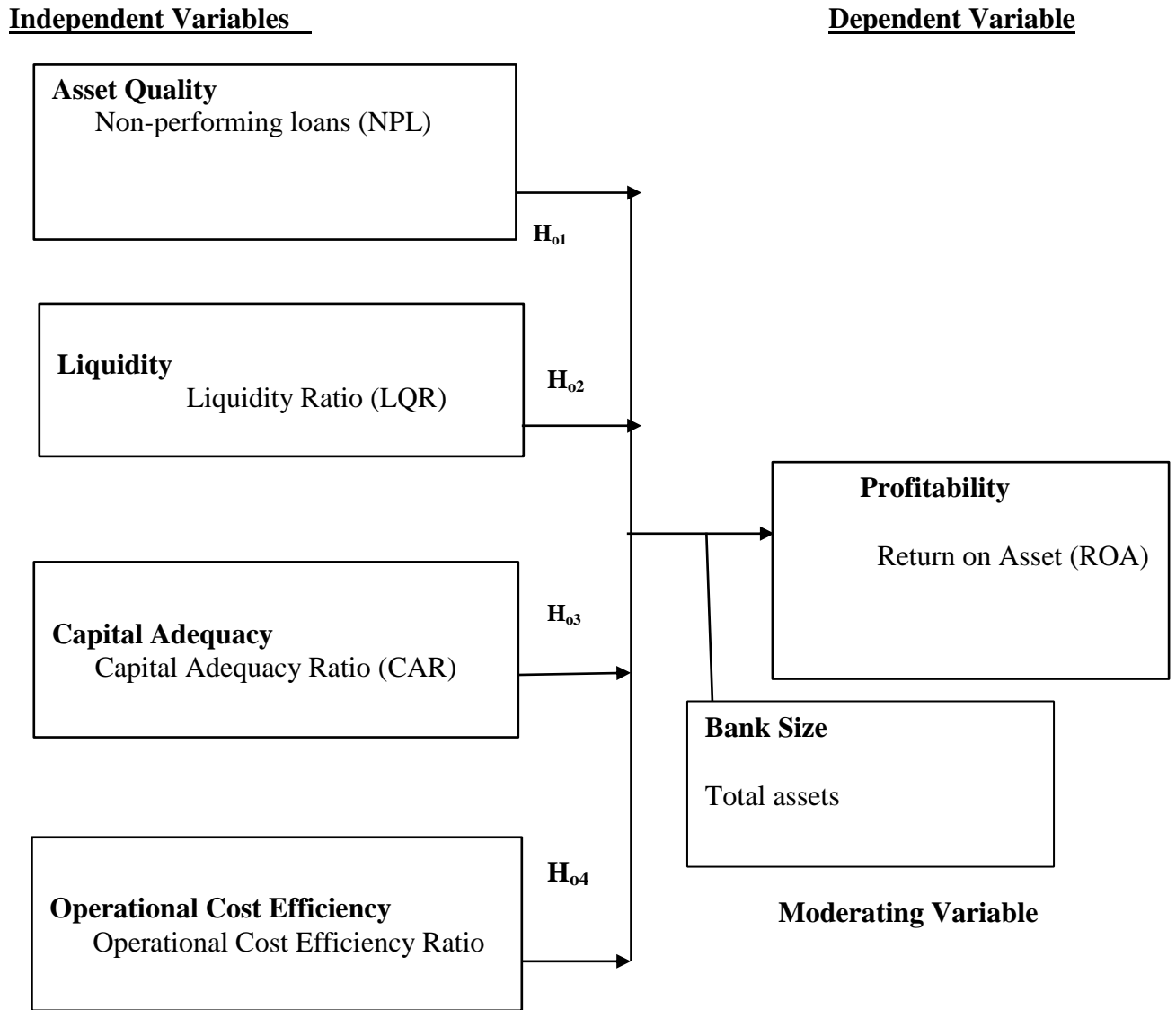
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## **2.4 Conceptual Framework**

The conceptual framework model was developed from a literature review, and it sheds light on the interrelationship among the key variables in a study. In a conceptual framework, it is assumed that when the independent variable is manipulated, it causes an effect on the dependent variable (Cooper & Schindler, 2014). The dependent variable synonymously used with the criterion variable is expected to be affected by manipulating an independent variable.

According to Kothari (2004), a dependent variable depends upon or is a consequence of the other variable, while the variable precursor to the dependent variable is termed the independent variable. The independent variables in this research are asset quality, liquidity, capital adequacy and operational cost efficiency. The dependent variable is financial performance, while the moderating variable is bank size. The figure below shows the conceptual framework

**Figure 2.1:**  
**Conceptual Framework**



**2.5 Measurement of Study Variables**

Operationalization of study variables ensures that variables are strictly defined into measurable factors allowing for their measurement empirically and quantitatively (Saunders & Tossey, 2015). Operationalization of the study variables is important as it allows the researcher to measure the variables quantitatively and thus enables the testing of the formulated hypotheses (Cooper & Schindler, 2014). The variables of this study included financial performance as the dependent

variable, factors that affect financial performance as the independent variables and bank size as the moderating variable.

Table 2.1 presents a summary of the operationalized study variables.

**Table 2.1:**

**Operationalization of the Study Variables**

<b>Variable</b>	<b>Type</b>	<b>Indicator(s)</b>
Asset Quality	Independent	Ratio of non-performing loans to total loans (NPLR)
Liquidity	Independent	Ratio of total assets to total Liabilities (ATLR)
Capital Adequacy	Independent	Ratio of Total Equity to Total Assets
Operational cost efficiency	Independent	Ratio of Total Costs to Total Income
Bank size	Moderating	Natural logarithm of total assets
Financial Performance	Dependent	Ratio of Net profit to Total Assets (ROA)

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

This chapter highlights the research methodology that the study will adopt. The research design, target population, sample size, sampling procedure, research instrument and data analysis techniques are discussed.

#### **3.2 Research Design**

The study adopted a causal research design. Considering that this study seeks to assess factors that affect the financial performance of listed commercial banks: effects of bank size, causal design is the best framework since it will enable us to relate shareholding and bank profitability. A causal research design purposes to ascertain whether there is a link between explanatory and regressor variables and also tells whether the link is statistically significant or not (Cooper & Schindler, 2014). With regards to this, a causal research design proves worthwhile when one needs to define if study variables are negatively or positively related. In addition, causal design entails collection of data about phenomenon without manipulating data but rather as it is. In this current study, data was collected from the participating entities. The relationship between variables was reported as observed without any manipulation.

#### **3.3 Target Population**

A collection of all units for which a study is based on is called a target population. A target population is a universe of living or non-living units that a particular study or research makes inferences on (Taherdoost, 2017). Pertaining to this study, the target population was all listed commercial banks in Kenya. According to the NSE (2021), there are 11 commercial banks.

#### **3.4 Sampling and Sampling Procedure**

A sample is defined as a small portion that is used to represent the target population (Taherdoost, 2017). Sample size refers to the units in the sample. Sampling is necessary especially when census is not feasible. Sampling procedure refers to the strategy used to come up with a sufficient sample

size. Considering the small number of listed commercial banks in Kenya, the study adopted a census sampling method. Census technique is appropriate where a researcher needs to attain high levels of accuracy and reliability (Cooper & Schindler, 2014). Furthermore, the technique is preferable when the subjects in the population are few. Unlike other sampling methods, where a subset of the target population is selected for inclusion and enumeration, a census method generally has minimal sampling errors.

### **3.5 Research Instrument**

The current study relied heavily on secondary data from specific banks and records from the Nairobi Securities Exchange (Appendix II). A secondary data sheet was prepared in Excel where the researcher keyed in measures of each variable for every commercial bank. There were four independent variables (asset quality, liquidity, operational efficiency, and capital adequacy). The dependent variable is financial performance, while the moderating variable is bank size. The study obtained data for every listed commercial bank for ten years (2011-2020).

