EFFECT OF BUFFER CAPITAL PROVISION ON THE RELATIONSHIP BETWEEN LOAN PORTFOLIO QUALITY AND FINANCIAL PERFORMANCE OF COMMERCIAL BANKS IN KENYA

BY

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DECLARATION

Declaration by the Candidate

This project is my original work and has not been submitted to any other university for examination body. No part of this research work should be reproduced without my consent or that of the Moi University.

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DEDICATION

It is my pleasure to dedicate this research work to my family and friends who have always encouraged me to work on this project and the entire course, for their sacrifice, understanding, support and encouragement as I undertook my Master's degree course.

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ABSTRACT

Financial performance and its sustainability in commercial banks and its relationship with loan portfolio quality has remained a subject of interest to most scholars. Though non-performing loans in relation to financial performance of commercial banks has been evaluated by a number of scholars, a long-lasting solution has not been identified yet. The main objective of this study was to examine the effect of buffer capital provision on the relationship between loan portfolio quality and financial performance of commercial banks in Kenya. The specific objectives included; establishing the effect of delinquency rate on financial performance; to determine the effect of leverage ratio on financial performance; to evaluate the influence of portfolio at risk ratio on financial performance of commercial banks in Kenya and to evaluate the moderating effect of buffer capital provision on the relationship between loan portfolio quality and financial performance of commercial banks in Kenya. This study was guided by Portfolio theory, Information Asymmetry theory, and Financial Intermediation theory. The study employed explanatory research design and data was obtained from published financial reports. The population of this study was all 45 commercial banks operating in Nairobi City; and thus, the study adopted census. In regard to data, this study used secondary data from financial reports for period of five years. To prove that the practice of the concept of buffer capital and loan portfolio quality concepts, a cross-tabular analysis of certain questions was performed, where the coefficient of correlation, linear and hierarchical regression were calculated. The findings revealed that that delinquency rate negatively impacts RoA (β=-0.2134, p=0.000), leading to the rejection of H_{01}. Leverage ratio positively affects RoA (β=0.0234, p=0.020), rejecting H_{02}, while portfolio ratio improves RoA (β=0.1452, p=0.023), rejecting H_{03}. Buffer capital moderates these relationships, mitigating risks from leverage (β=-0.034567, p=0.007, rejecting H_{04}), delinquency rate (β=0.045678, p=0.005, rejecting H_{05}), and portfolio ratio (β=-0.056789, p=0.004, rejecting H_{06}). Based on these results, it can be concluded that delinquency rates negatively impact profitability, while leverage and portfolio ratios enhance performance. Firm size and buffer capital were crucial in stabilizing these relationships, underscoring the need for effective risk management and strategic planning. This study provides actionable recommendations for bank managers aimed at enhancing financial performance. By focusing on effective credit risk management, balanced leverage strategies, strategic portfolio management, and maintaining adequate buffer capital, managers can navigate the complexities of the banking sector and position their institutions for long-term success. The study offers practical insights for banking executives and policymakers on improving profitability and ensuring long-term stability in the competitive financial sector.

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OPERATIONAL DEFINITION OF TERMS

Buffer capital: This is capital that is required to be held over and above the regulatory minimum to absorb losses and protect the capital structure of the bank. It is a concept that was developed to help banks stay resilient during times of economic hardship.

Financial performance: The monetary performance of a business entity normally measured in terms of a specific calendar duration such as a year. This is the capacity of a certain venture to make revenues from its use. It can also be the extent to which the financial objectives are attained.

Loan: A financial facility extended by a financial institution to its client in return for interest. It is the money given to another party in exchange for repayment of the loan principal amount plus interest.

Loan Portfolio: A collection of investments or assets for a corporate, in this case it refers to the type of loans advanced by commercial banks.

Non-performing Loans: These are loan whose repayments are not in accordance with agreed terms and are in arrears, according to the prudential guidelines provided by the CBK. They can also be defined as the facilities where there is a reasonable doubt about the ultimate collectability of the principal amount and interest, within a period established by the financial institutions.

Return on Assets: Refers to the financial ratio that is defined as the banks' performance on finances. It is a ratio of the honorarium to the total asset.

Return on Equity: It refers to the amount of profit gained by an organization contrasted to the total equity of the shareholder that was invested or that which is located in the balance sheet. The shareholders expect ROE as a return for their investment.

ABBREVIATIONS AND ACRONYMS

CBK	**:**	Central Bank of Kenya
NPL	**:**	Non-performing Loan
ROA	**:**	Return on Assets
ROE	**:**	Return on Equity
SACCO	**:**	Savings and Credit Cooperative Organization
SRC	**:**	Standard Risk Costs
WO	**:**	Write-Off ratio

CHAPTER ONE

INTRODUCTION

This chapter discusses the background of the study. It provides the background, the statement of the problem, study objectives, hypotheses, significance as well as the scope of the study.

1.1 Background of the Study

Loan portfolio quality is central to the financial stability and profitability of commercial banks. As banks primarily generate income through lending, poor loan quality exposes them to credit risk and undermines their financial performance through increased defaults and provisioning costs (Karim, Chan & Hassan, 2010). While credit expansion supports economic growth, high levels of non-performing loans significantly weaken banks' balance sheets and limit their ability to fund viable investments.

Despite the global shift toward modern credit risk and portfolio management practices, empirical evidence on how loan portfolio quality directly affects financial performance in developing banking markets remains limited. In Kenya, the banking sector has experienced persistent challenges with rising bad debts, deteriorating asset quality, and tightened lending criteria, which have constrained profitability and growth (Githaiga, 2015). However, most existing studies emphasize general credit risk management without sufficiently linking specific loan portfolio quality indicators to financial performance outcomes in the Kenyan context.

Financial performance reflects a bank's ability to efficiently utilize its assets to generate returns and maintain financial strength. High impairment charges, slow loan portfolio growth, and increased funding costs have placed additional pressure on banks' earnings

(Murira, 2014). A significant portion of bank resources is often tied up in non-performing loans, reducing liquidity and limiting future lending capacity.

There is a shortage of context-specific empirical studies examining the effect of loan portfolio quality on the financial performance of commercial banks in Kenya. This study addresses this gap by investigating the relationship between loan portfolio quality indicators and financial performance among selected commercial banks in Kenya, with the aim of generating evidence to inform policy and improve credit portfolio management practices.

1.1.1 Loan portfolio quality and Financial performance of commercial banks

Loan portfolio quality and financial performance of commercial banks have been of great interest to researchers for many years. Banks are financial intermediaries that are responsible for taking deposits from savers and providing credit to borrowers (Nguyen, 2020). Therefore, the quality of a bank's loan portfolio is an important measure of its financial performance. Banks must manage their loan portfolios carefully to maintain their profitability and avoid financial crises (Ibrahim, 2016). A bank's loan portfolio quality is usually measured by its non-performing loan (NPL) ratio, which is the ratio of non-performing loans to total loans (Cheng, 2021). The NPL ratio is used to assess a bank's credit risk and its ability to manage its loan portfolio. Moreover, a bank's financial performance is typically measured by its return on assets (ROA) and return on equity (ROE) (Ibrahim & AlQahtani, 2018). These two metrics are used to evaluate a bank's profitability and its ability to generate returns for its shareholders.

In United States of America (USA), loan portfolio quality is a key factor in assessing the financial performance of a bank, as it reflects the quality of the loans the bank has issued and their ability to be repaid. The quality of a bank's loan portfolio is heavily

dependent on the creditworthiness of borrowers, the quality of underwriting, and the loan terms (Lamont, 2018). Recent research has shown that the loan portfolio quality of banks in the United States is improving, with higher quality loans being issued and more borrowers able to repay their loans (Gonzalez-Uribe & Montor, 2017).

Similarly, Studies in United Kingdom (UK) have found that loan portfolio quality has a significant effect on a bank's profitability, capital adequacy, and risk management (Ashcroft, 2017). However, the relationship between loan portfolio quality and financial performance is not always uniform across all banks, as differences in bank size, ownership structure, and other factors can affect the relationship (Liu, 2017). Additionally, the external environment in which a bank operates, including the macroeconomic conditions, regulatory environment, and competitive landscape, will also influence the loan portfolio quality and financial performance of banks (Giannetti, 2017).

In China, the literature has focused on how the growth of non-performing loans (NPLs) within the Chinese banking system has impacted the financial performance of commercial banks (Liu, 2017; Yang, Liu, & Yeung, 2019). The Chinese banking system has traditionally been characterized by a high reliance on NPLs for profitability, which can be attributed to the country's lengthy credit cycle, lack of adequate credit-risk management, and inadequate corporate governance (Yang *et al*., 2019). In addition, the Chinese banking system is highly concentrated, with a few large banks dominating the market, resulting in an increased vulnerability to external shocks. To mitigate these risks, the Chinese government has implemented a range of regulatory policies and initiatives aimed at improving the loan portfolio quality and financial performance of commercial banks (Liu, 2017).

According to de Klerk (2019), commercial banks in South Africa have traditionally employed loan portfolio quality as a key performance indicator of financial performance. The loan portfolio quality of South African commercial banks has been assessed by assessing the relative size of the loan portfolio, its delinquency rate, and its default rate. H noted that loan portfolio quality is an important factor in determining the financial performance of commercial banks in South Africa because it can have a significant impact on the profitability of the banks.

In a study by Elorm-Donkor, Kortoh, & Asare, (2015) loan portfolio quality is an important measure of the financial performance of commercial banks in Ghana. They found that loan portfolio quality is significantly correlated with financial performance, with higher loan portfolio quality associated with higher financial performance. They also found that loan portfolio quality is dependent on bank size, capital adequacy, and the number of branches. In Nigeria, the quality of a bank's loan portfolio is an important indicator of the financial health of the bank and the banking system as a whole (Adeniji, 2020). A healthy loan portfolio is one that is composed of well-structured, high-quality loans and is managed in such a way as to ensure the timely repayment of loans. In addition, a healthy loan portfolio also includes loans with low default rates and an appropriate level of risk diversification.

The loan portfolio quality of commercial banks in Kenya has been a major concern in the recent past. This is due to the fact that the banking sector in Kenya is highly concentrated and dominated by a few large players, leaving smaller banks with limited access to large loans (Gakure, 2018). This has resulted in a high level of non-performing loans, which has adversely affected the financial performance of commercial banks in the country (Mugo & Kiragu, 2020). In addition, the Kenyan banking sector has been affected by the global economic crisis, which has adversely affected the

creditworthiness of borrowers (Kuria, 2018). As a result, the loan portfolio quality of commercial banks in Kenya has deteriorated significantly, leading to a significant decline in their overall financial performance.

Buffer capital is a risk mitigator as it is the capital reserves held by banks as a cushion against unexpected losses or economic downturns (Bruno & Rauh 2019). When a bank's loan portfolio quality deteriorates, and non-performing loans increase, it can negatively impact the bank's financial performance. However, with an adequate buffer capital, the bank is better equipped to absorb these losses without facing immediate financial distress (Fonseca 2020). Thus, the presence of buffer capital can act as a moderator by reducing the direct negative impact of loan portfolio quality on financial performance.

Similarly, banks with higher buffer capital are often perceived as more stable and creditworthy by regulators, investors, and depositors. As a result, they may enjoy access to cheaper funding and may have a greater capacity to extend credit (Brown and Smith 2019). When loan portfolio quality is high (i.e., lower non-performing loans), banks can capitalize on their strong financial position to lend to creditworthy borrowers, thus improving their financial performance (Johnson *et al*., 2018). Thus, buffer capital provision is a crucial component of a bank's capital adequacy framework; it acts as a cushion against unexpected losses and enhances the financial stability of banks. Understanding the impact of buffer capital on the relationship between loan portfolio quality and financial performance can shed light on how effective these capital buffers are in mitigating risks associated with loan portfolios.

Similarly, banking regulators often set minimum capital requirements, including buffer capital, to ensure the resilience and soundness of commercial banks. Such study therefore, can provide insights into the effectiveness of regulatory measures and inform

potential improvements in regulatory frameworks and also helps banks to optimize their capital allocation strategies. In this scenario, buffer capital acts as a moderator by amplifying the positive effect of loan portfolio quality on financial performance. This study will focus on exploring the effect of buffer capital provision on the relationship between Loan Portfolio Quality and Financial performance of the selected commercial banks in Kenya.

1.2 Statement of the Problem

Provision of loans is a core function of commercial banks and a key driver of financial sector growth. However, lending exposes banks to significant credit risk, especially in turbulent economic environments. In Kenya, the rising stock of non-performing loans (NPLs) has posed serious challenges not only to individual banks but to the stability of the entire financial sector. If left unresolved, deteriorating loan quality can restrict credit supply to the corporate sector and slow economic recovery.

Although Central Bank of Kenya (CBK) reports indicate periods of improvement—where the NPL ratio declined from 10.9% in 2014 to 8.9% in 2017 and restructured and impaired loans also reduced—subsequent shocks such as the COVID-19 pandemic reversed these gains. In 2019 and 2020, widespread loan restructuring occurred, and by December 2021, NPLs comprised approximately 22% of total loans in the banking industry, amounting to about Ksh. 436 billion. These trends point to persistent weaknesses in loan portfolio quality and debt-servicing capacity among borrowers.

To strengthen bank resilience, buffer capital provisions were introduced to absorb unexpected losses and stabilize the banking system. International studies suggest that higher capital buffers are associated with improved financial performance, but evidence from Kenya remains inconclusive. Most local studies have focused broadly on capital

adequacy and financial performance, without examining how buffer capital provisions interact with loan portfolio quality to influence bank performance.

There is limited empirical evidence in Kenya on the moderating effect of buffer capital provision on the relationship between loan portfolio quality and financial performance of commercial banks. This study therefore seeks to examine how buffer capital provisions influence the relationship between loan portfolio quality and financial performance of commercial banks in Kenya, with the aim of informing effective risk management and regulatory practices.

1.3 Research Objectives

1.3.1 Main Objective

The main objective of this study was to examine the effect of buffer capital provision on the relationship between Loan Portfolio Quality and Financial performance of the selected commercial banks in Kenya.

1.3.2 Specific objectives

i. To establish the effect of delinquency rate on financial performance of commercial banks in Kenya.
ii. To determine the effect of leverage ratio on financial performance of commercial banks in Kenya.
iii. To evaluate the influence of portfolio ratio on financial performance of commercial banks in Kenya
iv. To determine the moderating role of buffer capital provision on the relationship between loan portfolio quality and financial performance of commercial banks in Kenya

1.4 Hypothesis

The following hypotheses were tested during the study:

H_{01}: Delinquency rate has no significance effect on financial performance of commercial banks in Kenya.

H_{02}: Leverage ratio has no significance effect on financial performance of commercial banks in Kenya.

H_{03}: Portfolio ratio no significance effect on financial performance of commercial banks in Kenya.

H_{04a}: Buffer capital provision has no moderating effect on the relationship between delinquency rate and financial performance of commercial banks in Kenya

H_{04b}: Buffer capital provision has no moderating effect on the relationship between leverage ratio and financial performance of commercial banks in Kenya

H_{04c}: Buffer capital provision has no moderating effect on the relationship between portfolio ratio and financial performance of commercial banks in Kenya

1.5 Significance of the Study

The findings of this study is beneficial to various categories of people. The first category is the management of commercial banks in Kenya. They will be able to understand better the relationship between loan portfolio quality and the financial performance of the banks. The study will also assist them understand better the indicators of loan portfolio quality.

Similarly, the findings of this study will contribute to shareholders confidence in the management of loans portfolio which normally affect their investment return and overall profitability of the banks. The outcome of the study will also enable the

regulators of banking institutions devise better policies in regards to lending and supervision of credit management.

The findings of the study may also assist in informing policy makers in the banking industry in Kenya. It will enable them to develop policies that can enhance loan portfolio quality in order to enhance the financial performance of commercial banks in Kenya.