### **3.6 Data Collection Procedure**

Getting the field data began with the authority to conduct the research from the graduate school. The second phase entailed using data from the commercial banks and the supervisory reports provided by the Nairobi Securities Exchange, which are publicly available. Data was also obtained from the audited financial statements made available on the websites of these banks. Additionally, there were annual supervisory reports provided by the CBK and the Capital Market Authority, which the researcher requested through an introductory letter when the information could not be accessed publicly.

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

The study's main aim was to determine the moderating effect of bank size on factors that affect the financial performance of listed commercial banks in Kenya. The study conducted both descriptive and inferential statistics. Descriptive statistics were based on measures of central tendencies

(means) and measures for dispersion (standard deviations). These statistics offered insights on trends of data.

Inferential statistics, on the other hand, used panel data regression to test the developed research hypotheses. This study collected data from the 11 listed commercial banks from 2011 to 2020. The choice of 2011 as the base year was guided by availability of secondary data for the sample chosen. Thus, the panel variable was commercial bank one to commercial bank 11, while the time variable was 2011 to 2020. The section that follows highlights the step-by-step discussion of data analysis.

### 3.7.1 Analytical Models

For this investigation, the procedures involved in panel data analysis were used to carry out the data analysis. In the research, data analysis was performed using STATA version 14. The hypothesized relationship between the elements that impact bank profitability and the function connecting those factors was proved to be as follows:

$$FP_t = \beta_0 + \beta_1 AQ_{it} + \beta_2 L_{it} + \beta_3 CA_{it} + \beta_4 OCE_{it} + \varepsilon_{it} \dots \dots \dots 3.1$$

FP<sub>t</sub>: Bank financial performance

AQ: Asset quality

L: Liquidity

CA : Capital Adequacy

OCE: Operational Cost Efficiency

β<sub>0</sub>: constant efficient,

β<sub>1</sub>, β<sub>2</sub>, β<sub>3</sub> and β<sub>4</sub>: are the Beta coefficients

t is time variable, 2011 to 2020

i is panel variable, 1-11 for each listed commercial bank in Kenya

ε is the error term.

The study tested the hypotheses at 95% confidence interval. This means a p-value of less than 0.05 would lead to rejection of null hypothesis in favour of alternative hypothesis for a particular test. Data analysis was done using STATA Version 14 as it is a good tool with various modules for transformation of data depending on what is required. Data analysis results were presented in tables.

### 3.7.2 Test for moderation

To establish the moderating effect of bank size on financial performance of listed commercial banks steps-wise regressions was estimated. First, Model (3.1) will be estimated as the base model to determine the relationship between the dependent variable and the independent variables. Second, Model (3.2) which includes Bank size as a moderating variable will be estimated.

$$FP_t = \beta_0 + \beta_1 X_{it} + \beta_2 BS_{it} + \epsilon_{it} \dots \dots \dots (3.2)$$

Where;

$FP_t$  = financial performance of listed commercial Banks

$X_{it}$  = Factors influencing financial performance

$BS_{it}$  = Bank Size

Finally, Model 3.3 will be estimated to give the direction and effect of the moderator on the independent variable and its total effect on the dependent variable.

$$FP_t = \beta_0 + \beta_1 X_{it} + \beta_2 X_{it}.BS_{it} + \epsilon_{it} \dots \dots \dots (3.3)$$

Where;

$X$  = Factors affecting financial performance of Banks

$BS$  = Bank Size

$X.BS$  = Factors affecting financial performance of Banks \* Bank size (Interaction term)

The first criterion for a variable to be explanatory is that all other variables have to be significant; if Bank size is significant when it is included in Model (3.1), then this would explain that condition (Mackinnon et al.,2007). Model (3.2) is calculated, where products of bank size and variables impacting banks' financial performance will be utilized to estimate the moderating effects. This will

be done in order to determine whether or not there is a relationship between the two. There is no moderating impact if the coefficients in Model (3.2) are insignificant and the bank size in Model (3.3) is significant. Therefore, the size of the bank is only an explanatory variable.

### **3.8 Diagnostic Tests**

Regression analysis is fitted under certain assumptions with key emphasis on residuals and behaviour of predictors. The tests included autocorrelation, multicollinearity, normality and heteroskedasticity and normality. Further, the model will be specified by use of the Hausman test.

#### **3.8.1 Autocorrelation**

Autocorrelation exists when error terms in past periods influence the error terms in subsequent periods, thus reducing the efficacy of model estimates (Meijer, Oczkowski, & Wansbeek, 2021). In regression analysis, the model's strength and the fitness of estimates are based on the assumption that error terms are not correlated. Autocorrelation measures residual correlations. Despite autocorrelation not resulting in inconsistency in estimates, it does lead to the falsification of standard errors and poses a chance of rejection of the null hypothesis wrongly. More so, the existence of autocorrelation overrated the model fitness and strength of coefficient estimates. This will be tested using the Wooldridge test of autocorrelation.

The null hypothesis, in this case, would be set as; there is no autocorrelation in the panel data set linking financial risk management and financial performance in Kenyan commercial Banks. The null hypothesis will be rejected if the p-value for the Wooldridge statistics obtained is less than 0.05 (Meijer, Oczkowski, & Wansbeek, 2021).

#### **3.8.2 Multicollinearity**

The situation is known as multicollinearity in case one explanatory variable has a linear relationship with another input variable or more in a data set (Daoud, 2017). This means that the model estimates outputs are incorrect since there is a high correlation among the predictors. Moreover, multicollinearity indicates that a predictor can be predicted by another explanatory variable quite accurately, thus complicating the overall mode efficacy linking predictors and regressor variables in

multiple regression analysis. Multicollinearity may not affect model summary predictive power but reduces the significance of the estimates.

The study will use the Variance Inflation factor (VIF) and tolerance in testing for multicollinearity. VIF shows how other explanatory variables inflate the predictive accuracy of explanatory variables. As a rule of thumb, a VIF of less than ten is considered fit, but the best case would be 1. Tolerance is a reciprocal of VIF; thus it is best when it is more than 0.1 (inverse of VIF 1) (Melo & Kibria, 2020). Additionally, mean VIF will be computed crucial as it shows the overall multicollinearity for the predictors.

### **3.8.3 Normality**

Normality is a situation where a data set has features of normal distribution in which the observations are all symmetrical since most observations are distributed around the mean score on both ends (Cain, Zhang, & Yuan, 2016). Normality is an assumption that must not be violated in regression analysis. Normality is equally important in testing hypotheses in data analysis since it depicts the probability function of population parameters in linear regression estimates.

This study tested normality using Jarque Bera's Statistics of Skewness and Kurtosis. Usually, a skewness of -3 to +3 indicates that data is skewed towards the mean. A kurtosis of -10 to +10 indicates that the tail on distribution is not heavy (does not have outliers) and thus data has a normal distribution (Mishra, et al., 2019). Moreover, both skewness and kurtosis are used together and therefore the two conditions must be met simultaneously for normality to exist.

### **3.8.4 Heteroscedasticity**

A situation where there is an equal residual is known as heteroscedasticity (Arvantis, 2018). In this respect, heteroscedasticity is an occurrence where there is unequal variance in error terms in a regression analysis. In regression analysis, it is assumed that the error term for a specific dependent variable should have equal variance (homoscedastic) especially in adjacent periods. Moreover, heteroscedasticity reduces the consistency of predicting the dependent variable in all observations of the dependent variables in a data set.

A data set that has heteroscedasticity has wrong standard errors and therefore the resultant model estimates are not reliable. Thus, heteroscedasticity leads to wrong rejection or wrong acceptance of hypotheses. The current study will test for heteroscedasticity using the Modified Wald Test. The null hypothesis is due to the absence of heteroscedasticity; the data set linking risk management and performance of commercial banks is not homoscedastic. The null hypothesis will be rejected if the p-value for modified Wald test is less than 0.05. This would mean that the data set is homoscedastic and therefore standard errors are not incorrect (Arvantis, 2018).

### **3.8.5 Model Specification**

In panel data analysis, it is a requirement for one to decide whether to use a fixed effects model or random effects model. Fixed effects model is appropriately used where observations are considered as time invariant within the population and further that the dependent variable is a function of the input factors or covariate only (Bollen & Brand, 2010). In the fixed effects model, it is assumed that at least some influence of factors to dependent variables are time invariant which then means that unobserved input variables are time invariant.

On the other hand, random effects indicate that some factors are random over time and that the dependent variable's observation could be influenced by the explanatory factors or by other random factors (Baltagi, Kao, & Liu, 2017). In the random effects model, the unobserved time variant influences are eliminated thus improving the regression efficacy. Moreover, the random effects model indicates that there are at least some factors, either to be estimated or not to be estimated model are known to change over time. The study will use the Hausman test to specify on the model to report results as fixed effects or random effects models. Ideally, a Hausman test statistic with a p-value of less than 0.05 indicates that a fixed effect model is the best (Baltagi, Kao, & Liu, 2017).

## **CHAPTER FOUR**

### **DATA ANALYSIS, FINDINGS AND INTERPRETATION**

#### **4.1 Introduction**

The chapter presents the results and interpretations of the study, which was guided by the set research objectives. Data analysis was performed using statistical, descriptive, and panel regression analysis. Descriptive analysis was used to address the nature of the variables assessed while regression analysis was used to determine the moderating effect of bank size on the financial performance of listed commercial banks in Kenya. The section also highlights the diagnostic tests that were used to assess if the panel data model used was a perfect fit for the data.

#### **4.2 Descriptive Statistics**

The study had four independent variables, one moderating variable and one dependent variable: asset quality, liquidity, capital adequacy, operational cost efficiency, bank size and financial performance respectively. Various measurements were identified to measure these variables. It is worth noting that the study had one hundred and ten (110) observations, the number of banks assessed was eleven given by (n) and the number of years were ten given by (T). The mean, standard deviation, minimum and maximum values of the measures were also highlighted. This section highlights each of them;

### 4.2.1 Asset Quality

Asset quality was identified as one of the independent variables and it was measured as a ratio of non-performing loans to total loans (NPLR).

**Table 4.1:**

**Summary Statistics of Asset Quality**

<b>Variable</b>		<b>Mean</b>	<b>Std. Dev.</b>	<b>Min</b>	<b>Max</b>	<b>Observations</b>
NPLR	Overall	.1009421	.0851623	.0125869	.4757951	N = 110
	Between		.0520629	.0551697	.2454672	n = 11
	Within		.0690353	-.114525	.3312701	T = 10

**Source: Research Data (2023)**

The results of Table 4.1 reveal that the mean of the Non-Performing Loan Ratio is given by 0.1009421. This ratio is quite low, this means that these outstanding loans do not influence financial performance of listed commercial banks. The standard deviation for the overall ratio is given by 0.0852 while between the 11 banks was given by 0.0521 while the standard deviation within the years is given by 0.0691. The standard deviation values are quite low which means that both the overall, in between banks and within the 10-year period assessed the NPLR has not deviated far from the mean. Consequently, the minimum overall ratio is 0.01259 while the maximum is 0.4757. The minimum value between banks is 0.0551 while the maximum is 0.2451. The minimum value within the years is given by -0.114 while the maximum within the years is given by 0.331.

#### 4.2.2 Liquidity

Liquidity was identified as one of the independent variables and it was measured as a ratio of total loans to total deposits (LTDR).

**Table 4.2:**

#### Summary Statistics of Liquidity

Variable		Mean	Std. Dev.	Min	Max	Observations
LTDR	Overall	1.396205	0.196414	.8417359	2.319822	N = 110
	Between		0.1447459	1.157745	1.644962	n = 11
	Within		0.1391295	0.9736739	2.231465	T = 10

**Source: Research Data (2023)**

The findings of Table 4.2 indicates that the mean of the Liquidity dependency ratio was given by 1.396205. This ratio is quite high, this means that the listed commercial banks gave out more loans compared to the deposits that they had. The standard deviation for the overall ratio is given by 0.1964 while between the eleven banks was given by 0.1447 while the standard deviation within the ten years is given by 0.13912. The standard deviation values are quite low which means that both the overall, in between banks and within the 10-year period assessed the LTDR has not deviated far from the mean. This implies that the liquidity dependency ratio of the banks does not change frequently over time depending on the amount of loans given and the number of deposits in the respective commercial banks. Consequently, the minimum overall liquidity ratio is 0.84173 while the maximum is 2.319822. The minimum value between banks is 1.157745 while the maximum is 1.644962. The minimum value within the years is given by 0.9736 while the maximum within the years is given by 2.2314.

### 4.2.3 Capital Adequacy

Capital Adequacy was identified as one of the independent variables and it was measured as a ratio of total equity to total assets.

**Table 4.3:**

#### **Summary Statistics of Capital Adequacy Ratio**

<b>Variable</b>		<b>Mean</b>	<b>Std. Dev.</b>	<b>Min</b>	<b>Max</b>	<b>Observations</b>
CAR	Overall	6.96984	2.015832	4.699311	16.60151	N = 110
	Between		1.351033	5.568031	10.52939	n = 11
	Within		1.545639	2.866768	14.6917	T = 10

**Source: Research Data (2023)**

The number of observations was one hundred and ten (110), the number of banks assessed was eleven and the number of years was ten. The mean of the Capital Adequacy Ratio was given by 6.96984. The ratio is quite high which simply implies that the listed commercial banks in Kenya are operating efficiently, thus are able to withstand any downturn. This is a motivating factor for investors to invest in various financial services being offered by the banks. The standard deviation for the overall ratio is given by 2.015832 while between the 11 banks was given by 1.351033 while the standard deviation within the years is given by 1.545639. The standard deviation values are quite low which means that both the overall, in between banks and within the ten-year period assessed the CAR has not deviated far from the mean. Consequently, the minimum overall capital adequacy ratio is 4.6993 while the maximum is 16.602. The minimum value between banks is 5.568 while the maximum is 10.52. The minimum value within the years is given by 2.866 while the maximum within the years is given by 14.6917.

#### 4.2.4 Operational Cost Efficiency

Operational Cost Efficiency was identified as one of the independent variables and it was measured as a ratio of total costs to total income.

**Table 4.4:**

**Summary Statistics of Operational Cost Efficiency Ratio**

Variable		Mean	Std. Dev.	Min	Max	Observations
OCER	Overall	1.182109	0.138189	1	1.634461	N = 110
	Between		0.051118	1.12956	1.280904	n = 11
	Within		0.129198	0.95233	1.644778	T = 10

**Source: Research Data (2023)**

The result of table 4.4 shows that the mean of the Operational Cost Efficiency Ratio was given by 1.182109. The ratio is quite high which simply implies that the listed commercial banks in Kenya are operating inefficiently, this is because they generate more expenses compared to revenue. This is a demotivating factor for investors not to invest in various financial services that are being offered by these banks. The standard deviation for the overall ratio is given by 0.138189, while between the 11 banks was given by 0.051118 while the standard deviation within the years is given by 0.129198. The standard deviation values are quite low which means that both the overall, in between banks, and within the ten-year period assessed the OCER has not deviated far from the mean. Consequently, the minimum overall operational cost efficiency ratio is 1, while the maximum is 1.63446. The minimum value between banks is 1.12956 while the maximum is 1.2809. The minimum value within the years is given by 0.9523 while the maximum within the years is given by 1.644.

#### 4.2.5 Bank Size

Bank size was identified as the study's moderating variable and it was measured as natural logarithm of total assets.