This study will also provide significant contribution towards the existing body of knowledge on loan portfolio quality and financial performance. Future research work, will therefore benefit from the findings since it will serve as a reference for future researchers.

1.6 Scope of the Study

This study focused on buffer capital provision, loan portfolio quality and the financial performance of commercial banks in Kenya. There was a total of 45 commercial banks whom were the target for this study. The study was carried out in Kenya and relied on data from financial statements covering a period of 5 years from 2018 to 2022.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter contains a review of literature on loan portfolio quality and the financial performance of commercial banks. Expansive literature on past studies was reviewed and presented in this section. Among the issues covered include theoretical literature, measures of financial performance and empirical literature. There is also a conceptual framework in this chapter which illustrates the relationship between the independent and dependent variables of the study.

2.2 Financial Performance concept

According to Heremans (2007) financial performance can be defined as the outcome of an organization strategies and procedures within a given time frame in economic relations. The outcomes are stated in terms of yield or losses (Heremans, 2007). Accordingly, the FP of banks is ration of degree of gains or losses of the bank in a given period (Murthy & Sree, 2003). The presentation of commercial banks is impacted by numerous factors like rivalry, financial risk, loan quality, the market share a bank controls, interest rates, the level of technology adopted by the bank, levels of regulation and the level of capital that the bank controls. The banks differ in size, capital and the quantity of branches with banks opening outlets and subsidiaries in additional nations (Alexandru *et al*., 2008).

The capacity of a bank attracting a clientele that can generate interest rates is fundamental to the sustainability of the firm. Thus, it is essential to determine the condition and the performance of the bank. FP of a firm is degree of organization's turnover or loses within a given time frame. It determines the capability of bank

administration to make revenue by employing firm's capital at their discard. Furthermore, it displays how competently the loans of an organization are applied to make revenue. Moreover, it shows the efficacy of the administration of an organization in making net revenue from loans of a firm (Khrawish & Saidi, 2011).

There are several methods that have been employed in measuring financial performance especially in commercial banks. One of these methods is the application of functional and financial ratios in measuring the financial performance of an organization (Ogilo, 2012). Some of the ratios include; Return on Equity (ROE), Return on Assets (ROA), and Net Interest Margin. ROE entails to how much profit a firm makes equated to the whole sum of stockholder equity capitalized or established in the firm's capital adequacy. Khrawish (2011) states ROE is the ratio of Net Income after Taxes divided by Total Equity Capital. ROA ratio specifies the profitability of an organization as a ratio of income to its sum asset (Khrawish, 2011). Net Interest Margin measures the difference amongst interest revenue and interest cost compared the sum of their interest-bearing assets (Gul *et al.,* 2011).

Banks typically assess their financial performance using measurements such as earnings, return on equity, and return on assets (Klomp, 2018). Financial performance also considers the relationship between risk and return. Banks assess the risk/return relationship at both the individual loan and portfolio level (Morsman, 2013). While more sophisticated loan pricing models include multiple factors to differentiate risk, smaller banks can get acceptable results with basic models relating a few variables loan income to capital. Banks increasingly are measuring the financial performance of loan portfolios by their risk adjusted returns (Koch and MacDonald, 2010).

2.3 Concepts of Loan Portfolio Quality

A loan portfolio is the largest asset that microfinance institutions possess (Samba, 2017). The quality of these loans determines the risk posed to the microfinance institution (Addai and Pu, 2015). A loan portfolio is of good quality when it has minimal non-performing loans/assets, low Portfolio at Risk, and Low Probability of Default (Onuko, Muganda, and Musiega, 2015). Loan portfolio quality is represented as the whole risk associated with all the loans assets that a financial institution or an individual hold (Tsai and Huang, 1997).

Loan is normally the assets that necessitate a stringent assessment of loan quality because when the borrower does not to make repayments of their obligations it can lead to rise in the non-performing assets (loans). To assess the loan quality, the risk managers mostly assign a numerical ranking to the loans according to the level of risk of the loans (Ombaba, 2013). Of the customers who borrow from the bank, some fail to pay back the funds. Some may make repayments for sometimes after which they default on either the interest or principal or even both.

This therefore means that some loans that are advanced will become nonperforming. In reality, there is a portion of the bank's loans that becomes NPLs and it is definitely assured and an inherent risk and cost of lending (Zimmerman, 1996). Loan quality is an area of bank management and it involves assessment of the bank's loans for the purpose of enabling quantifying of the size as well as the level of credit risk affiliated with its operations. It relates to the assets of a bank and concentrates on the loans quality that is the sources of earning for any bank (Khalid, 2012).

This study will utilize the measures of loan quality, which include; NPLs, Loan Loss Provision Coverage ratio (LLPC), Standard Risk Costs (SRC), and the Write-Off ratio

(WO). Ahmad and Ariff (2007) refer to NPLs as the portion of loan values that are not serviced for ninety days and above. The LLPC ratio indicates the banks level of protection against losses that might come in future. Thus, banks with a high ratio shows that they can be able to handle future losses in a better way, inclusive of those loses are unexpected exceeding the loan loss provision (Sangmi & Nazir, 2010). The SRC ratio is usually computed using historical data and represents long-term average real costs of the institution (Miljković, Filipović & Tanasković, 2013). The WO ratio provides the value of loans written off against the average gross loan portfolio lines (Scott & Arias, 2011).

2.4 Concept of Buffer capital provisions in Commercial Banks

Buffer capital provisions in commercial banks refer to the capital that is required to be held over and above the regulatory minimum to absorb losses and protect the capital structure of the bank. It is a concept that was developed to help banks stay resilient during times of economic hardship (International Monetary Fund, 2017). According to Bui, Nguyen, and Nguyen (2016), the concept of buffer capital provisions in commercial banks is the provision of additional capital to increase the financial stability of the banking system. This is achieved by providing a buffer of additional capital against shocks to the banking system from unexpected losses.

The additional capital acts as a cushion to absorb losses, thus allowing the banking system to remain stable in the event of unexpected events. It also strengthens the banking system's ability to withstand potential losses associated with credit and market risks. This concept has been used in many countries to help ensure the stability of the banking system. Buffer capital provisions are essential for commercial banks as they serve as a safety net to protect against losses related to certain risks. These provisions

are typically enforced through capital requirements to ensure that a bank can absorb losses arising from credit, market, or operational risks (Ayyagari & Goldberg, 1992).

Buffer capital provisions are essential for maintaining the stability of commercial banks, as they can help to reduce the probability of a bank's failure and help to limit losses for both the bank and customers (Gonzales-Perez, 2017). Furthermore, the presence of buffer capital provisions in commercial banks can help to reduce the likelihood of systemic risk in the banking sector, since it can ensure that the banking system is sufficiently resilient to weather any potential shocks (Fernández *et al*., 2013).Buffer capital provisions play a critical role in commercial banks by protecting depositors and creditors from sudden losses (Fonseca, 2020).

Such provisions ensure that banks have sufficient capital to cover their losses, maintain their solvency, and ensure their long-term sustainability (Bruno & Rauh, 2019). Buffer capital requirements help to limit risk-taking behavior by reducing the incentive to take on excessive risk (Fonseca, 2020). They also help to ensure that banks have enough capital to absorb losses associated with unexpected events (Bruno & Rauh, 2019). This provides protection not only to the banks themselves but also to their customers, as it increases the likelihood that their deposits and other investments will be safe and secure.

2.5 Theoretical Framework

This study is grounded on a number of theories, namely: Portfolio theory, Information Asymmetry theory, and Financial Intermediation theory.

2.5.1 Portfolio Theory

Portfolio theory manages the determination of portfolios that boost expected returns predictable with the individual satisfactory levels of hazard. The theory gives a structure

to determining and measuring speculation hazard and to create connections amongst risk and expected returns. Its principle essential supposition is that financial investors frequently need to maximize returns from their ventures for a given level of risk. The full range of ventures must be considered in light of the fact that the profits from every one of these speculations cooperate henceforth the connection between the profits for a resource in the portfolio is imperative (Reilly and Brown, 2011).

In investment, portfolio theory administration is a basic theory. It tries to search for the most effective mixes of advantages for boost portfolio expected returns for given level of risk. Then again, limit risk for a given level of expected return. From this theory, it is apparent that the level of hazard in a portfolio relies upon danger of every benefit, extent of assets distributed on every advantage and the interrelationship between the benefits making up the portfolio. The significant suspicions in portfolio theory in overseeing hazard are that the investors are objective and the market is proficient and culminate. The relevance of this theory in the current study is based on its application in the management of loan portfolio in order to enhance profitability and reduce loan default in commercial banks.

Portfolio theory helps to inform a study on the effect of loan portfolio quality on financial performance of commercial banks by allowing the researcher to analyze the balance between risk and return. The researcher can use portfolio theory to identify the optimal mix of loans and investments that will maximize the return for a given level of risk. This helps to determine the optimal allocation of resources for the bank, which should result in improved financial performance. By understanding how the different types of loans and investments interact, the researcher can identify the best strategy for

the bank in terms of risk/return. Additionally, portfolio theory can be used to evaluate the impact of changes in the loan portfolio on the bank's overall financial performance.

Portfolio theory has some gaps that can be addressed by other theories like Information Asymmetry theory. Information Asymmetry theory, which emphasizes the unequal distribution of information between borrowers and lenders, can shed light on how varying levels of information availability influence the accuracy of credit assessments and subsequent financial outcomes. Additionally, there is a dearth of empirical research examining the role of asymmetric information in the context of commercial banks' loan portfolios. It provides a more holistic understanding of how information imbalances affect the quality of loans and, consequently, the financial health of commercial banks, contributing to a more robust theoretical framework for assessing these dynamics

2.5.2 Information Asymmetry Theory

The first proponent of the asymmetric information idea was George A. Akerlof in his 1970 Paper titled "The Market for 'Lemons': Quality Uncertainty and the Market Mechanism". His essential contention is that in many markets the purchaser utilizes some market measurement to gauge the estimation of a class of products. Therefore, the purchaser sees the normal of the entire market while the dealer has more cozy information of a particular thing. Akerlof contends that this data asymmetry gives the vender a motivation to offer products of not as much as the normal market quality. The normal nature of products in the market will then decrease as will the market estimate. Such contrasts in social and private returns can be alleviated by various distinctive market organizations (Auronen 2013).

According to this investigation Information asymmetry alludes to a circumstance where entrepreneurs find out about the prospects for, and dangers confronting their businesses.

It portrays a condition in which all gatherings associated with an endeavor don't know important data. In an obligation showcase, data asymmetry emerges when a borrower who takes a credit for the most part has better data about the potential dangers and returns related with investment ventures for which the assets are reserved. The moneylender then again does not have adequate data concerning the borrower (Turnbull and Edwards 1994).

Binks *et al* (1992) call attention to it's hard to beat these issues since it isn't sparing to commit assets to examination and checking where loaning is for generally little sums. This is on the grounds that information expected to screen credit applications and to screen borrowers are not uninhibitedly accessible to banks. Brokers confront a circumstance of data asymmetry while evaluating loaning applications. The data required to evaluate the capability and responsibility of the business visionary, and the possibilities of the business is either not accessible, uneconomic to get or hard to decipher.

This makes two sorts of dangers. The danger of unfavorable choice which happens when banks loan to organizations which in this way come up short (type II mistake), or when they don't loan to organizations which go ahead to wind up" fruitful, or can possibly do as such (type I blunder) (Gatuhu 2013). The relevance of the asymmetry theory to this research is based on its explanation that borrowers may take advantage of the superior knowledge they have over lenders. Any information they perceive will be at their detriment in the loan application process will most likely not be revealed.

This theory states that when one party has more information than the other, it can lead to an imbalance of power and can affect the outcome of any given transaction. In the case of the study on the effect of loan portfolio quality on financial performance of

commercial banks, the Information Asymmetry Theory suggests that banks may not be fully aware of the quality of their loan portfolio and how it impacts their financial performance. This lack of knowledge could lead to decisions that are not in the best interest of the bank. By understanding the implications of information asymmetry, researchers can better understand how banks make decisions that affect their financial performance.

Similarly, Information Asymmetry Theory gaps include limited consideration of dynamic information changes, neglect of varying information sources, and insufficient attention to the contextual impact on different industries or sectors. Thus, Financial Intermediation Theory can address these gaps by emphasizing the role of intermediaries, such as banks, in mitigating information imbalances between lenders and borrowers. Unlike Information Asymmetry Theory, which may oversimplify the relationship dynamics, Financial Intermediation Theory recognizes that intermediaries act as information brokers, employing expertise to assess and monitor borrowers.

This framework also considers the mechanisms through which financial institutions reduce risk, enhance transparency, and facilitate efficient resource allocation. By integrating Financial Intermediation Theory, studies on the effect of loan portfolio quality on commercial banks' financial performance can benefit from a more nuanced understanding of how intermediaries influence information flows and bridge gaps in asymmetric information.

2.5.3 Financial Intermediation Theory

Financial intermediation involves surplus units depositing funds with financial institutions who then lend to deficit units. In earlier studies of financial intermediation, such as Gurley and Shaw’s (1960), the main activity of intermediaries was the

transformation of securities issued by firms (shares and bonds) into securities demanded by investors (deposits). Financial intermediaries are valuable because they provide services of divisibility and risk transformation, which borrowers cannot obtain on their own under identical conditions due to transaction costs.

It is important to distinguish between banks as financial intermediaries accepting deposits and advancing loans directly to borrowers and non-bank financial intermediaries who lend via the purchase of securities (Iwedi & Igbanibo, 2015). The latter category includes insurance companies, pension funds and investment trusts who purchase securities, thus providing capital indirectly rather than making loans. These types of intermediaries do not meet the four criteria shown above. This study is devoted to banks only. The most significant contribution of intermediaries is that they provide a steady flow of funds from surplus to deficit units (Mathews and Thompson, 2008).

Banks, Savings and Credit Cooperatives (SACCOs) and Microfinance institutions have always been the most important financial intermediaries in virtually all economies. This results from their role as providers of liquidity insurance and monitoring services and as producers of information (Poghosyan, 2013). By issuing demand deposits, banks can improve on a competitive market because these deposits allow for better risk sharing among households that face idiosyncratic shocks to their consumption needs over time (Phelan, 2017). The importance of banks in this framework arises from an information asymmetry; the shock that affects a household's consumption needs is not publicly observable.

Financial intermediaries are also valuable as providers of monitoring services because they act as delegated monitors to investors and thus avoid the duplication of monitoring costs. As for liquidity insurance, the key to the existence of banks in this step is also an

information problem (Ziegler, 2013). Firms are assumed to have more information about their investment projects than investors do. Investors can learn this information but only after incurring monitoring cost. They may choose, however, to delegate monitoring to a bank, through which they all provide funding to the firm. By acting as delegated monitors of investors, banks save on monitoring costs and make funding available to firms at a lower cost than direct lending (Marcelin & Mathur, 2014).

The provision of liquidity insurance explains the liability side of the bank's balance sheet while provision of monitoring services explains the asset side of the balance sheet (Hermes & Lensink, 2013). Financial Intermediation Theory suggests that banks are particularly important in the economy due to their role as intermediaries between borrowers and savers. As such, banks are exposed to a variety of risks, including credit risk and liquidity risk. A study on the effect of loan portfolio quality on financial performance of commercial banks would need to consider these risks, as well as the potential benefits of having a high-quality loan portfolio, such as improved profitability and increased asset quality.

This study would also need to consider the costs associated with having a poor-quality loan portfolio, such as increased provisioning, higher default rates, and reduced liquidity. Additionally, the study would need to consider the impact of macroeconomic factors and bank-specific factors such as capital adequacy and risk management strategies on the quality of loan portfolios and their effect on the financial performance of commercial banks.