**Table 4.5:**

**Summary Statistics of Bank Size**

Variable		Mean	Std. Dev.	Min	Max	Observations
CAR	Overall	5.293104	0.2931903	4.50477	5.879867	N = 110
	Between		0.2577056	4.727895	5.643692	n = 11
	Within		0.1582149	4.897167	5.744451	T = 10

**Source: Research Data (2023)**

Table 4.5 results indicates that the mean of the bank size measurement was given by 5.293104. The standard deviation for the overall bank size is given by 0.2932 while between the 11 banks was given by 0.2577 while the standard deviation within the years is given by 0.1582. The standard deviation values are quite low which means that both the overall, in between banks and within the ten-year period assessed the bank size has not deviated far from the mean. Consequently, the minimum overall bank size is 4.504 while the maximum is 5.879. The minimum value between banks is 4.727 while the maximum is 5.643. The minimum value within the years is given by 4.897 while the maximum within the years is given by 5.744.

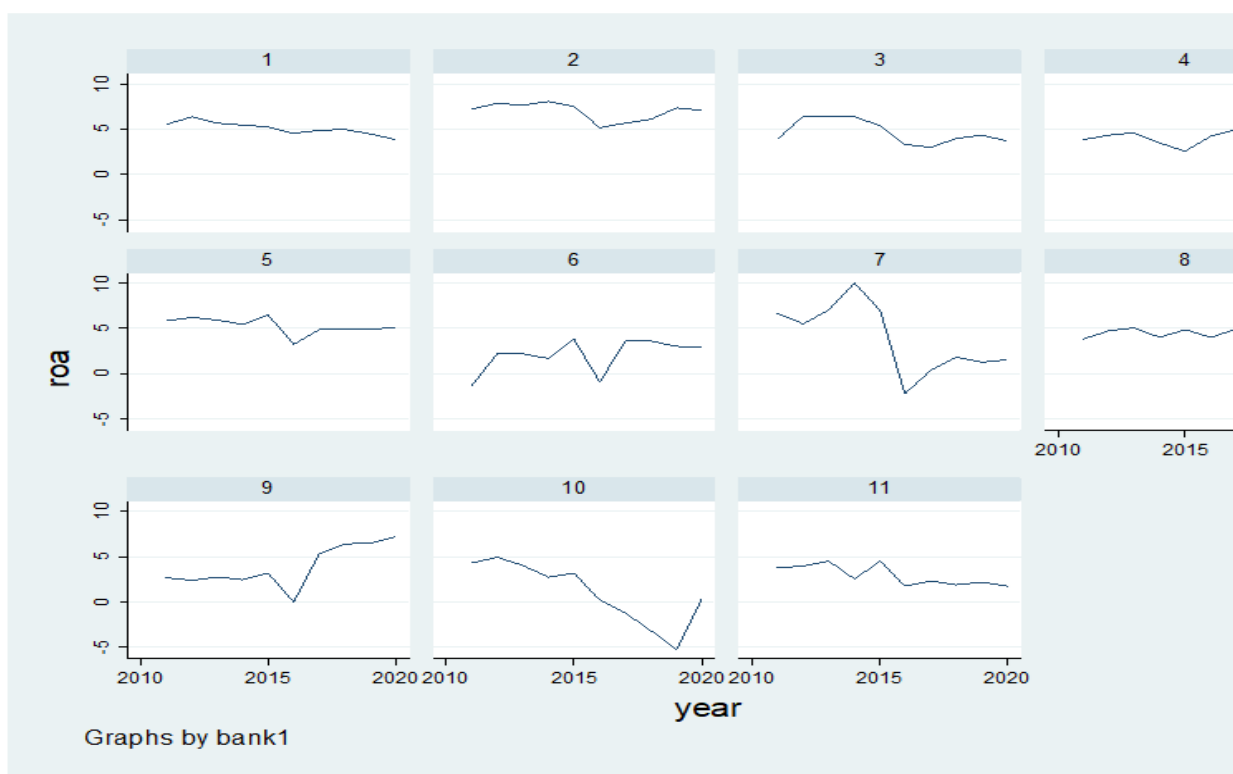
#### 4.3: Exploratory Data Analysis

Data analysis commenced with exploratory data analysis of return on asset to survey the non-financial of commercial bank heterogeneity over time. This examination was very critical in the resolve of whether to use the panel data analysis models or simply use pooled regression analysis models. It was done using graphs to examine the trend of returns of assets within an individual

commercial bank and across eleven commercial bank in Kenya. Details of the study are as shown below.

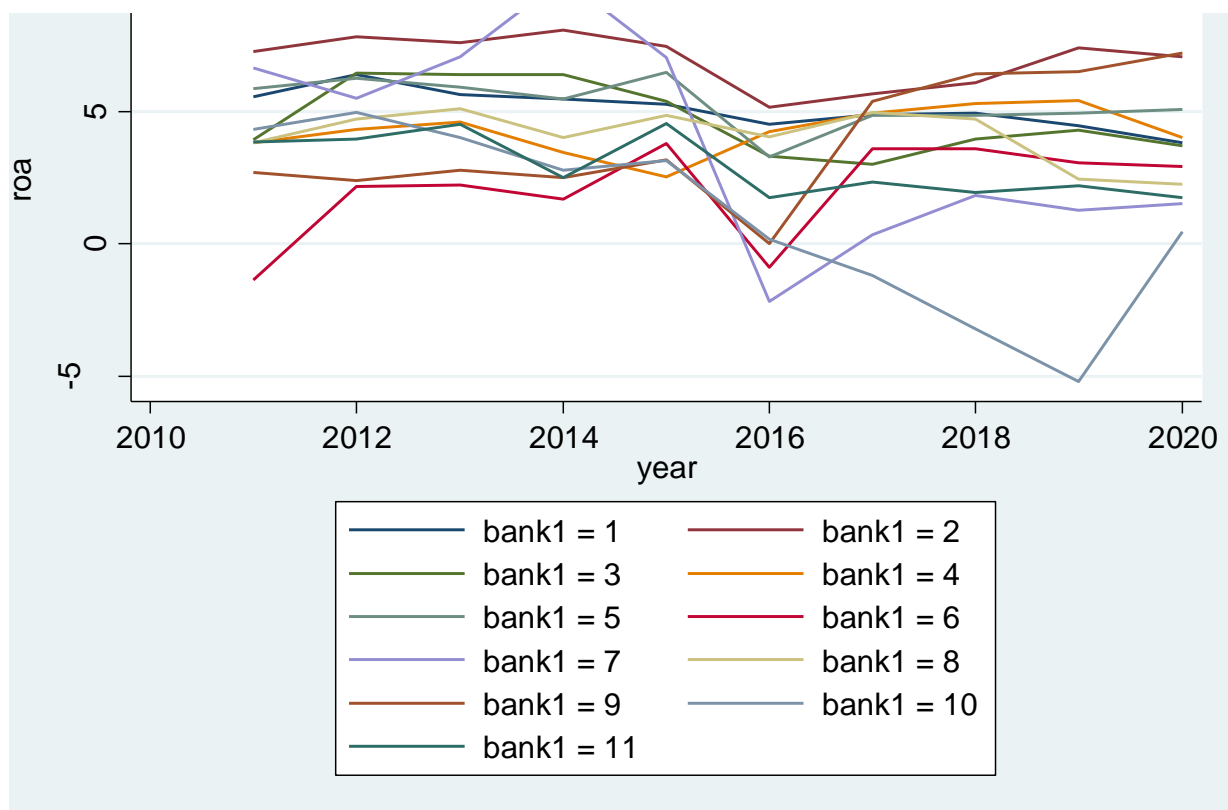
In the first instance, the study used empirical growth plots to study within-firm behavior of return on assets. Figure 4.1 below shows the trend of return on assets over a specific period of ten years for individual commercial. The return of assets plot reveals that majority of commercial does not change much over the period of study. Firm 10, and 7 had highest change in return of assets, a situation that affected the overall output. The empirical growth plots revealed that return on assets changed significantly since the trends were evident with time under the study. However, there were no thrilling outliers, but the variables remained to be significant hence did not suggest any existence of significant time-related fixed effects to suggest inclusion of dummy variables.

**Figure 4. 1:**  
**Growth Plot of Each Firm’s Return on Asset**



Further scrutiny of the overlain return on assets empirical growth plots within the ten year period indicated that the dependent variables for the firms were significantly related and there was a significant difference for the y-intercept. Tipoffs were slopes being non-significantly different from the graph for all the non-financial company. Once again; the return on assets dependent variables seemed to be significant. These observations are illustrated by figure 4.2 as shown below

**Figure 4.2:**  
**Overlain Plot of Return on Assets**



Multicollinearity is a condition in a regression model where the independent variables are linked. This is a problematic as the independent variables should always remain independent and separate from one another. A correlation matrix is the conventional check for Multicollinearity (Field, 2009). The matrix measures the potency and the nature of the relationship if any between the explanatory variables informing the study. Variance Inflation Factor (VIF) was in this study to test for multicollinearity. VIF identifies the extend of Multicollinearity in a regression analysis by analyzing the size of the VIF. A VIF of 1 means there is no correlation, moderate correlation is

presence if the VIF is between 5 and 10 and there is high correlation of the VIF is above 10 (Sosa-Eacudero 2009).

According to Kutner, Nachtsheim & Neter (2004) VIF of 3 and below is more ideal and acceptable. In table 4.6 below the VIF for all the independent variables in this study is 1.34. This is an indication that the variables used in this study lie within the acceptable range for multiple regression analysis. This is because there exist no or very little collinearity among the biased

**Table 4. 6:**

**Multicollinearity Test**

```
. vif
```

Variable	VIF	1/VIF
assetquality	1.41	0.708530
capitalade~y	1.37	0.731782
liquidity	1.33	0.749868
operationa~y	1.27	0.789294
Mean VIF	1.34	

**4.4: Diagnostic analysis**

This segment reported outcomes of the diagnostic analysis of the panel data. Further, this section also conveyed on the existence of time-related fixed effects and the appropriateness of fitting simple pooled regression models as linked to panel data models. The existence of heteroscedasticity and serial correlation and stationarity test was also determined in the study. Lastly a data analysis was carried out to finalize whether random effects or fixed effects models were to be contemplated in the study.

**4.4.1 :Test for Random Effects**

To jolt with, the viability of fitting a simple pooled regression model, which is much simpler than the panel data model was first scrutinized. The Breusch-Pagan LM test was employed to check for fitting of random effects model in order to resolve which was suitable model between a simple

linear regression model and a random effect model was preferable. In this test, if  $p < 0.001$ , the model was significant. Table 4.7 below indicates chi-square value for the model is significant ( $p < 0.001$ ), therefore inferring the existence of significant differences of return on asset among the firms. Subsequently, it was found unsuitable to use simple regression models.

**Table 4. 7:**

**Chi-Square values for the Breusch-Pagan LM Test**

<b>Model</b>	<b>Dependent variable</b>	<b><math>\chi^2</math>-value</b>	<b>p-value</b>
1	Return on Asset (ROA)	10.17	0.0007

*Source: Researcher (2023)*

**4.4.2 Test for Fixed Effects**

Secondly, the study resolute the presence of fixed effects. If fixed effects were existing the study, then one would be required to account for the effects either by inclusion of dummy variables to capture the effects or fitting a two-way random effect model. Table 4.8, shows the results of this test which therefore revealed that there are is significant fixed effects ( $p < 0.05$ ) thus there was need to fit two-way component models

**Table 4. 8:**

**Test Results for Time Fixed Effects**

<b>Model</b>	<b>Dependent Variable</b>	<b>F-Value</b>	<b>P-Value</b>
1	Return on Asset (ROA)	2.12	0.0362

*Source: Researcher (2023)*

#### 4.4.3 Test for Heteroskedasticity

The study conducted a test of the equality of the variance of errors of the fitted model. This was conducted using the Breusch-Pagan Cook-Weisberg test of heteroscedasticity. The null hypothesis for this test is that the variance of errors of the fitted model has a constant variance. This null hypothesis is accepted when the p-value of the chi-square is above 0.05.

The study results are presented in Table 4.9

**Table 4. 9:**

#### **Test Results for Heteroscedasticity**

<b>Model</b>	<b>Dependent Variable</b>	<b><math>\chi^2</math>-value</b>	<b>P-Value</b>
1	Return on Asset (ROA)	263.89	0.0000

*Source: Researcher (2023)*

The study results provided in Table 4.9 indicate that the chi square value was significant at a 5% level of significance (Chi square = 263.89,  $p < 0.05$ ). These results indicate that the null hypothesis was rejected and the alternate hypothesis accepted. The insinuation of these results was that there was heteroscedasticity. To correct for this, the study applied robust standard errors that were adjusted for the eleven clusters of the commercial banks.

#### 4.4.4 Test for Serial Correlation

The autocorrelation of the errors of the fitted regression was tested using Wooldridge test for autocorrelation in panel data. The test's null hypothesis is that there is no first order serial correlation. This is accepted if the p-value is above 0.05. The results are provided in Table 4.10  
Table 4.10 below illustrates this.

**Table 4. 10:**

**Test Results for Serial Correlation**

<b>Model</b>	<b>Dependent Variable</b>	<b>F-Value</b>	<b>P-Value</b>
1	Return on Asset (ROA)	6.231	0.0317

*Source: Researcher (2023)*

The results provided in Table 4.10 indicate that the statistic was significant at the 5% level of significance (F = 6.231, p = 0.0317). These findings led to the rejection of the null hypothesis that there was first order serial correlation.

**4.4.5 Test for Stationarity**

This test scrutinizes if the mean of the data in question is time independent. The Levin –lin chu unit root test for return of Asset was used to perceive the non-stationarity in all the variables. Furthermore, the estimates tend to transformation over time if the variables are non- stationary. This therefore outcomes into spurious estimates. Therefore, differencing is applied to variables which are found to be non-stationary until the bias is eliminated. In this study, the variable under consideration was stationary. The null hypothesis was rejected since the p-value < 0.05, thus no unit root indicating the panels were stationary. The p-value in this study was 0.0127 as reflected in table 4.11 below.

**Table 4.11:**

**Test for Stationarity**

```
. xtunitroot llc roa  
  
Levin-Lin-Chu unit-root test for roa  
-----  
Ho: Panels contain unit roots          Number of panels =   11  
Ha: Panels are stationary              Number of periods =   10  
  
AR parameter: Common                  Asymptotics: N/T -> 0  
Panel means: Included  
Time trend: Not included  
  
ADF regressions: 1 lag  
LR variance: Bartlett kernel, 6.00 lags average (chosen by LLC)  
-----  
                Statistic    p-value  
-----  
Unadjusted t    -5.2216  
Adjusted t*     -2.2366      0.0127  
-----
```

#### 4.5: Panel Data Descriptive Analysis

The study examined the descriptive pattern of the dependent variables, study findings were summarised as shown in Table 4.12

**Table 4.12:**

#### **Descriptive Statistical of dependent variables**

<b>Variable</b>		<b>Mean</b>	<b>Std. Deviation</b>	<b>Min</b>	<b>Max</b>
Return On Asset	Overall	4.023722	2.428336	-5.201436	10.02357
	Between		1.609458	1.026361	6.962298
	Within		1.876258	-2.204075	10.13665

The findings of Table 4.12 shows that the mean of Return on Assets was given by 4.023722 This value implies that the commercial banks operating profitability is quite low. The standard deviation for the overall ratio is given by 2.428336 while between the 11 banks was given by 1.609458 while the standard deviation within the years is given by 1.0876258. The standard deviation values are quite low which means that both the overall, in between banks and within the ten-year period assessed the ROA has not deviated far from the mean. The variability in their profitability in the ten years was not big. Consequently, the minimum overall ROA is -5.201436 while the maximum is 10. The minimum value between banks is 1.026361 while the maximum is 6.962298. The minimum value within the years is given by -2.204075 while the maximum within the years is given by 10.13665

#### **4.5.1 Model Fitting: Prais Winsten Panel Regression with Corrected Standard Errors**

In this study, the Hausman test of the model specification, which resolves between fixed effect model and random effect model, was not acknowledged out due to violation of linear regression assumption. It was because of the presence of heteroskedasticity and serial correlation in the variables. Therefore, a Prais Winsten Panel regression model (with corrected standard errors) that produces robust results in the presence of serial correlation and heteroskedasticity was fitted. The results are illustrated in table 4.13 below.