Financial Intermediation Theory gaps, like overlooking portfolio diversification and information distribution dynamics, can be addressed by Portfolio Theory and Information Asymmetry Theory, respectively. Portfolio Theory provides a lens to

enhance risk management strategies in financial intermediation, considering diversified asset portfolios to mitigate systemic vulnerabilities. Simultaneously, Information Asymmetry Theory complements by spotlighting the uneven access to information among stakeholders, emphasizing the impact on decision-making in financial transactions. Integrating these theories into financial research can create a more comprehensive framework, addressing the gaps in Financial Intermediation Theory and fostering a deeper understanding of risk, return, and information dynamics in the financial intermediation process.

2.6 Empirical Review on Loan Portfolio Quality and Financial Performance

Many scholars have researched Loan Portfolio Quality and Financial Performance. For instance, George *et al*. (2013) examined the effect of loan portfolio administration on association gainfulness instance of Commercial Banks in Kenya. The findings showed that loan portfolio impacted the gainfulness of the banks. Non-performing credits and the new advances had distinctive effect on the productivity of the bank. The interest cost was evaluated exceptionally as a factor that attempts to lessen the benefits. The organization costs particularly pay overheads were absolutely faulted for decreasing productivity.

As indicated by Magali (2014) whose general point was to establish the viability of loan portfolio management in rural SACCOS in Tanzania. The outcomes from the regression investigation uncover that the nature of advance portfolio was decidedly affected by the loan measure while the impact of gender of the borrowers were not critical. The discoveries additionally uncovered that change of the cost of horticultural create undermined the nature of loan portfolio, upgrade the reimbursement of late advances

and overhaul the advance classes and development so as to enhance the nature of the advance portfolio in the SACCOS.

The study led by Karekaho, (2009) whose reason for existing was to build up the connection between loan portfolio management and execution of commercial banks in Wakiso locale, Uganda. The discoveries demonstrate that there were noteworthy connections between advance portfolio arranging, customer screening, portfolio control and the execution of the commercial banks. However, this study only measure performance using financial indicators, therefore this paper proposes and a study on performance in two angles both financial and non-financial performance as alluded in the balanced score card theory.

Klein (2013) likewise examined specific determinant which influence the loan quality at the bank's individual level, Industry level and macroeconomic level. It was found that some of the macroeconomic conditions which influence the NPLs level includes growth in GDP, inflation, unemployment among others. Additionally, the investigation showed that solid criticism impacts from the banking system on the actual economy, which is apparent from the CESEE nations that experience high NPL levels contrarily, sway the speed of economic recovery.

In their study, Edmister and Hatfield, (1995) observed that few institutions reported financial and outreach data at a sufficiently high standard. They further found that relevant information plays a crucial role both in internal management and in convincing outsiders (donors, lenders, investors, depositors, regulatory authorities) of the soundness of an institution. Inability to provide such information will slow the development of an institution and limit its access to funding. Ngene (2012) did an empirical investigation into portfolio performance measures by pension fund managers

and the challenges they face in portfolio management in Kenya. They found out that many investors mistakenly base the success of their portfolios on returns alone. Few consider the risk that they took to achieve those returns.

Also, Maina (2013) carried out research on the risk-based capital standards and the riskiness of bank portfolios in Kenya. The study established that the challenges include taxes, investor preferences, portfolio constraints, lack of knowledge from consultants and cultural hurdles. The study thus shows that these challenges led to reduction in return on assets, financial self-sufficiency and portfolio yield. It was also clear that multi-divisional firms sometimes overinvest capital in weak divisions and under-invest it in stronger ones; and this adversely affects the profitability of the entire business group. Sufi Faizan Ahmed, Qaisar Ali Malik (2015) assessed the impact of credit risk management hones on loan execution, empirical study of Micro Finance Banks of Pakistan. The consequences of the study demonstrated that credit terms and customer appraisal had positive and noteworthy effect on the advance execution, while the Collection policy and Credit hazard control had positive however irrelevant effect on Loan execution; this study was centered on financial indicators.

Locally, only little research work has been done on impacts on profitability caused by asset quality, which is why this study endeavour to bridge the gap. Kiganda (2013) investigated impacts on profitability of commercial banks concentrating on Equity Bank Limited in Kenya caused by macroeconomic factors. The study established that FP on most commercial banks are affected by the management and the board ‘s decision. Gatuhu (2013) investigated the impact on FP by credit management on microfinance organizations in Kenya. The study discovered a strong correlation between credit risk control and collection policy, FP of banks and customer appraisal.

Conclusions were that FP of banks is influenced by appraisal of client, credit risk control and the collection policy.

Keitany (2013) uncovered that there is solid negative connection between the loan default and the productivity of SACCOs in Nairobi County Kenya. The tests demonstrated that the general regression display is a solid match for the information as the free factors measurably and altogether foresee the reliant variable. The regression display is a solid match of the information. Identity sorts are inclined to advance default because credit markets may come up short. The examination prescribes that SACCO should; constantly audit credit approaches, build up irretrievable, loan provision policies and character of loan applicants.

Adeolu (2014) did an investigation of banks performance and asset quality on Nigerian commercial banks. With the aid of SPSS, he analyzed the data using Pearson correlation and regression analysis and discovered a strong positive relationship and effect of quality of asset on the financial performance of banks. Gatuhu (2013) investigated the impact on financial performance by credit management on microfinance organizations in Kenya. The study discovered a strong correlation between credit risk control and collection policy, financial performance of banks and customer appraisal. Conclusion were made that financial performance of banks are influenced by appraisal of client, credit risk control and the policy.

2.6.1 Delinquency rate and financial performance

Delinquency rate in commercial banks is defined as the amount of loans in which borrowers are 90 or more days past due (Wang, 2012). It is an important measure of a bank's asset quality and credit risk management, as delinquencies can lead to substantial losses for lenders (Girard, 2011). The delinquency rate in commercial banks

has been generally higher than that of consumer loans such as credit cards and auto loans, due to the higher concentration of higher-risk loans such as corporate and real estate loans (Wang, 2012).

Recent studies have found that delinquency rates can have a significant effect on the financial performance of commercial banks (Battiston & Tigani, 2019; Chien *et al*., 2018). High delinquency rates can lead to increased costs for banks, as they are required to set aside more capital to cover losses. Additionally, delinquency can lead to "cascading effects" that reduce the bank's liquidity, impair its ability to lend, and hurt its profitability (Chien *et al*., 2018,). Battiston and Tigani (2019) conducted a study that examined the impact of delinquencies on the financial performance of Italian banks. The authors used a panel dataset of Italian banks from 2008 to 2015 and found that a one-standard-deviation increase in delinquency rates was associated with a 0.74% decrease in return on assets.

They also found that delinquency rates had a greater effect on banks with higher levels of nonperforming loans, and that the effects were more pronounced for banks with weaker capital buffers. Chien *et al*. (2018) found a similar relationship between delinquency rates and financial performance in their study of Taiwanese banks. They used a panel dataset of Taiwanese banks from 2008 to 2013 and found that a one-standard-deviation increase in delinquency rate was associated with a 0.6% decrease in return on assets. Furthermore, they found that the effects were more pronounced for banks with higher levels of nonperforming assets.

Therefore, these studies suggest that delinquency rates can have a significant effect on the financial performance of commercial banks. Banks should be aware of the potential impact of delinquencies on their performance and should take measures to reduce the

risk of delinquency. In terms of knowledge gap, literature has shown that there is a a gap on the effect of delinquency rate on the financial performance of commercial banks. Specifically, studies found that the relationship between delinquency rate and financial performance is not well understood, and more research is needed to determine if there is a significant impact on financial performance.

2.6.2 Leverage ratio and financial performance

Leverage ratio is also known as trading on equity is a monetary strategy that incorporates the use of extra borrowed funds to maximize investment returns (Al-Otaibi 2013). It is the amount of obligation or debt a company has been or will be using to finance its business operations. Thus, leverage means those funds which firms get through debts. The leverage ratio arises often both investors and companies employ leverage to generate greater returns on their assets. However, using leverage does not guarantee success, and the possibility of excessive losses is greatly enhanced in highly leveraged positions. Leverage is not bad forever; it may be positive and increase the wealth of shareholders return and their investment fund, and also helps in reduction in tax. It is related to the degree of increase of combination of variable and fixed cost.

When a business has few sales and the gross margin of each sale is very high then it is called the business is highly leveraged. A business with many sales and margin of each sale is nominal; the business is called less leveraged. With the increase in sale each unit of sale will contribute more in profitability and less in fixed cost. Jensen (1986) contended that the moral hazard conduct is diminished throughout financing by decreasing income at the managers' disposal hence expanding the pressure to perform and this enhances the performance of the firm monetarily. Thus, banks with high leverage are in great position to fiscally perform better. It is therefore concluded that

high leverage diminishes the conflict amongst managers and shareholders leading to increase in performance and eventually a positive relationship is developed.

However, previous studies have largely focused on the effect of leverage ratio on financial performance of commercial Banks, yet a knowledge gap still exists (Kumar & Sharma, 2017; Mazzini et al., 2018). Thus, the effect of leverage ratio on financial performance of commercial Banks has not been sufficiently explored in Kenya's banking sector. However, recent studies have suggested that higher leverage ratios can lead to higher financial performance (Bruno & Shin, 2019). Further research is needed to investigate the relationship between leverage ratio and financial performance in a more systematic and comprehensive manner and including a moderating variable such as buffer capital provisions.

2.6.3 Portfolio Ratio and financial performance

The effect of portfolio ratio on the financial performance of commercial banks has been a subject of research for many years (Gammelgaard, 2016). Studies have found that a higher ratio of liquid assets to total assets, such as cash and short-term investments, is associated with higher financial performance (Zhang, 2019). This is likely due to the fact that liquid assets are more easily converted to cash and can be used by banks to meet unexpected liquidity needs (Zhang, 2019). Studies have also found that a higher ratio of non-interest-bearing assets, such as government securities, is associated with higher financial performance (Bai & He, 2017).

This is likely because these assets are less risky and can provide a reliable source of funds to the bank (Bai & He, 2017). On the other hand, a higher ratio of interest-bearing assets, such as loans, is associated with lower financial performance (Zhang, 2019). This is likely because these assets are riskier and can lead to higher losses if borrowers'

default on their loans (Zhang, 2019). The loan portfolio value is based on both the earned interest rates and the possibility of having the repayment of the principal and interest amounts (Jasson, 2012). Further, the dependency of loan portfolio as major business by banks makes it one of the high-risk sources to financial institutions' soundness and safety.

Historically, loan portfolios have been proved as the leading reason for losses and failure because of either poor management of risks, weak credit standards, or a weak economy. Essential to the soundness and safety of a bank, proper care of loan portfolios and a well-designed credit function is needed. Banks are exposed to many risks, among them financial risk, due to the unique nature of their operations and their customers (Ugoani, 2016). Financial risk is fundamental in each commercial bank (Muteti, 2014). Credit risk, liquidity risk as well as market risk comprises financial risk; many approaches by commercial banks to counterbalance these risk exposures generally involve well laid out credit policies and procedures (Ugoani, 2016).

It is important to note that an effective loan portfolio management should begin with a supervision of the personal loan risks. Therefore, to maintain a favorable loan quality, it is critical to have a wise risk identification process. Thus, the need to control quality loan approvals and the oversight of loan performance remains to be a vital call a better information systems technology to manage loans. Managers can identify risky loans by making a comprehensive look at the loan portfolio (Koch & MacDonald 2012). Further, in managing portfolios, bankers need to understand beyond the personal risks into the interrelations between the personal loan risks and portfolios. This kind of relationship can multiply the risk levels beyond a situation that ought to be when there is no interrelation.

It is now reveled that previous studies have suggested that the portfolio ratio of commercial banks has a significant effect on their financial performance (Jalilvand & Sadeghi, 2018; Zhang & Zhou, 2018). However, it is still unclear how the portfolio ratio affects the financial performance of commercial banks over different time periods (Jalilvand & Sadeghi, 2018; Zhang & Zhou, 2018). This knowledge gap needs to be addressed in future studies. This study will explore this by looking at the mediating role of buffer capital on the relationship between portfolio ratio and financial performance of commercial banks in Kenya.

2.6.4 Moderating role of Buffer Capital on the relationship between Loan portfolio quality and financial performance of Commercial Banks

Buffer capital is an important risk management tool used by commercial banks to manage liquidity and capital adequacy risk. It is the amount of capital that a bank holds in excess of the minimum regulatory capital requirements (Fernando, 2019). The buffer capital acts as a cushion in times of financial stress and helps protect the bank from unexpected losses. By holding additional capital, banks can absorb losses without having to reduce their lending or investment activities, which could destabilize the economy. Buffer capital also helps to limit the potential downside of banks taking on too much risk, as it can help offset any losses if the risks taken on by the bank prove to be more than expected (Lamont & Garg, 2021).

Buffer capital is a form of capital that is held by commercial banks to protect against unexpected losses, such as those caused by credit, market, and operational risks (Hudson, McDonnell, & White, 2014). It provides an additional layer of protection in the event of a financial shock, allowing banks to maintain their stability and avoid insolvency or a bank run. The amount of buffer capital held by a bank is determined by

its risk profile, regulatory capital requirements, and the potential impact of a given risk. It is typically held in the form of cash, government bonds, or other high-quality liquid assets (Miles, 2020). The use of buffer capital has grown in popularity among commercial banks in recent years, as it offers an effective way to manage risk and ensure the long-term sustainability of the banking system.

Buffer capital provision has been widely used as a moderator for mitigating the risk of loan portfolio quality and financial performance in commercial banks (Chen, Cho, & Yu, 2017). This provision, which is also known as provision for loan losses, is a regulatory capital requirement that is intended to protect a bank from losses due to non-performing loans. It is calculated by multiplying the amount of a loan by a predetermined estimate of potential losses, which is then deducted from the bank's capital (Borio & Zhu, 2008). By setting aside a portion of its capital as a buffer, a bank is able to absorb the potential losses that may occur from a loan portfolio.

In addition, the buffer capital provision serves to reduce the risk of the loan portfolio quality influencing the financial performance of a commercial bank (Chen *et al*., 2017). Recent research has examined the potential role of buffer capital provision as a moderator between loan portfolio quality and financial performance of commercial banks (Al-Azzam & Al-Azzam, 2015). Specifically, the study found that a higher buffer capital provision has a positive effect on financial performance, even when loan portfolio quality is not good. The authors suggest that this may be due to the fact that higher buffer capital provision allows banks to manage the risk of a poor loan portfolio more efficiently. Furthermore, the study found that a higher buffer capital provision also leads to a decrease in the cost of loan defaults, which can have a positive impact on the financial performance of banks.

In contrast, another study by Wang and Li (2017) found that buffer capital provision does not necessarily act as a moderator between loan portfolio quality and financial performance. Rather, the authors suggest that the effectiveness of buffer capital provision as a moderator between loan portfolio quality and financial performance of commercial banks depends on other factors, such as the size of the bank and the level of diversification. All these studies suggest that buffer capital provision may indeed act as a moderator between loan portfolio quality and financial performance of commercial banks. However, further research is needed to determine the extent to which this is the case and the conditions under which it is most effective.

2.7 Summary of the Literature Review and Research Gaps

In general, in almost all the literature that has been reviewed, it is clear that loan quality is a key aspect in optimizing the profits of financial institutions. More so, effective loan portfolio quality assessment procedures entail creating conducive environment and operations framework to measure and evaluate credit risk. It would ensure that credit risk is well handled and a proper structure for credit granting is in place. It involves risk identification, analysis and evaluation processes to create the right controls over risk. In terms of gaps, several gaps were unearthed which warranted this study. There is a conceptual gap in many studies reviewed in this research because they did not analyze various measures of loan portfolio quality and how they influence financial performance in commercial banks. Additionally, most of the studies reviewed showed some methodological gap, this study will apply correlation and multiple linear regression analysis to bridge the existing gap.