**Table 4. 13:**

**Prais Winsten Panel Regression with Corrected Standard Errors without moderator ( bank size)**

```

:pcse roa assetquality liquidity capitaladequacy operationalcostefficiency ,correlation(ar1) hetonly

Prais-Winsten regression, heteroskedastic panels corrected standard errors

Dependent variable:      bank1                Number of obs      =      110
Time-invariant variable: year                Number of groups   =      11
Diagnostics:             heteroskedastic (balanced)  Obs per group: min =      10
                          common AR(1)                avg              =      10
                                                        max              =      10
Estimated covariances    =      11                R-squared          =      0.2787
Estimated autocorrelations =      1                Wald chi2(4)       =      34.70
Estimated coefficients    =      5                Prob > chi2        =      0.0000

```

roa	Het-corrected					[95% Conf. Interval]	
	Coef.	Std. Err.	z	P> z			
assetquality	-12.52821	2.904626	-4.31	0.000	-18.22117	-6.835244	
liquidity	-3.088196	1.052393	-2.93	0.003	-5.150847	-1.025544	
capitaladequacy	-.2488445	.1188419	-2.09	0.036	-.4817703	-.0159187	
operationalcostefficiency	.7065158	1.46641	0.48	0.630	-2.167595	3.580627	
_cons	10.51088	1.989041	5.28	0.000	6.612433	14.40933	
rho	.4233832						

The panel regression results with corrected standard errors presented in table 4.8 above indicated that the constant was 10.51088, and that the value was significant at the 5% level. This consequently implied that if the independent variables were held constant, the return on Asset increase by 10.5108 unit.

The regression results indicated a coefficient of -12.52821 of debt asset quality and a p-value of 0.00 which was less than 0.05. This implies that there is a negative and significant relationship between asset quality and return of asset of the eleven commercial companies studied. A unit change in asset quality leads to a 12.52821 increase in the return of asset.

The coefficient of liquidity was -3.08816, significant at 5% level with p-value of 0.003 which was less than 0.05. The results indicated that there was a negative insignificant relationship between

liquidity and the return on assets .Therefore, a unit change in liquidity would result to a 3.0881 in decrease change in return of asset .

The coefficient of capital adequacy was 0.24884 and significant with a p-value of 0.036, which was less than 0.05. The results showed that there was a direct significant relationship between capital adequacy and return on asset Therefore, a unit change in capital adequacy would result to a 0.24884 decrease change in return of asset commercial bank

The coefficient of operation cost efficiency was 0.7065158 and significant with a p-value of 0.630, which was greater than 0.05. The results showed that there was a direct insignificant relationship between of operation cost efficiency and return on asset Therefore, a unit change in capital adequacy would result to a 0.07065158 increase change in return of asset commercial bank

Equation (i) can therefore be rewritten as:

$$Y_t = 10.51088 - 12.52821 X_1 - 3.088196 X_2 - 0.2488445 X_3 \dots\dots\dots(i)$$

Where:

Y= Dependent Variable (Return on equity)

10.51088 = Constant (Level of Return on Asset when all independent variables are at zero)

-12.52821= Coefficient of  $X_1$  (change in the dependent variable due to a unit change in  $X_1$ )

$X_1$  = Asset quality

-3.088196= Coefficient of  $X_2$  (change in the dependent variable due to a unit change in  $X_2$ )

$X_2$  = liquidity

-0.2488445 = Coefficient of  $X_3$  (change in the dependent variable due to a unit change in  $X_3$ )

$X_3$  = Capital adequacy

From the above equation, Asset quality, liquidity and Capital adequacy significantly influenced the return on assest of eleven commercial bank .

#### 4.14: Moderating Effect of the Bank size on the assest quality

The study investigated the effect of assest quality on bank size it was found that assest quality held a positive significate effect on bank size and model was significated.as as shown in table 4.15

**Table 14.15:**

#### Moderating Effect of the Bank size on the assest quality

```
. regress banksize assetquality
```

Source	SS	df	MS			
Model	.081404221	1	.081404221	Number of obs =	110	
Residual	9.28829534	108	.086002735	F( 1, 108) =	0.95	
Total	9.36969956	109	.085960546	Prob > F =	0.3328	
				R-squared =	0.0087	
				Adj R-squared =	-0.0005	
				Root MSE =	.29326	

banksize	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
assetquality	-.320895	.3298342	-0.97	0.333	-.9746835	.3328935
_cons	5.325496	.0434781	122.49	0.000	5.239315	5.411677

#### 4.15: Moderating Effect of the Bank size on the liquidity

The effect of liquidity on bank size was also determined and it was found that liquidity held also a positive significant effect on bank size with significant model as shown on table 4.16

**Table 4.16:**

#### Moderating Effect of the Bank size on the liquidity

```
. regress banksize liquidity
```

Source	SS	df	MS			
Model	.48138235	1	.48138235	Number of obs =	110	
Residual	8.88831721	108	.082299233	F( 1, 108) =	5.85	
Total	9.36969956	109	.085960546	Prob > F =	0.0173	
				R-squared =	0.0514	
				Adj R-squared =	0.0426	
				Root MSE =	.28688	

banksize	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
liquidity	-.3383447	.1398982	-2.42	0.017	-.6156472	-.0610422
_cons	5.765502	.1972324	29.23	0.000	5.374554	6.156451

#### 4.16: Moderating Effect of the Bank size on the capital adequacy

The effect of capital adequacy on bank size was also determined and it was found that capital adequacy held also a positive significant effect on bank size with significant model as shown on table 4.17

**Table 4.17:**

#### Moderating Effect of the Bank size on the capital adequacy

```
. regress banksize capitaladequacy
```

Source	SS	df	MS			
Model	.596792733	1	.596792733	Number of obs =	110	
Residual	8.77290682	108	.081230619	F( 1, 108) =	7.35	
Total	9.36969956	109	.085960546	Prob > F =	0.0078	
				R-squared =	0.0637	
				Adj R-squared =	0.0550	
				Root MSE =	.28501	

banksize	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
capitaladequacy	-.0367066	.0135423	-2.71	0.008	-.0635498	-.0098634
_cons	5.548943	.0982216	56.49	0.000	5.354251	5.743636

#### 4.17: Moderating Effect of the Bank size on the operational cost of efficiency

Lastly The effect of operational cost of efficiency on bank size was also determined and it was found that operational cost of efficiency held also a positive significant effect on bank size with insignificant model as shown on table 4.18

**Table 4-18:**

#### Moderating Effect of the Bank size on the operational cost of efficiency

. regress banksize operationalcostefficiency

Source	SS	df	MS			
Model	.231667886	1	.231667886	Number of obs =	110	
Residual	9.13803167	108	.084611404	F( 1, 108) =	2.74	
Total	9.36969956	109	.085960546	Prob > F =	0.1009	
				R-squared =	0.0247	
				Adj R-squared =	0.0157	
				Root MSE =	.29088	

banksize	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
operationalcostefficiency	-.3336154	.2016172	-1.65	0.101	-.7332556	.0660249
_cons	5.687474	.2399417	23.70	0.000	5.211868	6.16308

#### 4.6 Discussion of Findings

The following section discusses the results of the study of Table 4.13 in line with the research objectives and hypotheses. These were based on conceptual and empirical literature. Panel data model was used to test the hypotheses. Further the section discusses the results of the study to show the extent of agreement to prior studies.