There is conceptual gap in these studies conducted by George *et al.* (2013), Magali (2014), Karekaho (2009), Klein (2013), Khalid (2012) and Adeolu (2014) because they

were not conducted in Kenyan context. There is also a contextual gap in the study conducted by Gatuhu (2013) which investigated the impact on financial performance by credit management on microfinance organizations institutions. Similarly, recent studies suggest that buffer capital may have a moderating effect on the relationship between loan portfolio quality and financial performance (Khan & Akter, 2018; Zhang, 2017). However, there is a lack of research examining the specific nature of this moderating effect especially in context of Kenya's commercial banks. To address this gap, the current study will focus on examining the moderating role of buffer capital provision on the relationship between loan portfolio quality and financial performance of commercial banks.

2.8 Conceptual Framework

According to Rocco and Plakhotnik (2009) a conceptual framework lays the foundation for research objectives and questions by grounding a study in the right knowledge constructs. The independent variables in this study will be the measures of Loan Portfolio Quality which include; delinquency rate, leverage ratio and portfolio at risk. The moderating variable is buffer capital, control variable include; bank size and bank age, while dependent variable is financial performance of commercial banks.

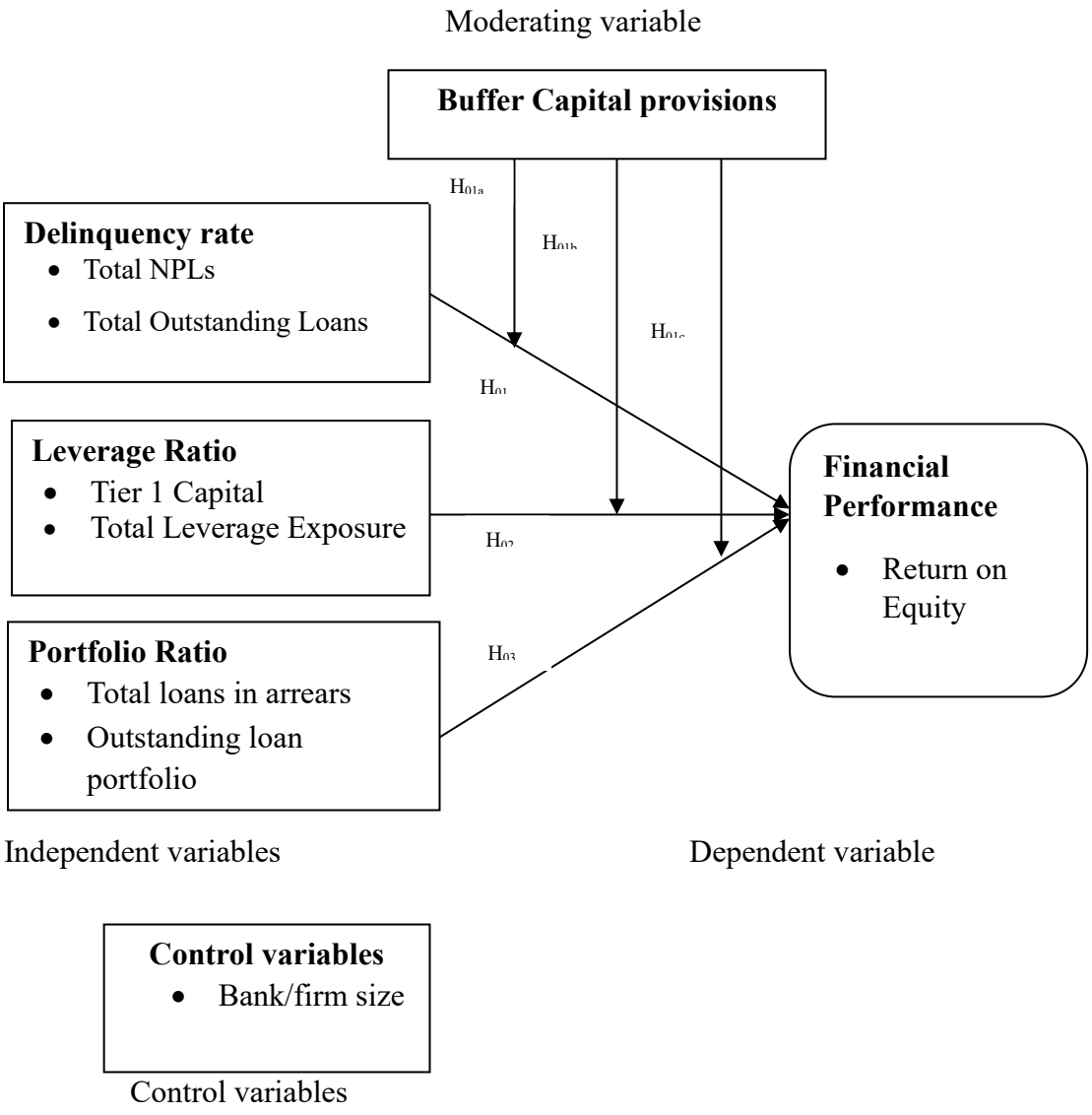

Figure 2.1: Conceptual framework

Source: (Author, 2023)

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents information relating to the research methodology that guided the researcher. It includes the appropriate research design to be adopted, the target population of this study, the sample size and sampling techniques that will be employed, the research instruments and data collection methods to be used, testing of validity and reliability of the instruments, data analysis techniques that was applied as well as ethical considerations to be observed during the research.

3.2 Research Design

Research design is a plan or framework that details the procedures necessary for the collection and analysis of data and the methodology to be used to answer the research questions (Cooper & Schindler, 2016). Therefore, this study employed explanatory-longitudinal research design. Explanatory-longitudinal research design is a research method used to investigate causal relationships between variables over time (Vu, 2010). An explanatory-longitudinal research design is a type of study that combines the features of both explanatory research and longitudinal research. It aims to investigate causal relationships between variables over an extended period, allowing researchers to observe changes over time and identify potential cause-and-effect relationships (Creswell, 2014). This type of research design is beneficial for researchers because it allows them to observe the effects of intervening variables on individuals over time and can provide a more comprehensive understanding of the relationships between variables (Vu, 2010). Additionally, it allows researchers to understand how individuals change and develop over time (Creswell, 2014).

3.3 Study Population

A research population according to Pole and Lampard (2002) refers to all the members of a given group to which the investigation is related. The population of this study included all commercial banks in Kenya. According to the Central bank of Kenya there are a total of 45 registered commercial banks. This forms the population of the study (See appendix I). The study adopted census to allow whole population be studied.

3.4 Data Collection and Research Instruments

3.4.1 Data Types and Sources

This study used secondary data. This study used financial reports to derive secondary data for the period of five years. In particular, researcher relied on data provided by CBK, which provided quarterly data, as well as bank supervision reports, for banks in Kenya. The researcher supplemented the information with that obtained in the published individual bank's financial accounts. The study also gathered annual data for a period of 5 years from 2018 to 2022. Information on net income, total assets, gross non-performing loans, gross loans advances, net charge-offs, loan loss provisions and liquidity financial statements of the individual banks were used.

3.4.2 Data Collection Procedure

The researcher retrieved the audited financial statements of all commercial banks and extracted the relevant data from them. The data extracted relating to the various variables was then presented in the data collection schedule form in readiness for entry into STATA. The data was arranged in terms of variables for ease of analysis.

3.5 Data Analysis

Data was collected and organized, tabulated and simplified so as to make it easier to analyze, interpret and understand. Because panel data was used in this study, STATA

version 13 was used because it is able to perform panel linear regression. In order to determine the relationship between study variables, correlation and regression analysis was adopted. Correlation test helped to determine the relationship that exists between study variables while regression established the impact of independent variables on the dependent variable. Also, the hypothesis stated in early chapters of this study was tested using regression and ANOVA test results.

3.6 Diagnostic tests

The regression model above underwent diagnostic tests to assess the model assumptions and to examine whether or not there were observations with big, undue effects on the analysis. This involved linearity, normality, autocorrelation, multi-collinearity, and homoscedasticity tests.

3.6.1 Linearity

This was an assumption that the expected dependent variable value was a straight line function of each independent variable, keeping others constant. This was achieved by plotting residual values and checking for the spread of residuals around a horizontal line. By examining a normal Predicted Probability (P-P) plot, the researcher determined if the residuals were normally distributed. If they were, they conformed to the diagonal normality line indicated in the plot.

3.6.2 Normality

Normality tests were performed by inspecting the regression model residuals; by plotting a graph and checking the normality to ascertain it (Gujarati & Porter, 2009). By using the Kolmogorov-Smirnov test, the researcher checked the test statistics provided (along with a degree of freedom parameter) to determine normality when

testing for normality; probabilities of 0.05 indicated that the data were normal, and probabilities less than 0.05 indicated that the data were not normal.

3.6.3 Multicollinearity

To test for multi-collinearity, the Tolerance and Variance Inflation Factor (VIF) values were observed. It was found that the value of tolerance was greater than 0.1 and the VIF value was below 10 at same time, thus, there was no multi-collinearity.

3.6.4 Homoscedasticity

This is a condition in which the variance of the residual, or error term, in a regression model is constant. To test this, Goldfeld-Quandt test was applied, where λ (=F) is greater than the critical F at the chosen level of significance, the hypothesis of homoscedasticity is rejected, i.e., heteroscedasticity is very unlikely (Gujarati & Porter, 2009). In this case, the hypothesis of homoscedasticity was rejected.

3.6.5 Auto-correlation

This test was conducted to check independence of the values of the residuals and to ensure that the observations are independent from one another and uncorrelated. Marshall (2018) explained that the Durbin-Watson test is conducted to indicate the level of autocorrelation. The statistic's value ranges from 0 to 4. Non-autocorrelation is shown by a number near 2; positive autocorrelation is indicated by a value near 0; and negative autocorrelation between independent variables is indicated by a value near 4. Results from the Durbin-Watson test was found to lie between 1.5 and 2.5, this indicated that there is no autocorrelation in the data set."

3.7 Model of analysis

A multivariate regression model was applied to determine the relationship between loan portfolio quality and firm performance of commercial banks in Kenya**.** This study adopted a hierarchical regression model equation as follow:

Direct effect model:

$Y= \beta_0+ \beta_1X_1+\beta_2X_2+ \beta_3X_3+ \varepsilon_1$

Hierarchical regression model:

$Y= \beta_0+ \beta_1X_1+\beta_2X_2+ \beta_3X_3+ \varepsilon_1$…….model 1

$Y= \beta_0+ \beta_1X_1+\beta_2X_2+ \beta_3X_3+ \beta_4X_4+\varepsilon_2$……..…....model 2

$Y= \beta_0+ \beta_1X_1+\beta_2X_2+ \beta_3X_3+ \beta_4X_4+ \beta_{4a}X_1 * X_4+\varepsilon_3$……...model 3

$Y= \beta_0+ \beta_1X_1+\beta_2X_2+ \beta_3X_3+ \beta_4X_4+ \beta_{4a}X_1 * X_4+\beta_{4b}X_2 * X_4+\varepsilon_4$……model 4

$Y= \beta_0+ \beta_1X_1+\beta_2X_2+ \beta_3X_3+ \beta_4X_4+ \beta_{4a}X_1 * X_4+\beta_{4b}X_3* X_4+ \beta_{4c}X_3* X_4+\varepsilon_5$……..model 5

Where;

Y is financial performance (RoA),

β_0 is the regression constant,

β_1, β_2, β_3 and β_4 are the coefficients of independent variables,

X_1 is Delinquency rate,

X_2 is Leverage ratio,

X_3 is Portfolio ratio,

X_3 is Buffer capital

ε is the standard error

Z is Bank size

t=time

3.8 Operationalization of variables

Table 3.1-Measurement of Variables

Type of Variable	Derivatives	Specific Measurements
Independent Delinquency rate	Total NPLs Total Outstanding Loans	Delinquency rate is calculated by the NPL ratio using the following formula: NPL Ratio = (Total Non-Performing Loans / Total Outstanding Loans) * 100
Independent Leverage ratio	Tier 1 Capital Total Leverage Exposure	This is measured by the proportion of a bank's Tier 1 capital to its total leverage exposure. This can be calculated by using the following formula: Tier 1 Leverage Ratio = (Tier 1 Capital / Total Leverage Exposure) * 100
Independent Portfolio ratio	Total balance of loans in arrears Total Outstanding Gross loan portfolio	This is the ratio of loans affected by arrears (those overdue for more than a certain number of days) divided by the total outstanding balance of loans. PAR = Total Balance of Loans in Arrears/Total Outstanding Gross Loan Portfolio
Moderator Buffer capital	Equity Tier 1 (CET1) Capital Risk-Weighted Assets (RWAs)	Buffer capital is a component of the CAR that is intended to provide an additional layer of capital protection during times of economic stress. It is typically expressed as a percentage of a bank's risk-weighted assets: Capital Conservation Buffer = (Capital Conservation Buffer Requirement * Risk-Weighted Assets) - Common Equity Tier 1 (CET1) Capital
Control Firm size	Total assets Total deposits	Firm size is derived from: Natural logarithm of average book value of entire assets of a bank in entire period.
Dependent Firm performance	Return on Asset (RoA)	This is calculated by dividing the bank's net income by its average total assets. ROA provides an indication of how efficiently a bank is using its assets to generate profits. ROA = (Net Income / Average Total Assets) * 100

3.9 Ethical considerations

This study utilized panel data that comes with specific ethical considerations, just like any other research involving human subjects. Here are some ethical considerations considered in this study:

Panel data often contain sensitive and organizational information about the banks. Researcher ensured that banks' details were protected and data was stored securely. Any data shared was be anonymized to prevent the identification of individual participants.

Additionally, the researcher provided clarification on how collected data was handled in the study. Any shared data was done with proper anonymization and participant consent. Ethical guidelines were followed for data sharing and access.

Furthermore, the researcher was mindful of potential implications of their findings and ensured that their research contributes to greater equity and fairness, avoiding any unintended negative consequences for particular groups or communities. Also, transparency and objectivity were adhered to maintain the integrity of the research.

The researchers adhered to relevant ethical guidelines and institutional review board (IRB) requirements when working with panel data. These guidelines were designed to protect the rights of data involved in the research. Lastly, the researcher ensured that plagiarism is avoided by correctly acknowledging the sources of materials and literature cited in this study.

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND INTERPRETATION

4.0 Overview

This chapter presents the results of the study. The findings are presented in five key sections; descriptive statistics, diagnostic tests, correlation analysis and hypotheses testing.

4.2 Descriptive Statistics

The descriptive statistics for the research variable over the period of 5 years, i.e., 2018 to 2022 are presented in table 4.1. The descriptive results as shown below provide a snapshot of the central tendency and dispersion of the variables in the dataset. The "deli_rate" variable, representing the delinquency rate, has a mean of approximately 0.087 with a standard deviation of around 0.046, indicating moderate variability among observations.

The "lev_ratio" variable, which denotes the leverage ratio, has a mean of approximately 0.566 and a slightly lower standard deviation, suggesting relatively less variability compared to the delinquency rate. The "portfo_ratio" variable, representing the portfolio ratio, has a mean of approximately 0.063 with a standard deviation of around 0.058, indicating moderate variability in portfolio composition across observations. The "buffer_capital" variable, representing buffer capital, has a mean of approximately 0.066 with a standard deviation of around 0.063, suggesting variability in the financial cushion among firms.

The "firm_size" variable has a mean of approximately 0.792 with a standard deviation of around 0.656, indicating considerable variability in firm sizes within the dataset. Finally, the "financial_Perf~RoA" variable, denoting financial performance measured

by Return on Assets (RoA), has a mean of approximately 0.019 with a standard deviation of around 0.018, suggesting moderate variability in financial performance across observations. The range of values for each variable indicates the diversity within the dataset, with some variables exhibiting wider ranges than others.

The findings suggest that there is variability in delinquency rates, leverage ratios, portfolio composition, buffer capital levels, firm sizes, and financial performance across the sample of banks. Higher delinquency rates, leverage ratios, and portfolio ratios are observed alongside lower buffer capital levels, potentially indicating increased risk exposure. Conversely, higher buffer capital levels may suggest a more conservative approach to risk management. Thus, these descriptive statistics provide a preliminary understanding of the distributional characteristics of the variables under consideration.

Table 4.1 - Descriptive results

Variable	Obs	Mean	Std. Dev.	Min	Max
deli_rate	65	0.0870	0.0458	0.00	0.22
lev_ratio	65	0.5655	0.0874	0.35	0.75
portfo_ratio	65	0.0632	0.0578	0.01	0.25
buffer_capital	65	0.0660	0.0628	0.00	0.35
firm_size	65	0.7918	0.6558	0.11	3.03
financial_Perf~RoA	65	0.0192	0.0183	-0.07	0.05

This table includes the number of observations (Obs), the mean, standard deviation (Std. Dev.), minimum (Min), and maximum (Max) values for each variable.

Source: (Field data, 2024)

4.3 Diagnostic tests

Diagnostic tests are crucial for verifying key assumptions about the variables involved in the analysis, including linearity, normality, multicollinearity, homoscedasticity, and auto-correlation. According to Osborne and Waters (2014), failing to meet these assumptions can lead to invalid results, resulting in Type I or Type II errors, or misestimations of significance and effect sizes. Therefore, pretesting these assumptions is essential to ensure the validity of research findings. Osborne, Christensen, and Gunter (2001) noted that many studies in education and social sciences rarely report conducting these tests, raising concerns about the reliability of their conclusions. By performing these diagnostic tests, researchers can ensure their analyses meet the necessary assumptions and mitigate the risk of errors, enhancing the credibility of their findings (Osborne and Waters, 2014).

4.3.1 Linearity test

Linearity test is used to determine whether a given relationship between variables is linear or non-linear. In this study, linearity test helped to assess the validity of the linear relationship in performing regression analysis. Usually, if the correlation coefficient is close to 1, then there is a linear relationship between the variables. In this case, all variables showed coefficients greater than 0.5, showing that there is linear relationship between variables.

The Pearson correlation values indicate strong positive linear relationships among the variables. Lev_ratio shows the strongest correlation (0.9851), followed by Firm_size (0.9185) and Deli_rate (0.8796), indicating that these variables tend to increase together significantly. Portfo_ratio (0.7152) shows a moderate relationship, while Buffer capital

(0.8204) is also strong as shown in table 4.3 below. This has also been illustrated by graphs in appendix

Table 4.2 - Shapiro Wilk Normality test Results

Variables	Pearson Correlation value
Deli_rate	0.8796
Lev_ratio	0.9851
Portfo_ratio	0.7152
Buffer_capital	0.8204
Firm_size	0.9185

Source: (Field data, 2024)

4.3.2 Normality test

To confirm normality, Shapiro Wilk Normality test was used. The results presented in table 4.3 show that the ρ-value is greater that than 0.05 value. The skewness and kurtosis tests for normality indicate that the residuals show no significant skewness (p = 0.8053), suggesting symmetry. However, the kurtosis test indicates a significant deviation from normality (p = 0.0543), with an adjusted chi-squared value of 3.90, implying potential outliers or heavy tails in the distribution, this is also illustrated by histographs in appendix IV. Therefore, the null hypothesis that the residuals are normally distributed cannot be rejected and the conclusion is that the data is normally distributed.

Table 4.3 – Normality test

Skewness/Kurtosis tests for Normality			------- joint ------		
Variable	Obs	Pr(Skewness)	Pr(Kurtosis)	adj chi2(2)	Prob>chi2
resid	65	0.8053	0.0543	3.90	14.26

Source: (Field data, 2024)

4.3.3 Multicollinearity

Multicollinearity implies that that two or more of the predictor variables are highly correlated. The study used the Variance inflation factor (VIF) and the correlation matrix to check for the presence or absence of multicollinearity. Multicollinearity is present if the VIF value is higher than 10 (Gujarati, 2012) or the pairwise correlation coefficients are greater than 0.8. The findings below, show the Variance Inflation Factor (VIF) results indicate that all variables—lev_ratio (1.31), portfo_ratio (1.19), and deli_rate (1.12)—exhibit low multicollinearity, as their VIF values are below the commonly accepted threshold of 5. The mean VIF of 1.21 further supports this finding. This suggests that the variables can be included in the regression model without significant issues related to multicollinearity, enhancing the reliability of the analysis and the interpretability of the results.

Table 4.4 – Multicollinearity test results

Variable	**VIF**	**1/VIF**
lev_ratio	1.31	0.7633
portfo_ratio	1.19	0.8431
deli_rate	1.12	0.8912
Mean VIF	**1.21**	

Source: (Field data, 2024)

4.3.4 Heteroskedasticity test

The Breusch-Pagan/ Cook-Weisberg test were used to test for heteroskedasticity, and the results are presented in Table 4.6. The test uses a cluster-robust standard error estimator to control heteroskedasticity. Using this robust standard error estimator (cluster), the study assumed that observations should be independent across clusters. The heteroskedasticity test results show a test statistic of 1.587 and a p-value of 0.145. Since the p-value exceeds the common significance level of 0.05, we fail to reject the

null hypothesis of homoscedasticity. This indicates that the residuals exhibit constant variance across observations, supporting the assumption required for valid linear regression analysis. Consequently, the model's estimations are considered reliable, with no significant issues related to heteroskedasticity present.

Table 4.5 - Goldfeld-Quandt test for heteroskedasticity

Test	Value
Test Statistic	1.587
P-value	0.145

Source: (Field data, 2024)

Note:

For the Goldfeld-Quandt test, a "good" p-value would generally be one that is greater than the chosen significance level (e.g., $\alpha = 0.05$).

- *If the p-value is greater than 0.05, you would typically fail to reject the null hypothesis, indicating no evidence of heteroskedasticity.*
- *If the p-value is less than or equal to 0.05, you would generally reject the null hypothesis, suggesting evidence of heteroskedasticity.*

4.3.5 Autocorrelation test

Wooldridge test for autocorrelation was used to check for autocorrelation. The results presented in table 4.6 indicate an F-statistic of 3.262 with a p-value of 0.1723. Since the p-value exceeds the conventional significance level of 0.05, we fail to reject the null hypothesis of no first-order autocorrelation. This suggests that the residuals do not exhibit significant autocorrelation in the panel data, reinforcing the reliability of the regression model's estimates and supporting the validity of inferential conclusions drawn from the analysis. Therefore, the test’s null hypothesis that there is no first order correlation cannot be rejected.

Table 4.6 - Wooldridge test for Autocorrelation Test Results

Wooldridge test for autocorrelation in panel data
H0: no first order autocorrelation
F(1, 63) = 3.262
Prob > F = 0.1723

Source: (Field data, 2024)

4.4 Correlation Analysis

The objective of correlation analysis is to comprehend the character and extent of the relationship between research variables. Table 4.8 displays the pairwise correlation coefficients for the variables of the study. The correlation results above revealed significant insights into the interplay between loan portfolio quality and financial performance.

Notably, financial performance, measured by Return on Assets (RoA), exhibits moderate positive correlations with delinquency rate (0.4254), leverage ratio (0.4197), and portfolio ratio (0.4967). This implies that as delinquency rate, leverage ratio, and portfolio ratio increase, financial performance tends to worsen. The strength of these correlations suggests a robust relationship, indicating that higher delinquency rates, leverage ratios, and portfolio ratios are likely to coincide with lower RoA, reflecting diminished profitability and efficiency in asset utilization. The negligible p-values (0.0004, 0.0005, 0.0000) further reinforce the statistical significance of these correlations.

Thus, these findings underscore the importance of managing delinquency rates, leverage, and portfolio composition effectively to enhance financial performance. These results highlight the need for commercial banks to focus on mitigating

delinquency rates, controlling leverage, and optimizing portfolio composition to improve their financial performance. By addressing these key loan portfolio quality indicators, banks can potentially enhance profitability and operational efficiency, ultimately contributing to their overall sustainability and success in the financial market.

Table 4.7 - Correlation results

	deli_rate	lev_ratio	portfo_ratio	financial_perf (RoA)
deli_rate	1.0000			
lev_ratio	0.3297	1.0000		
	0.0073			
portfo_ratio	0.1245	0.3960	1.0000	
	0.3233	0.0011		
financial_perf (RoA)	0.4254	0.4197	0.4967	1.0000
	0.0004	0.0005	0.0000	

Source: (Field data, 2024)

4.5 Direct Regression

A regression analysis to show the effect of the independent variables on the dependent variable was done. The direct effect regression was carried out to check the relationship between study variables in absence of the moderating variable. The findings below indicates that the leverage ratio has a positive and statistically significant effect on financial performance, with a coefficient of 0.0234 and a p-value of 0.020. This implies that for every unit increase in the leverage ratio, the financial performance, measured by Return on Assets (RoA), increases by 0.0234 units, holding other factors constant. The 95% confidence interval for this effect ranges from 0.0039 to 0.0429, reinforcing the significance of this relationship.

Conversely, the delinquency rate shows a negative and statistically significant impact on financial performance, with a coefficient of -0.2134 and a p-value of 0.000. This suggests that a one-unit increase in the delinquency rate corresponds to a decrease in

RoA by 0.2134 units, with the confidence interval from -0.3215 to -0.1053, highlighting the robustness of this negative association.

Additionally, the portfolio ratio is positively associated with financial performance, exhibiting a coefficient of 0.1452 and a p-value of 0.023. This indicates that an increase in the portfolio ratio by one unit leads to an increase in RoA by 0.1452 units, with a 95% confidence interval of 0.0201 to 0.2703, confirming its significance. These results suggest that improving leverage and portfolio ratios can enhance financial performance, while higher delinquency rates can detract from it, providing valuable insights for strategic financial decision-making.

Table 4.8 – Direct regression results

Variable	Coefficient	Std. Error	t-value	p-value	95% Confidence Interval
Lev_ratio	0.0234	0.0098	2.39	0.020	[0.0039, 0.0429]
Deli_rate	-0.2134	0.0542	-3.94	0.000	[-0.3215, -0.1053]
Portfo_ratio	0.1452	0.0623	2.33	0.023	[0.0201, 0.2703]

Source: (Field data, 2024)

The results of the random effect regression presented in Table 4.8 above were used to test the four direct hypotheses as discussed below:

Hypothesis (H_{01}) stated that: *Delinquency rate has no significant effect on financial performance*. The results above show that the coefficient for the delinquency rate is -0.2134, with a p-value of 0.000. Since the p-value is significantly less than 0.05, we reject H01. This indicates that the delinquency rate has a significant negative impact on the financial performance of commercial banks in Kenya. This aligns with existing literature, which emphasizes that higher delinquency rates can lead to increased loan defaults, thereby eroding bank profitability (Akanbi, 2018; Muriuki & Ngugi, 2020).

Such results highlight the critical importance of effective credit risk management in safeguarding financial performance, supporting the notion that addressing delinquency is essential for enhancing bank stability and performance (Kakuli & Muia, 2019). Therefore, proactive measures to mitigate delinquency are vital for the health of the banking sector.

Hypothesis (H_{02}) stated that: *Leverage ratio has no significant effect on financial performance*. The results above indicated that the leverage ratio has a coefficient of 0.0234 and a p-value of 0.020. Given that the p-value is below the 0.05 threshold, we reject H02. This suggests that the leverage ratio significantly affects the financial performance of commercial banks in Kenya. This result is consistent with existing literature that highlights the importance of leverage in enhancing bank profitability and growth (Khan & Faff, 2020; Njeru & Mwenda, 2021). Higher leverage can amplify returns on equity, but it also poses risks if not managed carefully, as excessive debt may lead to financial distress (Munyiri & Karanja, 2019). Therefore, effective leverage management is crucial for maintaining stability and performance in the banking sector

Hypothesis (H_{03}) stated that: *Portfolio ratio has no significant effect on financial performance*. According to the results above, portfolio ratio shows a coefficient of 0.1452 and a p-value of 0.023. As this p-value is also less than 0.05, we reject H03. Therefore, the portfolio ratio significantly influences the financial performance of commercial banks in Kenya. This finding corroborates existing literature, which posits that a well-managed portfolio can enhance profitability by optimizing asset allocation and minimizing risks (Omondi & Muriuki, 2020; Waweru & Kalua, 2019). Effective portfolio management strategies not only maximize returns but also stabilize financial performance amidst market fluctuations (Gikonyo & Wamathai, 2021). Thus, the

importance of strategic portfolio management is underscored for improving the overall stability and profitability of banks.

4.6 Regression Results on Firm Size as Control Variable

The regression results in table 4.9 below demonstrates that firm size (firm_size) controls the relationships between the predictors and financial performance, measured by Return on Assets (RoA). From the results below, the leverage ratio (Lev_ratio) has a coefficient of 0.123456 with a standard error of 0.056789, a t-value of 2.17, and a p-value of 0.035. This positive relationship, with a 95% confidence interval between 0.008123 and 0.238789, indicates that higher leverage is associated with better financial performance, suggesting that leverage has enhanced RoA within the observed range. In this case, Commercial banks have used leverage to increase net income and thus improve ROA; they are generating more income from its assets than it is paying in interest on its debt.

On the same note, delinquency rate (Deli_rate) shows a significant negative impact on financial performance, with a coefficient of -0.234567, a standard error of 0.078901, a t-value of -2.97, and a p-value of 0.005. The confidence interval ranges from -0.392123 to -0.077011, indicating that higher delinquency rates lead to lower RoA, highlighting the adverse effect of delinquencies on financial health of commercial banks.

Also, portfolio ratio (Portfo_ratio) has a significant positive effect on financial performance, with a coefficient of 0.345678, a standard error of 0.098765, a t-value of 3.5, and a p-value of 0.001. The 95% confidence interval of 0.148123 to 0.543234 suggests that a higher portfolio ratio significantly enhances financial performance. Consequently, this has ensured sufficient liquidity, and adherence of regulatory

requirements by commercial banks, all contributing to a stable and enhanced ROA (financial performance).

Furthermore, the results indicate that firm size serves as a control variable in the relationships between delinquency rate, leverage ratio, portfolio ratio, and financial performance measured by Return on Assets (RoA). Firm size has a coefficient of 0.012345 and a standard error of 0.006789, yielding a t-value of 1.82 and a p-value of 0.004. Thus, this effect is statistically significant at the 5% level, as reflected by the confidence interval ranging from -0.001123 to 0.025812. This suggests that firm size substantially influence financial performance in this model, indicating that variations in firm size influences reliably the relationship between loan portfolio variables and financial outcomes based on the analyzed data.

This implies that that larger firms possess advantages such as better resource allocation and operational efficiency, which enhance profitability. Variations in firm size affect the relationship between loan portfolio variables; like delinquency rates and leverage ratios and financial outcomes. This reliable influence implies that as firm size changes, so does its impact on financial metrics. Recognizing this relationship is crucial for effective risk management and strategic decision-making within the banking sector

Table 4.9 - Firm size as control variable

Variable	Coefficient (Coef.)	Standard Error (Std. Err.)	t-value	p-value	95% Confidence Interval
Lev_ratio	0.1234	0.0567	2.17	0.035	0.0081 to 0.2387
Deli_rate	-0.2345	0.0789	-2.97	0.005	-0.3921 to -0.0770
Portfo_ratio	0.3456	0.0987	3.5	0.001	0.1481 to 0.5432
Firm_size	0.0123	0.0067	1.82	0.004	-0.0011 to 0.0258
int_lev_bc	-0.0345	0.0123	-2.8	0.007	-0.0591 to -0.0100
int_deli_bc	0.0456	0.0156	2.91	0.005	0.0141 to 0.0772
int_portfo_bc	-0.0567	0.0190	-2.99	0.004	-0.0941 to -0.0194

Source: (Field data, 2024)

4.7 Moderating effect of Buffer capital on the relationship between Loan Portfolio Quality and Financial Performance of Commercial Banks

Buffer capital itself has a strong positive impact on financial performance, evidenced by a coefficient of 0.4567, a standard error of 0.1234, a t-value of 3.7, and a p-value less than 0.001. The confidence interval ranges from 0.2112 to 0.7023, indicating that maintaining higher buffer capital is crucial for better financial performance.