##### 4.6.1 The Effect of Asset Quality on the Financial Performance of Listed Commercial Banks in Kenya

According to the first hypothesis, asset quality did not substantially influence the financial performance of listed commercial banks in Kenya. This was the primary finding of the investigation. Table 4.13 presents the research findings, which showed that the p-value was significantly lower than 0.05 with a coefficient of -12.7 According to the study's results, the quality

of the banks' assets had a beneficial and discernible impact on the financial performance of commercial banks in Kenya. The financial performance of publicly traded commercial banks decrease by 12.7 unit for every unit change in asset quality. Because the p-value obtained (0.000) was lower than the critical value of 0.05, the coefficient was significant. It was determined that the null hypothesis should not be accepted.

According to the findings of the first experiment, the quality of the banks' assets had a favourable and statistically significant impact on the financial performance of listed commercial banks in Kenya.

#### **4.6.2 The Effect of Liquidity on Financial Performance of Listed Commercial Banks in Kenya**

The second hypothesis highlighted that liquidity had no vital impact on money performance of listed business banks in African nation. Leads to Table four.13 showed that the constant of liquidity was -2.80 whereas p worth was zero.001 that is a smaller amount than zero.05. The results disclosed that liquidity had a negative and vital impact on performance of commercial banks in Kenya. A unit in liquidity bated the financial performance commercial bank will decrease by 2.80 units. The constant was vital since the p-value obtained (0.001) was but zero.05. The null hypothesis developed was rejected.

#### **4.6.3 Effect of Capital Adequacy on Financial Performance of Listed Commercial Banks in Kenya**

The third hypothesis highlighted that capital adequacy had no vital result on the monetary performance of business banks in the Republic of Kenya. The results of the study are in Table 4.13 disclosed  $p = \text{zero.000} > 0.05$  with a -0.18415 Therefore, capital adequacy had a negative insignificant relationship with financial performance of commercial banks in the Kenya. A unit modification in capital adequacy redoubled the financial performance of commercial banks will decrease by 0.8415 units. The constant was not vital since the p-value obtained 0.114 was greater than 05. The null hypothesis developed was accepted.

These findings were not equivalent to those found in research carried out by Kimeu (2020). WHO investigated to determine the impact that adequate capital had on the overall performance of industrial banks listed in African countries. According to the research findings, fundamental capital significantly affects monetary success. Despite this, the addition of extra capital does not have a significant impact on the monetary performance of industrial banks that are listed on the NSE. As a result, Nzioki (2012) investigated the effect that sufficient capital had on the monetary performance of economic banks listed on the Nairobi securities market. The most important conclusion from the research was that adequate capital contributes entirely to the profitability of economic banks. As a result, banks need to have a strong capital basis to remain competitive and preserve the faith of their clients.

#### **4.6.4 Effect of Operational Cost Efficiency on Financial Performance of Listed Commercial Banks in Kenya**

The fourth hypothesis highlighted that operational price potency had no important impact on monetary performance of economic banks in Kenya. Results of the study in Table four.13 discovered that  $P = 0.597 > 0.05$  with a coefficient of 0.762. The findings showed that operational cost efficiency price had a negative and insignificant impact on financial performance commercial banks in Kenya. A unit modification in operational cost efficiency faded performance of commercial banks by 0.762 units. The constant was insignificant since the p-value obtained (0.597) was over zero.05. The null hypothesis developed wasn't rejected.

These findings contradicted a study by Ndolo (2015) on the connection between operational potency and also the economic performance of corporations listed at the national capital securities exchange. The study terminated that operational potency contains a statistically vital relationship with ROA.

#### **4.6.5 Moderating Effect of Bank Size on Financial Performance of Listed Commercial Banks in Kenya**

The fifth hypothesis highlighted that there was no vital analgesic result of bank size on money performance of business banks in Kenya. Results of the study in table four.13 indicated that  $p = 0.014$  that is a smaller amount than 0.05 and having a coefficient of 1.952. The results disclosed that bank size had a positive and vital analgesic result on factors that have an effect financial performance of listed commercial banks in Kenya. A unit modification in bank size augmented the financial performance of commercial banks by 1.952 units. The constant was vital since the p-value obtained (0.014) was but 0.05. The null hypothesis developed was rejected.

Findings of this study disagree with that of Abubakar (2021) that examined the impact of firm size on the monetary performance of listed Deposit cash Banks (DMBs) in African country

and the findings established that the variable quantity (firm size) had insignificant positive result on the DMBs' monetary performance proxies drawn by ROA and ROE.

## **CHAPTER FIVE**

### **SUMMARY, CONCLUSION AND RECOMMENDATIONS**

#### **5.1 Introduction**

This chapter presents the summary of findings of the research on the moderating effect of bank size on the factors that affect financial performance (asset quality, liquidity, capital adequacy and operational cost efficiency) of listed commercial banks in Kenya. Simply, the chapter contains the findings summary, conclusions, limitations, recommendations and the suggested areas for further study. All the itemized headings are discussed as per the general and specific objectives of the study.

#### **5.2 Summary**

The study analysed however Bank's size qualified the factors touching the monetary performance of listed industrial Banks in African country. So as to achieve the objectives of this study; quality, liquidity, capital adequacy and operational value potency on monetary performance of listed industrial banks in African country, the analysis was styled as causative analysis design. The target population of the study was the whole population of eleven listed industrial banks in African country. Secondary information was obtained from annual superintendence reports from the financial organization of African country and monetary statements from the various industrial banks. The information was analysed victimization descriptive and inferential statistics. The study conducted tests on normality, multiple regression, autocorrelation and heteroscedasticity. A panel model was accustomed by trial and error check the alleviatory impact of bank size on the monetary performance of listed monetary banks.

Secondary information from the eleven listed business banks in Kenya for a ten-year amount (2011-2020) from CBK's annual direction reports and their various annual reports, panel information analysis was done. The information collected was organized employing a data sheet in surpass and analysed in STATA version fourteen. Diagnostic tests were conjointly done to affirm the correct model to use wherever a hard and fast result model was deemed acceptable to analyse the mitigatory result of bank size on the factors that have an effect on money performance (asset quality, liquidity, capital adequacy and operational price efficiency) of listed business banks in Kenya. quality quality was measured exploitation non4

Performing loans magnitude relation, liquidity was measured exploitation liquidity dependency magnitude relation, capital adequacy was measured exploitation capital adequacy magnitude relation, operational price potency was measured exploitation operational price potency magnitude relation, bank size was measured because the logarithm of total assets of every bank and also the money performance of banks was measured exploitation come on Assets. Hypothesis testing was administered at ninety fifth confidence interval for rejection or not rejecting. The results obtained showed that there was a major mitigatory result of bank size on the factors that have an effect on money performance (asset quality, liquidity, capital adequacy and operational price efficiency) of listed business banks in Kenya.

### **5.2.1 Asset Quality and Financial Performance**

The first particular goal of the research was to analyze the influence of asset quality on the financial performance of listed commercial banks in Kenya. This was the first specific target of the study. The research findings indicated a positive and statistically significant association between the asset quality of listed commercial banks in Kenya and their financial performance. The results of the correlation study also revealed a positive, although rather modest, relationship between the two variables. The results of this study are consistent with those obtained by Abdirahman (2020), who investigated the influence of asset quality on the financial performance of commercial banks in

Kenya. According to the research findings, the financial performance of commercial banks is significantly influenced by both the quality of their assets and the size of their banks.

On the other hand, Nkuah (2015) conducted research in which he investigated the impact of asset quality on the financial performance of several universal banks in Ghana. The conclusion that can be drawn from the study findings is that the quality of the banks' assets has a detrimental impact on their financial performance in Ghana.

### **5.2.2 Liquidity and Financial Performance**

The second particular goal of the study was to assess the impact that liquidity has on the overall financial performance of commercial banks in Kenya. The findings collected via testing the hypothesis indicated that liquidity had a detrimental and statistically significant impact on the financial performance of listed commercial banks in Kenya. These findings were at par with Mwangi (2014) that established an inverse important relationship between holding assets and business banks performance. The findings take issue from that of Agabada and Osuji (2013), WHO conducted a study on the efficaciousness of liquidity management and bank performance in the Federal Republic of Nigeria. The analysis indicated a positive relationship between economical liquidity management and bank performance.

### **5.2.3 Capital Adequacy and Financial Performance**

The third particular goal of the research was to investigate the impact adequate capital has on the overall financial performance of commercial banks in Kenya. The investigation findings showed that capital adequacy had a negative insignificant relationship with financial performance of commercial banks in Kenya. The findings of the study in question agrees with that of Nestor, Okoye, Leonard, and Chinyere (2017) on the influence of Capital Adequacy on Financial Performance with a focus on selected quoted Deposit Money Banks in Nigeria from 2010-2015 that there is a considerable inverse correlation between Capital Adequacy and Financial Performance.

### **5.2.4 Operational Cost Efficiency and Financial Performance**

The fourth particular goal of the research was to determine operational cost efficiency's impact on the financial performance of commercial banks in Kenya. According to the investigation findings, the connection in question was unfavourable and inconsequential. The correlation study's results showed a negative but weak association between the operational cost efficiency of commercial banks and their financial performance. This study agrees with that of Werner and Moormann (2019) declared that the majority preceding analysis on potency in banking take a restrictive perspective and the findings disclosed that there's associate insignificant relationship between operational price potency on economic process of banks.

### **5.2.5 Bank Size and Financial Performance**

According to the fifth hypothesis, there was not a significant moderating influence of bank size on the financial performance of commercial banks in Kenya. The findings of the study revealed that bank size had a positive and vital analgesic result on factors that have an effect financial performance of listed commercial banks in Kenya. Therefore, the size of the bank was shown to have a beneficial and significantly moderating impact on the parameters that influence the financial performance of listed commercial banks in Kenya. An examination of the correlation between bank size and the financial performance of commercial banks indicated a favorable and robust connection between the two variables.

These findings concur with Aladwan (2015) United Nations agency that looked at bank size on its monetary performance for Jordanian listed industrial banks at intervals completely different size bank classes. "The results of the study disclosed a big distinction within the monetary performance of those completely different sized banks. The findings also agree with Gatete (2015) who investigated the result of bank size on monetary performance of economic banks in African nation. The regression results finished that index of plus was statistically vital to bank monetary performance.

### **5.3 Conclusion**

The study sought to examine the moderating effect of bank size on the factors that affect the financial performance of listed commercial banks in Kenya. From the analysis, the overall outcome reveals that commercial banks evidently face a number of issues that tend to undermine their financial performance. For their financial performance to be improved, factors that affect performance of the banks need to be assessed keenly.

The findings revealed that asset quality significantly affects the performance of commercial banks. The study concluded that the rise in asset quality improves performance of commercial banks. If banks are able to monitor their loans so as to ensure that they do not become non-

performing, they are able to increase their financial performance. This goes a long way in ensuring that customers do not default on making loan repayments. Loans are one of the major ways through which commercial banks are able to make profit.

The study highlighted the importance of the liquidity in influencing the income statement of the commercial banks in Kenya. The study concluded that managers ought to increase the earning of their company (deposits) and keep an open eye on items that are likely to alter the liquidity of their banks. More importantly, the loan proportion given by banks need to be maintained at a manageable level so as to boost their financial performance in cases of short falls. Consequently, banks need to be watchful of the way they issue long term loans to their customers since a properly managed liquidity will yield better returns to the bank.

According to the findings of the research, the efficiency of commercial banks' operating costs had a detrimental and minor impact on the country's commercial banks' financial performance.

According to the research findings, the size of the bank was shown to have a beneficial and significantly moderating impact on the parameters that influence the financial performance of listed commercial banks in Kenya. According to the research findings, the size of the bank is a key factor that moderates the performance of commercial banks.

#### **5.4 Limitations of the Study**

**Conceptual Limitation:** Whereas there are many factors which can affect the financial performance of commercial banks such as non-performing loans, rate of adaptability to technological advancements, the study concentrated on the five variables namely, asset quality, liquidity, capital adequacy, operational cost efficiency and bank size.

**Contextual Limitation:** Whereas financial performances of other entities such as manufacturing sector, insurance, SACCOs, Small and Medium Enterprises (SMEs) are of significance to the economic growth of any economy, the current study concentrated only on

commercial banks in Kenya. However, a study in the commercial banks was found suitable given the high rate of default coupled with the high standard of living. Despite the limitation, the quality of the result was not compromised.

**Methodological Limitation:** Whereas financial performance of firms can be measured using various models such as regression analysis, correlation analysis, the current study adopted panel data model. However, this did not compromise the results of the study. Panel data was found more suitable for a secondary data carried out over a given period of time.

**Theoretical Limitation:** Whereas more theories could have been used in this study such as agency theory, signalling theory, among others. Despite the limitation, the current study Shiftability theory of Liquidity, Credit Risk Theory, The Concentration-Stability and Concentration-Fragility Theory and Arbitrage Pricing Theory. The theories used were found to be most suitable as they informed the study variables.

## **5.5 Recommendations**

One of the major roles that commercial banks play is the creation of credit, which exposes the banks to unforeseen risks. This may arise when customers fail to honour their loan obligations. Thus, there is need for commercial banks to set a provision for these loans. An attempt has been made by the adoption of the Loan Loss Provision by all commercial banks in order to maintain the bank's asset quality.

The study asserted the necessity to have monitor factors that affect financial performance of listed commercial banks around asset quality, liquidity, capital adequacy and operational cost efficiency. This would go a long way in ensuring that commercial banks are able to minimize the effect of certain risks that they face. In doing so, these banks would be able to improve their financial performance. Consequently, to ensure shareholder goal of wealth maximization is met, commercial banks need to attain consistent profits that are distributed to them in the form of dividends.

Commercial banks are not the only institutions that are affected by the factors discussed, other businesses for example insurance firms are affected. Therefore, the study recommends that all business entities should re-evaluate in order to boost their performance either in a financial or operational perspective. Moreover, an establishment of evaluation body of commercial banks should be made a prerequisite as it contributes to the overall performance of the banks.

### **5.6 Suggestion for Further Studies**

The study focused only on four factors that affect financial performance of commercial banks (asset quality, liquidity, capital adequacy and operational cost efficiency), there are other components that affect performance of commercial banks for example inflation. Other studies need to incorporate these factors. Different measures of financial performance for example Return on Equity should be used as the study concentrated on Return on Assets only.

The study was conducted within a ten-year period; other studies should consider widening the scope to more years and use other methods of analysis such as regression analysis, correlation analysis, and time series analysis apart from the panel data model that the study used. This would give a different perspective from what the study has and Future researchers should consider conducting studies in both commercial and non-commercial banks in Kenya. This would give a true picture of the financial performance of all banks in Kenya.

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## APPENDICES

### Appendix I: Commercial Banks in Kenya

#### List of Listed Commercial Banks as at 31<sup>st</sup> December 2020.

Barclays Bank Ltd
CFC Stanbic Holdings Ltd
Co-operative Bank of Kenya Ltd
Diamond Trust Bank Kenya Ltd
Equity Bank Ltd
Housing Finance Co Ltd
I&M Holdings Ltd
Kenya Commercial Bank Ltd
National Bank of Kenya Ltd
NIC Bank Ltd
Standard Chartered Bank Ltd

(Source, NSE 2021)

**Appendix II: Data sheet**

<b>Bank</b>	<b>Total Assets</b>	<b>Total Loans</b>	<b>Net Profit</b>	<b>Total deposits</b>	<b>Total Income</b>	<b>Total Costs</b>	<b>Total Equity</b>