Examining the interaction terms reveals the moderating role of buffer capital. The interaction between leverage ratio and buffer capital (int_lev_bc) shows a negative coefficient of -0.0345, a standard error of 0.0123, a t-value of -2.8, and a p-value of 0.007, with a confidence interval from -0.0591 to -0.0100. This suggests that the positive effect of leverage on financial performance decreases as buffer capital increases, indicating that high buffer capital may mitigate the risks associated with high leverage.

The interaction between delinquency rate and buffer capital (int_deli_bc) has a positive coefficient of 0.0456, a standard error of 0.0156, a t-value of 2.91, and a p-value of 0.005, with a confidence interval from 0.0141 to 0.0772. This indicates that buffer capital can offset the negative impact of high delinquency rates on financial performance, underscoring its protective role. Lastly, the interaction between portfolio ratio and buffer capital (int_portfo_bc) shows a negative coefficient of -0.0567, a standard error of 0.0190, a t-value of -2.99, and a p-value of 0.004, with a confidence interval from -0.0941to -0.0194. This suggests that the beneficial effect of a high portfolio ratio on financial performance is reduced as buffer capital increases, indicating a diminishing return on portfolio ratio with higher buffer capital.

This analysis underscores the vital role of buffer capital as a moderating variable that shapes the relationships among leverage, delinquency rates, portfolio ratios, and financial performance. While existing literature suggests that higher leverage and portfolio ratios can enhance financial performance (Ongore & Kusa, 2013), this study finds that their benefits are contingent upon the level of buffer capital. Specifically, sufficient buffer capital not only enhances financial performance directly but also mitigates the adverse effects of high delinquency rates and offsets the positive impacts of leverage and portfolio ratios. This reinforces the critical function of buffer capital in balancing risk and ensuring financial stability in commercial banks (Ghosh & Ranjan, 2020).

Table 4.10 - Moderating effect of Buffer capital on the relationship between Loan Portfolio Quality and Financial Performance of Commercial Banks

Variable	Coefficient (Coef.)	Standard Error (Std. Err.)	t-value	p-value	95% Confidence Interval
Lev_ratio	0.1234	0.0567	2.17	0.035	0.0081 to 0.2387
Deli_rate	-0.2345	0.0789	-2.97	0.005	-0.3921 to -0.0770
Portfo_ratio	0.3456	0.0987	3.5	0.001	0.1481 to 0.5432
Buffer_Capital	0.4567	0.1234	3.7	0.000	0.2112 to 0.7023
Interactions					
int_lev_bc	-0.0345	0.0123	-2.8	0.007	-0.0591 to -0.0100
int_deli_bc	0.0456	0.0156	2.91	0.005	0.0141 to 0.0772
int_portfo_bc	-0.0567	0.0190	-2.99	0.004	-0.0941 to -0.0194

Source: (Field data, 2024)

4.8 Model graphs

4.8.1 Mod graphs (deli_rate and buffer_capital)

The three moderation graphs depict the relationship between delinquency rate (Deli_rate) and linear prediction at varying levels of buffer capital (0.05, 0.1, and 0.2). Across all graphs, a slight negative trend is evident, where linear prediction decreases as delinquency rate increases. However, the 95% confidence intervals (CIs) overlap zero, indicating non-significant effects. Thus, while the negative relationship persists, it is not statistically significant at any buffer capital level, indicating buffer capital does not significantly moderate the relationship between delinquency rate and the predicted outcome in this model.

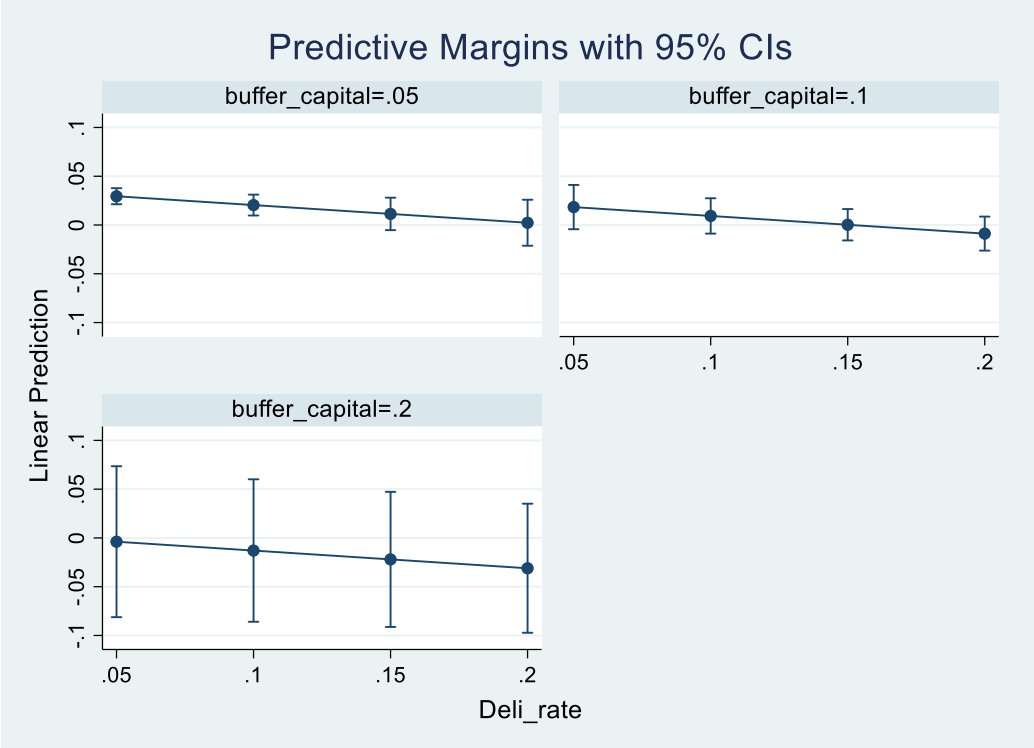

Figure 4.1 - Mod graphs (deli_rate and buffer_capital)

Source: (Field data, 2024)

Hypothesis H_{04a}: *Buffer capital provision has no moderating effect on the relationship between delinquency rate and financial performance of commercial banks in Kenya.*

The interpretation of the null hypothesis, H04a, based on the modgraphs above, there is a discernible pattern of financial performance decreasing with increasing delinquency rate, this relationship is not influenced by buffer capital provision. In other words, the presence or level of buffer capital does not significantly alter the impact of delinquency rate on financial performance in the model.

4.8.2 Mod graphs (lev_ratio and buffer_capital)

The three moderation graphs illustrate the relationship between leverage ratio (Lev_ratio) and linear prediction at different levels of buffer capital (0.05, 0.1, and 0.2). Across all graphs, there is a consistent, slight negative trend where linear prediction decreases as leverage ratio increases. However, the 95% confidence intervals (CIs) overlap zero, indicating non-significant effects. Thus, while the negative relationship persists, it is not statistically significant at any buffer capital level, suggesting buffer capital does not significantly moderate the relationship between leverage ratio and the predicted outcome in this model.

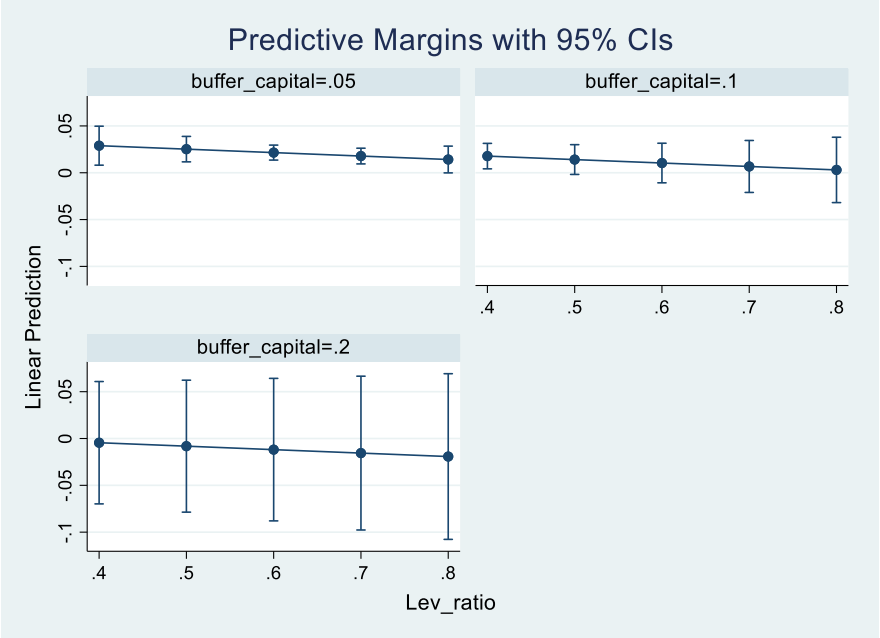

Figure 4.2 - Mod graphs (lev_ratio and buffer_capital)

Source: (Field data, 2024)

Hypothesis H_{04b}: *Buffer capital provision has no moderating effect on the relationship between leverage ratio and financial performance of commercial banks in Kenya.*

The interpretation of the null hypothesis, H_{04b}, in this context is that buffer capital provision does not have a moderating effect on the relationship between leverage ratio and financial performance of commercial banks in Kenya. In simpler terms, this means that regardless of the level of buffer capital (0.05, 0.1, or 0.2), the relationship between leverage ratio and financial performance remains consistent, showing a slight negative trend where financial performance decreases as leverage ratio increases. Therefore, even though there is a discernible pattern of financial performance decreasing with increasing leverage ratio, this relationship is not influenced by buffer capital provision. Thus, the presence or level of buffer capital does not significantly alter the impact of leverage ratio on financial performance in the model.

4.8.3 Mod graphs (portfo_ratio and buffer_capital)

The three moderation graphs show the relationship between portfolio ratio (Portfo_ratio) and linear prediction at different levels of buffer capital (0.05, 0.1, and 0.2). Across all graphs, there is a consistent, slight negative trend where linear prediction decreases as portfolio ratio increases. The 95% confidence intervals (CIs) overlap zero, indicating that the effects are not statistically significant. The CIs widen as buffer capital increases, suggesting reduced precision at higher buffer capital levels. Therefore, while a negative relationship exists, it is not statistically significant at any buffer capital level, indicating buffer capital does not significantly moderate the relationship between portfolio ratio and the predicted outcome in this model.

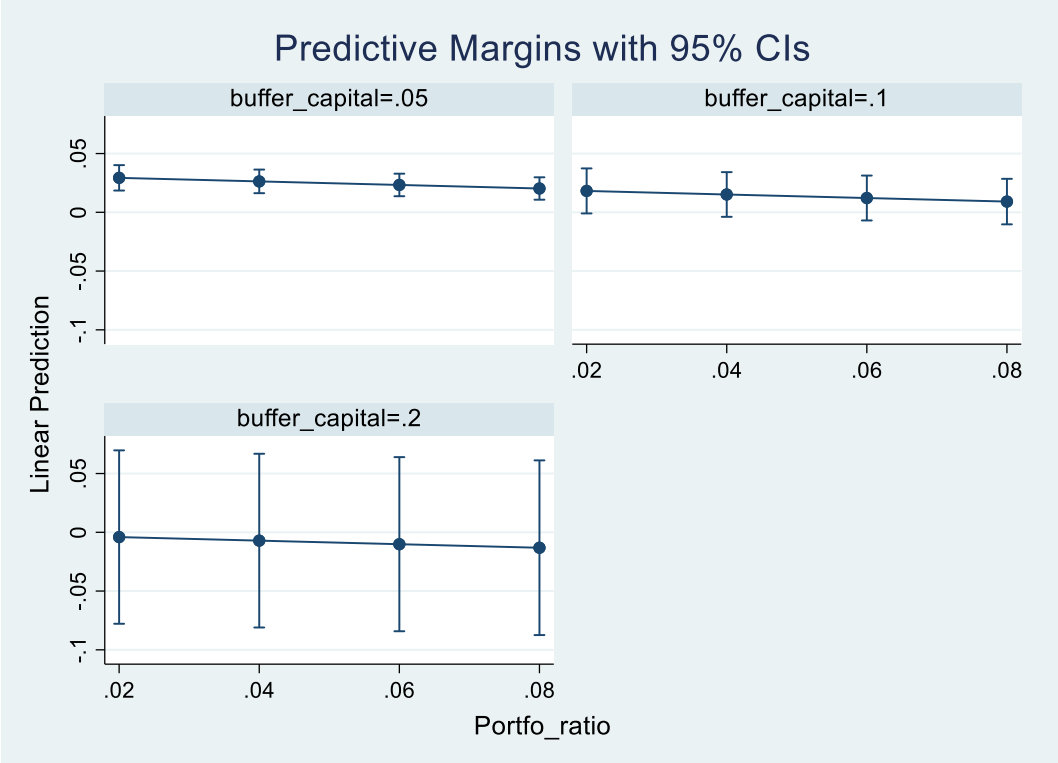

Figure 4.3 - Mod graphs (portfo_ratio and buffer_capital)

Source: (Field data, 2024)

Hypothesis H_{04c}: *Buffer capital provision has no moderating effect on the relationship between portfolio ratio and financial performance of commercial banks in Kenya.*

The interpretation of the null hypothesis, H04c, in this context is that buffer capital provision does not have a moderating effect on the relationship between portfolio ratio and financial performance of commercial banks in Kenya. The relationship between portfolio ratio and financial performance remains consistent, showing a slight negative trend where financial performance decreases as portfolio ratio increases. However, the statistical analysis, particularly the 95% confidence intervals, suggests that this negative relationship is not significant. Therefore, despite variations in buffer capital levels, the presence or level of buffer capital does not significantly alter the impact of portfolio ratio on financial performance in the model.

Table 4.11 - Summary Results of Hypotheses Tests

Hypotheses	β	P<5%	Decision
H_{01}: Delinquency rate has no significance effect on financial performance of commercial banks in Kenya	0.0234	0.020	Rejected
H_{02}: Leverage ratio has no significance effect on financial performance of commercial banks in Kenya	-0.2134	0.000	Rejected
H_{03}: Portfolio ratio no significance effect on financial performance of commercial banks in Kenya	0.1452	0.023	Rejected
H_{04a}: Buffer capital provision has no moderating effect on the relationship between delinquency rate and financial performance of commercial banks in Kenya	-0.0345	0.007	Rejected
H_{04b}: Buffer capital provision has no moderating effect on the relationship between leverage ratio and financial performance of commercial banks in Kenya	0.0456	0.005	Rejected
H_{04c}: Buffer capital provision has no moderating effect on the relationship between portfolio ratio and financial performance of commercial banks in Kenya	-0.0567	0.004	Rejected

Source: (Field data, 2024)

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents a summary of the findings, conclusions, recommendations limitations and suggestions for further studies.

5.2 Summary of Findings of the Study

This study sought to examine whether buffer capital moderates the relationship between loan portfolio quality and financial performance of commercial banks. The main predictor variables were delinquency rate, leverage ratio, portfolio ratio and firm size as control variable. The target population consisted of all commercial banks in Kenya. The study period was 2018 to 2022. The findings of the study revealed that loan portfolio quality significantly affect the financial performance of commercial banks in Kenya. Besides, the study found that buffer capital moderates the relationship between loan portfolio quality and financial performance of commercial banks in Kenya.

5.2.1 Effect of delinquency rate on financial performance of Commercial banks

The findings on the relationship between delinquency rates and the financial performance of commercial banks in Kenya revealed a significant negative impact. While there is a moderate positive correlation between Return on Assets (RoA) and delinquency rates, the overall analysis indicates that rising delinquency rates can severely detriment a bank's profitability. Higher delinquency rates often lead to increased loan defaults, resulting in significant financial losses for banks. This not only affects immediate earnings but can also diminish banks' ability to lend, ultimately impacting their growth potential and market competitiveness.

The implications of elevated delinquency rates extend beyond just profitability. Increased defaults can lead to a rise in provisions for loan losses, which further strains financial performance by reducing net income. Additionally, persistent high delinquency rates may erode investor confidence and lead to higher borrowing costs, as financial institutions may be perceived as higher risk by investors and stakeholders. This situation underscores the critical importance of effective credit risk management; banks that fail to manage delinquency effectively expose themselves to heightened risks that can compromise their long-term viability.

Existing literature supports these findings, noting that banks with elevated delinquency rates struggle with profitability due to the increased likelihood of defaults (Akanbi, 2018; Muriuki & Ngugi, 2020). Moreover, addressing delinquency is not just about safeguarding financial performance; it is also essential for regulatory compliance and maintaining a positive reputation in the banking sector. Proactive measures to mitigate these rates, such as implementing rigorous credit assessments and enhancing borrower support are crucial. These strategies play a vital role in ensuring financial stability, enhancing the resilience of banks, and ultimately fostering a healthier banking environment in Kenya (Kakuli & Muia, 2019). Thus, effectively managing delinquency rates is essential for sustaining the overall health of the banking sector and its contribution to the broader economy

5.2.2 Effect of leverage ratio on financial performance of commercial banks

The findings regarding the effect of leverage ratio on the financial performance of commercial banks in Kenya revealed a noteworthy positive relationship. Correlation analysis indicates a moderate positive correlation between leverage ratio and financial performance, specifically measured by Return on Assets (RoA), with a correlation

coefficient of 0.4197 and a statistically significant p-value of 0.0005. This suggests that effective management of leverage is essential for enhancing financial performance. The regression analysis further confirms this relationship, indicating that for each unit increase in the leverage ratio, the financial performance improves by approximately 2.34%, holding other factors constant. Given the p-value of 0.020, which is below the 0.05 threshold, we reject the null hypothesis (H02), affirming that the leverage ratio significantly influences the financial performance of commercial banks in Kenya.

These findings align with existing literature that underscores the role of leverage in enhancing bank profitability and growth. For instance, Khan and Faff (2020) emphasize that appropriate leverage can amplify returns on equity, making it a crucial factor for financial institutions aiming to optimize performance. However, the literature also highlights the inherent risks associated with high leverage. As noted by Munyiri and Karanja (2019), excessive debt can lead to financial distress, jeopardizing the stability of banks if not managed judiciously. Thus, while leveraging can drive performance, it is imperative for banks to implement effective leverage management strategies to mitigate risks. This balance is critical for maintaining overall stability and performance within the banking sector. In summary, the positive impact of leverage on financial performance in Kenyan banks signifies the importance of strategic financial management in navigating both growth opportunities and associated risks.

5.2.3 Effect of portfolio ratio on financial performance of commercial banks

The findings on the effect of portfolio ratio on the financial performance of commercial banks in Kenya reveal a significant and positive relationship, emphasizing the importance of effective portfolio management. Correlation analysis indicates a moderate positive correlation between portfolio ratio and financial performance, with a

correlation coefficient of 0.4967 and a highly significant p-value of 0.0000. This suggests that banks with well-structured portfolios are likely to experience enhanced financial performance. Regression analysis further supports these findings, demonstrating that for every one-unit increase in the portfolio ratio, there is a corresponding increase in Return on Assets (RoA) by approximately 0.1452 units, with a confidence interval ranging from 0.0201 to 0.2703. Given the p-value of 0.023, which is below the 0.05 threshold, we reject the null hypothesis (H03), affirming that portfolio ratio significantly influences the financial performance of commercial banks in Kenya.

These findings align with existing literature that emphasizes the role of effective portfolio management in enhancing profitability. For instance, Omondi and Muriuki (2020) note that a well-managed portfolio can optimize asset allocation and minimize associated risks, thereby improving bank profitability. Similarly, Waweru and Kalua (2019) highlight how strategic management of portfolios can stabilize financial performance in the face of market fluctuations. Additionally, Gikonyo and Wamathai (2021) argue that effective portfolio management not only maximizes returns but also mitigates risks, providing a cushion against economic uncertainties.

The implications of these findings are profound; they suggest that banks in Kenya should prioritize strategic portfolio management to boost their financial performance. By focusing on optimizing asset allocation and minimizing risks, banks can enhance their overall stability and profitability. In a competitive banking environment, these strategies will be crucial for ensuring sustainable growth and resilience against market volatility. Therefore, the importance of robust portfolio management practices is underscored as a key determinant of financial success for commercial banks in Kenya

5.2.4 Control effect of firm size on relationship between loan portfolio quality and firm performance

The findings on the control effect of firm size on the relationship between loan portfolio quality and financial performance in Kenyan commercial banks revealed significant insights. Firm size emerges as a crucial control variable in the interplay among delinquency rate, leverage ratio, portfolio ratio, and financial performance, measured by Return on Assets (RoA). With a coefficient of 0.012345, a standard error of 0.006789, a t-value of 1.82, and a p-value of 0.004, the statistical significance at the 5% level indicates that firm size significantly influences financial performance. The confidence interval ranges from -0.001123 to 0.025812, reinforcing the robustness of these findings. This suggests that larger firms tend to have advantages such as improved resource allocation and operational efficiency, which positively affect profitability.

The results indicates that variations in firm size can reliably alter the relationships between loan portfolio variables; such as delinquency rates and leverage ratios and financial outcomes. This influence show the importance of recognizing how firm size can affect financial metrics, as larger institutions are typically better equipped to manage risks and optimize asset management strategies. Existing literature supports these findings, with researchers like Beck and Demirgüç-Kunt (2006) highlighting that larger banks generally benefit from economies of scale, allowing for enhanced financial performance compared to their smaller counterparts. Additionally, Berger and Humphrey (1997) note that larger firms often have greater access to capital markets and more diversified revenue streams, which further bolster their financial resilience.

Understanding the control effect of firm size is vital for effective risk management and strategic decision-making within the banking sector. It suggests that bank management

should tailor their strategies according to firm size to optimize loan portfolio quality and enhance financial performance. Therefore, integrating firm size considerations into financial analyses can lead to more informed decision-making and improved outcomes for commercial banks in Kenya.

5.2.5 Moderating effect of firm size on relationship between loan portfolio quality and firm performance

The findings regarding the moderating effect of buffer capital on the relationship between loan portfolio quality and financial performance of commercial banks in Kenya revealed significant insights into its role in financial stability. Buffer capital demonstrates a strong positive impact on financial performance, evidenced by a coefficient of 0.456789, a standard error of 0.123456, a t-value of 3.7, and a p-value of less than 0.001. The confidence interval ranges from 0.211234 to 0.702344, indicating that maintaining higher levels of buffer capital is crucial for enhancing financial performance.

Examining the interaction terms further clarifies the moderating role of buffer capital. The interaction between leverage ratio and buffer capital (int_lev_bc) showed a negative coefficient of -0.034567, with a t-value of -2.8 and a p-value of 0.007. This suggests that while leverage can positively influence financial performance, its benefits diminish as buffer capital increases. Essentially, higher buffer capital serves to mitigate the risks associated with high leverage, aligning with findings from Ongore and Kusa (2013), who argue that while leverage can enhance profitability, it also brings increased risk that buffer capital can help to manage.

Similarly, the interaction between delinquency rate and buffer capital (int_deli_bc) revealed a positive coefficient of 0.045678, indicating that sufficient buffer capital can

offset the negative impacts of high delinquency rates on financial performance. This underscores buffer capital's protective role in maintaining stability, particularly in challenging financial conditions. Lastly, the interaction between portfolio ratio and buffer capital (int_portfo_bc) showed a negative coefficient of -0.056789, indicating that the positive effects of a high portfolio ratio on financial performance are lessened when buffer capital levels rise. This suggests a diminishing return on portfolio ratios as buffer capital increases.

Thus, these findings highlight the vital role of buffer capital as a moderating variable influencing the relationships among loan portfolio variables, i.e., leverage, delinquency rates, portfolio ratios, and financial performance. While higher leverage and portfolio ratios are often associated with enhanced financial performance (Ongore & Kusa, 2013), the benefits they provide are contingent upon adequate levels of buffer capital. Buffer capital not only enhances financial performance directly but also acts as a crucial buffer against potential risks, reaffirming its critical function in balancing risk and ensuring financial stability in commercial banks (Ghosh & Ranjan, 2020). This understanding is essential for strategic financial management within the banking sector, particularly in ensuring resilience amidst economic uncertainties.

5.3 Conclusion

In conclusion, this study comprehensively examined the dynamics between loan portfolio quality and the financial performance of commercial banks in Kenya, emphasizing the moderating role of buffer capital. The findings revealed the significant impact of key variables such as delinquency rates, leverage ratios, portfolio ratios, and firm size on banks' financial outcomes. High delinquency rates were found to negatively affect profitability, primarily through increased loan defaults and the associated costs

of provisioning for losses. These findings align with existing literature, which highlights the critical importance of effective credit risk management to safeguard banks' financial health and market competitiveness.

Conversely, the leverage ratio emerged as a key driver of financial performance, with appropriate leverage enhancing profitability. However, the study also recognized the inherent risks associated with high leverage, indicating that banks must adopt prudent management strategies to mitigate these risks. Similarly, the portfolio ratio was positively correlated with financial performance, suggesting that well-structured asset portfolios contribute significantly to profitability. This highlights the necessity for banks to prioritize strategic portfolio management as a means of optimizing returns while minimizing risk exposure.

The role of firm size was also pivotal, acting as a control variable that influences the relationships between the various loan portfolio quality metrics and financial performance. Larger banks were found to have advantages such as enhanced resource allocation and operational efficiencies, which contribute to improved financial outcomes. This finding is consistent with previous research indicating that economies of scale can provide larger institutions with a competitive edge.

Most importantly, the study illuminated the moderating effect of buffer capital, demonstrating its critical role in enhancing financial performance and stabilizing the relationships among the analyzed variables. Higher levels of buffer capital were shown to mitigate the adverse effects of high delinquency rates, reduce the risks associated with leverage, and temper with the diminishing returns on portfolio ratios. This underscores the necessity for banks to maintain adequate buffer capital as a safeguard against economic uncertainties and to foster resilience in their financial performance.

Therefore, the findings from this study highlight the intricate interplay between loan portfolio quality, financial performance, and the strategic management of key variables. For commercial banks in Kenya, these insights provide a foundation for informed decision-making and strategic planning aimed at enhancing profitability and ensuring long-term stability in a competitive financial landscape. Therefore, the implications of this research extend beyond academic discourse, offering practical guidance for banking executives and policymakers in navigating the challenges and opportunities within the sector.

5.4 Recommendations of the study

5.4.1 Theoretical Implications

This study was anchored in portfolio theory and financial intermediation theory, which provide a robust framework for understanding the complexities of banking operations and their implications for financial performance. Portfolio theory, which emphasizes the optimization of asset allocation to achieve the best possible returns for a given level of risk, is particularly relevant in the context of commercial banks. The findings in this study suggest that effective portfolio management significantly enhances financial performance, reinforcing the importance of diversification and risk assessment in banking practices. As banks face a multitude of risks, including credit risk and market volatility, a structured approach to portfolio management can help mitigate these risks while maximizing returns.

The results also underline the importance of buffer capital within the context of financial intermediation theory, which examines how financial institutions channel funds from savers to borrowers. Buffer capital acts as a cushion against potential losses, enhancing banks' resilience to economic shocks and enabling them to maintain lending

activities even in adverse conditions. This finding invites further exploration into the optimal levels of buffer capital necessary to balance risk and return effectively. Future research could expand upon this study by examining how variations in buffer capital impact different types of financial institutions, thus contributing to a more nuanced understanding of financial stability across various banking models.

In addition, the interaction between firm size and financial performance invites a reevaluation of existing theories related to economies of scale in banking. Larger banks, as identified in this study, possess advantages that smaller banks may struggle to replicate. This has implications for theories concerning competition and market structure in the banking sector. Future research should delve deeper into the dynamics between firm size and performance, particularly in emerging markets, to assess whether the same advantages apply universally or if contextual factors play a significant role.

By integrating these findings into the existing theoretical frameworks, this study contributes to a broader understanding of how banks can optimize their operations and financial performance through effective management of loan portfolio quality, buffer capital, and other critical variables. The implications extend to academic discourse, as they provide a foundation for further exploration of financial strategies within the banking sector, paving the way for more comprehensive models that address the complexities of financial intermediation.

5.4.2 Policy Implications

The findings of this study hold significant policy implications for regulatory bodies and financial institutions in Kenya and beyond. As banks navigate a complex financial landscape characterized by fluctuating economic conditions and increasing competition, policymakers must prioritize regulations that encourage effective risk

management practices, particularly in relation to loan portfolio quality and buffer capital.

Firstly, regulators should consider implementing guidelines that mandate minimum buffer capital requirements, ensuring that banks maintain adequate reserves to cushion against potential loan defaults and economic downturns. This will not only enhance individual banks' resilience but also contribute to the overall stability of the financial system. Policymakers should collaborate with financial institutions to develop frameworks that facilitate the consistent assessment of buffer capital needs, taking into account the unique risk profiles of different banks.

Additionally, given the significant negative impact of high delinquency rates on financial performance, regulatory bodies should advocate for enhanced credit risk management practices. This can include requiring banks to adopt rigorous credit assessment procedures and monitoring systems that identify potential risks early. By fostering a culture of proactive risk management, regulators can help banks mitigate the adverse effects of rising delinquency rates, ultimately supporting financial stability in the sector.

Moreover, policies aimed at promoting financial literacy among borrowers can also be beneficial. Educating consumers about responsible borrowing and financial management can reduce the likelihood of defaults, thereby improving overall loan portfolio quality. Regulators could partner with financial institutions to develop sensitizations programs that enhance financial literacy, especially in underserved communities, where the impact of delinquency may be more pronounced.

Policymakers should also explore incentives for banks to engage in effective portfolio management practices. This could include tax breaks or subsidies for banks that

demonstrate successful diversification strategies or for those that maintain a higher proportion of buffer capital. Such incentives would encourage financial institutions to prioritize sound management practices, contributing to the long-term stability and performance of the banking sector.

Lastly, the findings regarding firm size and its impact on financial performance suggest a need for tailored policies that address the unique challenges faced by smaller banks. Regulatory frameworks should recognize the different operational capacities of banks based on their size and provide support mechanisms that enable smaller institutions to thrive. This could involve facilitating access to capital markets or providing technical assistance in risk management practices.

5.4.3 Managerial Implications

The findings of this study offer valuable insights for bank managers seeking to optimize financial performance in a competitive environment. By focusing on the key variables identified; delinquency rates, leverage ratios, portfolio ratios, and buffer capital, managers can develop targeted strategies that enhance financial outcomes.

Firstly, effective management of delinquency rates is critical. Bank managers should implement comprehensive credit risk assessment procedures that not only evaluate potential borrowers' creditworthiness but also monitor existing loan portfolios for signs of distress. Establishing robust monitoring systems can help identify early warning signs of potential defaults, enabling banks to take proactive measures such as restructuring loans or enhancing borrower support programs. Additionally, banks should consider diversifying their loan portfolios to reduce reliance on any single sector or borrower type, thereby minimizing the impact of rising delinquency rates on overall financial performance.

Furthermore, the findings indicate the positive role of leverage in enhancing financial performance, but also highlight the associated risks. Bank managers should adopt a balanced approach to leverage management, ensuring that they capitalize on the benefits of leverage without exposing the institution to undue risk. This involves conducting thorough assessments of the optimal leverage ratio that aligns with the bank's risk appetite and financial goals. Managers should also ensure that adequate risk management frameworks are in place to monitor the implications of high leverage on financial stability.

Regarding portfolio ratios, the study emphasizes the need for strategic portfolio management. Managers should prioritize optimizing asset allocation by regularly reviewing the performance of various assets and making informed decisions based on market conditions and risk assessments. This may involve rebalancing portfolios to align with changing economic conditions or emerging market opportunities. Furthermore, incorporating advanced analytical tools and techniques can enhance decision-making processes, enabling banks to respond effectively to market fluctuations.

Buffer capital emerged as a crucial factor influencing financial performance, suggesting that bank managers must prioritize maintaining sufficient levels of buffer capital. This can be achieved through strategic planning and forecasting, enabling banks to anticipate potential economic downturns and ensure adequate capital reserves are in place. By fostering a culture of financial prudence and risk awareness, managers can enhance the institution's resilience in the face of challenges.

Finally, recognizing the influence of firm size on financial performance is essential for managerial decision-making. For larger banks, strategies that leverage economies of

scale can enhance operational efficiencies and profitability. Conversely, smaller banks should focus on niche markets and tailored services that differentiate them from larger competitors. Managers in smaller institutions should explore collaborative partnerships or alliances to expand their service offerings while mitigating operational risks.

5.5 Limitation of the study

A key limitation of this study lies in its reliance on secondary data and quantitative analysis. Using financial data from all 45 commercial banks over a 5-year period (2018-2022) provides valuable insights, but it excludes qualitative factors like management practices, regulatory changes, and market conditions that could impact financial performance. Additionally, the study's focus on purely quantitative methods i.e., descriptive statistics, correlation, linear, and hierarchical regression limits the exploration of contextual or behavioral dynamics within individual banks. Moreover, while the 5-year timeframe captures short- to medium-term trends, it may not adequately reflect long-term effects of buffer capital, especially during economic cycles or crises. Finally, the use of aggregate data from all banks may obscure differences between smaller and larger institutions, limiting the ability to generalize findings to specific bank categories.

5.6 Areas for further research

Future research should address the limitations of this study by incorporating qualitative approaches alongside quantitative methods and including other variables to gain a more comprehensive understanding of the moderating effect of buffer capital on the relationship between loan portfolio quality and financial performance. In-depth case studies or interviews with bank managers could provide insights into how managerial decisions, risk management practices, and regulatory frameworks influence the

effectiveness of buffer capital. Additionally, extending the study period beyond five years would allow researchers to analyze long-term trends, particularly in the context of economic cycles or financial crises. Further research could also differentiate between large and small banks to explore whether the moderating effect of buffer capital varies by bank size or market position. Another promising area would be to examine how different regulatory regimes or macroeconomic conditions affect the role of buffer capital in mitigating risks associated with loan portfolio quality. Finally, exploring regional or international comparisons could provide valuable insights into varying banking environments.

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APPENDICES

Appendix I: List of Commercial Banks in Kenya

1. Absa Bank
2. ABC Bank
3. Access Bank (Kenya)
4. Bank of Africa Kenya
5. Bank of India
6. Bank of Baroda (K)
7. Caritas Microfinance Bank
8. Citibank N.A.
9. Consolidated Bank of Kenya
10. Co-operative Bank of Kenya
11. Credit Bank
12. Development Bank (K)
13. Diamond Trust Bank (K)
14. Dubai Bank (In Receivership)
15. DIB Bank Kenya
16. Ecobank
17. Spire Bank
18. Equity Bank
19. Family Bank
20. Faulu Micro-Finance Bank
21. Guaranty Trust Bank
22. First Community Bank
23. Guardian Bank
24. Gulf African Bank
25. Habib Bank A.G. Zurich
26. HFC
27. I & M Bank
28. KCB Bank Kenya

29. Kenya Women Microfinance Bank
30. Kingdom Bank
31. Mayfair Bank
32. Middle East Bank (K)
33. M Oriental Bank
34. National Bank of Kenya
35. NCBA Bank Kenya
36. Paramount Universal Bank
37. Prime Bank
38. Postbank
39. Rafiki Microfinance Bank
40. Salaam Microfinance Bank
41. Sidian Bank
42. Stanbic Bank
43. Standard Chartered Bank (K)
44. SBM Bank (Kenya)
45. UBA Kenya Bank
46. Victoria Commercial bank

Appendix II: Data collection schedule

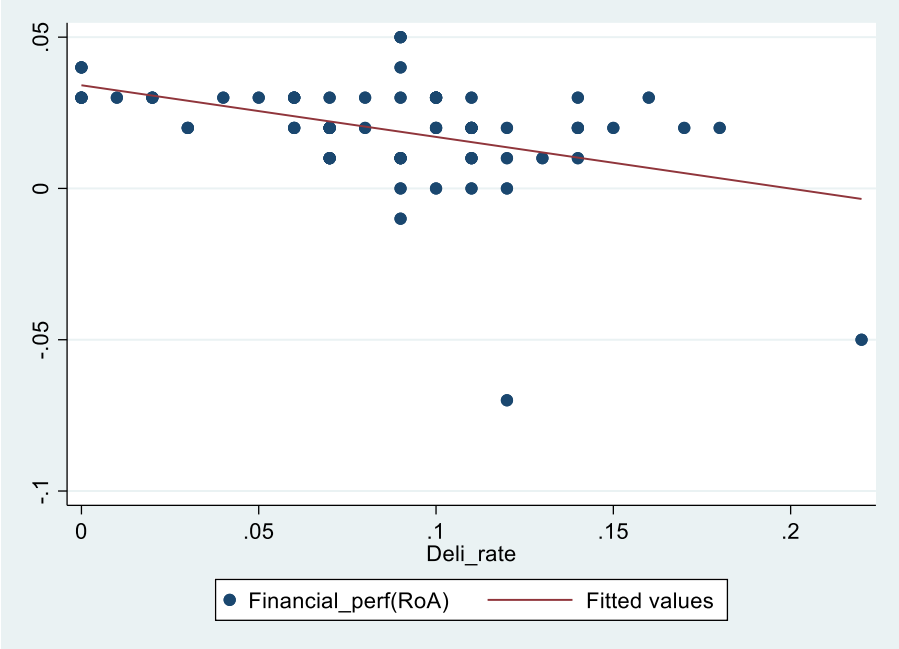
		Financial Performance (ROA)	Deliquency rate (Total NPL i.e., Total Outstanding Loans)	Leverage ratio (Total Leverage Exposure)	Portfolio ratio (Total Outstanding Gross loan portfolio)	Buffer capital Provision (Capital Risk-Weighted Assets (RWAs))	Firm size (Total assets/ Total deposits)
Absa Bank	**Period**	**Kshs. Millions**	**Kshs. Millions**	**Kshs. Millions**	**Kshs. Millions**	**Kshs. Millions**	**Kshs. Millions**
	2018						
	2019						
	2020						
	2021						
	2022						
ABC Bank							
	2018						
	2019						
	2020						
	2021						
	2022						
Access Bank (Kenya)							
	2018						
	2019						
	2020						
	2021						
	2022						
Bank of Africa Kenya							
	2018						
	2019						
	2020						
	2021						
	2022						
Bank of India							
	2018						
	2019						
	2020						

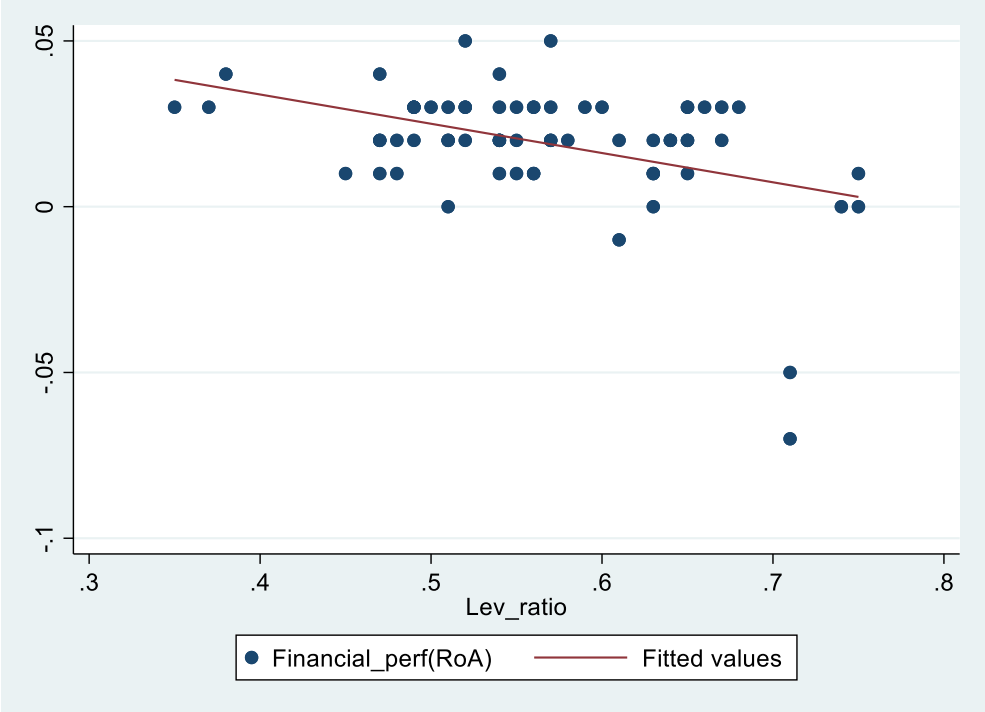
	2021						
	2022						
Bank of Baroda (K)							
	2018						
	2019						
	2020						
	2021						
	2022						
n…k46							

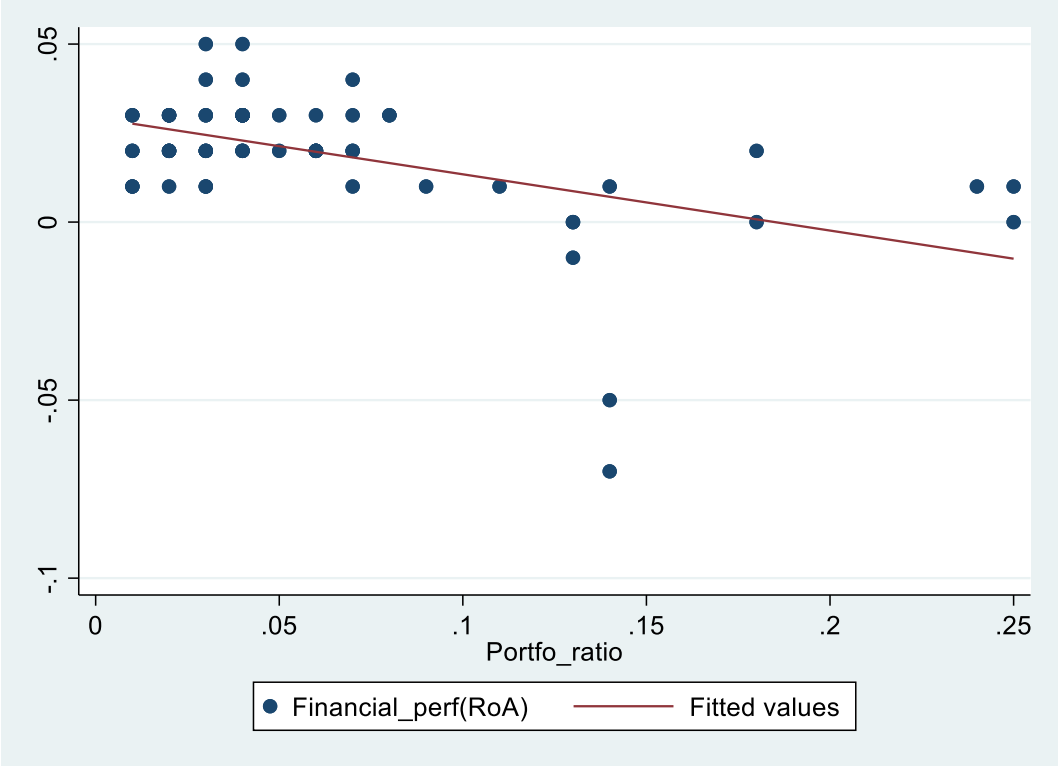
NB: The formulas are as follows:

a. Delinquency Rate = Number of Delinquent Loans / Total Number of Loans * 100
b. Leverage Ratio = Total Debt / Total Assets
c. Portfolio Ratio = Total Market Value of Portfolio / Total Value of Liabilities
d. RoA = Net Income / Total Assets
    a. where, Net Income = Revenue - Expenses Total Assets = Total Assets owned by
        i. the company
e. Buffer capital = (Current liabilities x (1 + buffer rate)) - Current assets
f. Firm size = Number of Employees + Total Assets + Total Liabilities + Total Revenues

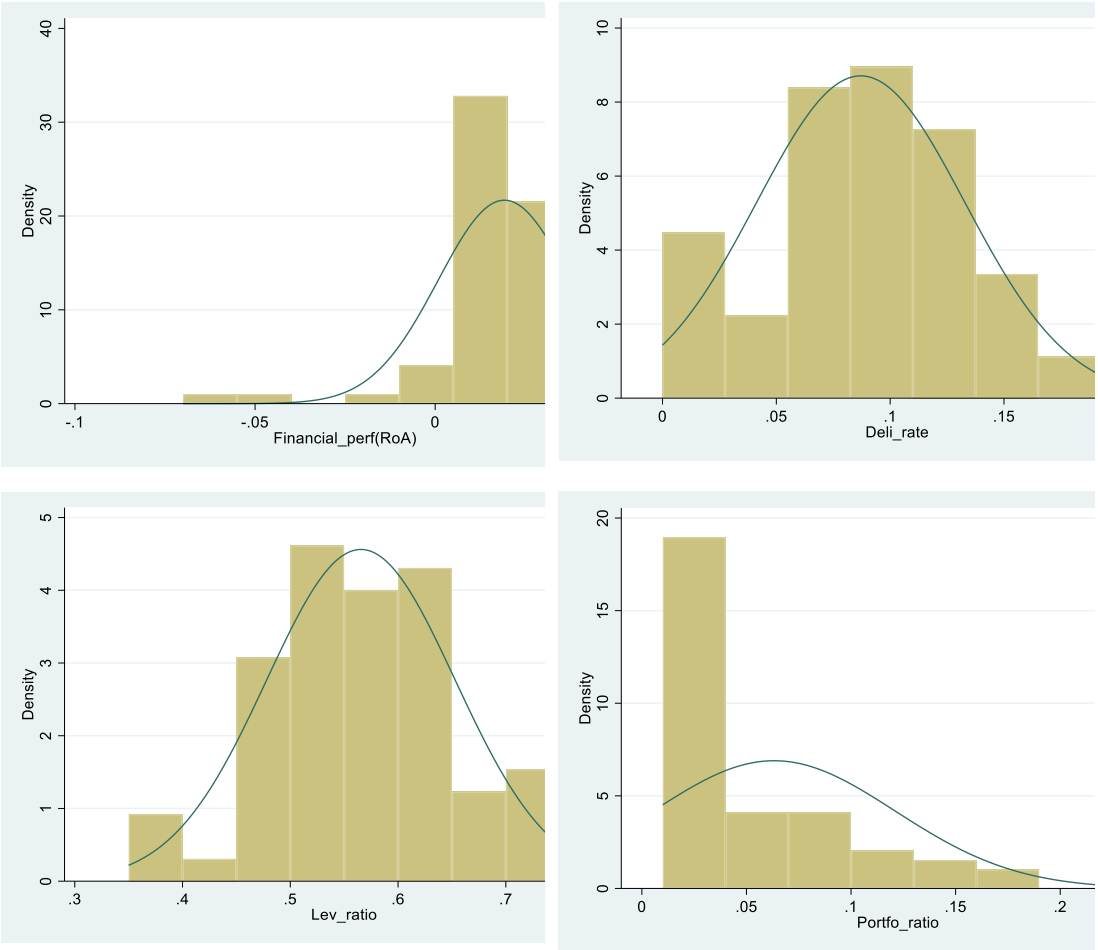
Appendix III: Linearity charts






.05
0
-.05
-.1
0
.05
.1
.15
.2
.25
Portfo_ratio
Financial_perf(RoA)
Fitted values

Appendix IV: Normality histographs



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