CAPITAL STRUCTURE AND FINANCIAL PERFORMANCE OF COMMERCIAL BANKS LISTED IN NAIROBI SECURITIES EXCHANGE, KENYA

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June, 2025

DECLARATION

I declare that this research project is my original work and that it has not been presented in any other University for academic credit

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This applied research project was submitted for examination with my approval as the University Supervisor

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We have examined this document and the research has met or exceeded the requirement for the degree sought, in addition, the candidate has sufficiently defended the material presented to merit the awarding of the degree of master of business administration degree in the business school of Africa Nazarene University.

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DEDICATION

I dedicate this research project to Mohamed Abdullahi family; my wife, Sumeya Osman; and my children, Abdikhabir, Asmaa, and Hamdi, for the support you have given me throughout my educational journey. Each of you has contributed to this research project in one way or another. May God bless you all.

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OPERATIONAL DEFINITION OF TERMS

Capital structure - can be referred as establishing funds for operations using a mixer of equity and debt.

Equity financing - is that a founder or a holder of initial shares exchanges its part of company ownership for the funds from external sources, which, eventually, may impair the founder's control over the company.

Share capital - refers to funds raised by a firm through issuance of shares in exchange for cash or other consideration. Share capital consists of ordinary shares and preferred stock.

Earnings - refer to a proportion of net income that is not paid out as dividends but retained by a firm to be re-invested either for the purchase of capital assets or pay obligations such as debt.

ABBREVIATIONS AND ACRONYMS

BOC	Bank of China
BOD	Botswana Diamonds
CBE	Central Bank of Egypt
CBK	Central Bank of Kenya
CCB	Capital Conservation Buffer
CCB	China Construction Bank
CMA	Capital Markets Authority
DSE	Dar es Salaam Stock Exchange
EGX	Egyptian Exchange
EPS	Earnings per Share
FNBB	First National Bank Botswana
FP	Financial performance
GBP	Gross Domestic Product
GDP	Gross Domestic Product
ICBC	Commercial Bank of China
KCB	Kenya Commercial Bank
KES	Kenya Shillings
NIM	Net Interest Margins
NSE	Nairobi Security Exchange
PSX	Pakistan Stock Exchange
ROA	Return on Assets
ROCE	Return on Capital Employed
ROE	Return on Equity
SGX	Singapore Exchange
TZS	Tanzania Shillings
UK	United Kingdom
UOB	United Overseas Bank

ABSTRACT

This research was carried out to assessing the capital structure and financial performance of commercial banks listed at Nairobi Securities Exchange Kenya (NSE). The variables investigated were; debt, equity, reserves, earnings and share capital. The study objectives were: to determine the influence of debt on financial performance of commercial banks listed in NSE; to examine the influence of equity on financial performance of commercial banks listed in NSE; to assess the influence of share capital on financial performance of commercial banks listed in NSE; to establish the influence of reserves on financial performance of commercial banks listed in NSE; and to find out the influence of earnings on financial performance of commercial banks listed in NSE. The study was supported by three theories that is Modigliani and Miller Model, Pecking Order Theory and Trade-off Theory. Additionally, a descriptive research design was employed as it focuses on describing the state of phenomena or elements as they exist and is structured to address specific research questions. In addition, the research was carried out at Nairobi Security Exchange in Kenya, chosen for being the largest stock exchange across East Africa. The research used a census survey to include all commercial banks quoted at NSE. Moreover, the target population was 10 banks listed in NSE. Also, the sample size was comprised of 10 commercial banks. Consequently, secondary data was used and data was sourced from published audited financial statements of banks, historical data from the NSE, and banking supervisory annual reports from the Central Bank of Kenya, covering a period of 10 years from 2015 to 2024. Analysis of data involved Random Effect Model Analysis (REMA) that expressed the individual institution's intercept as a deviation from a constant mean value. The study's results showed that debt had a significant negative effect on financial performance, with coefficients of -0.282 for ROA and -0.252 for ROE, both statistically significant at the 1% level. In contrast, equity had a positive, though weaker, relationship with financial performance. The coefficients for equity were 0.765 for ROA and 0.266 for ROE, both significant at the 1% level. Regarding financial reserves, the analysis showed a negative relationship with financial performance, with coefficients of -0.921 for ROA and -0.848 for ROE, both significant at the 1% level. Finally, earnings exhibited a positive impact on financial performance, with coefficients of 0.339 for ROA and 0.292 for ROE, both statistically significant at the 5% level. This suggests that retained earnings, as an internal source of funding, positively support growth and profitability. In conclusion, the study provides valuable insights into the effects of capital structure components on financial performance in the Kenyan banking sector. It emphasizes the importance of managing debt and reserves carefully while fostering growth through earnings and equity. The findings offer policy implications for financial managers and regulators, suggesting a balanced approach to capital structure management to optimize profitability. It is recommended that commercial banks in Kenya consider maintaining a well-balanced capital structure, with an appropriate mix of debt, equity, and retained earnings, to enhance profitability and long-term financial stability.

CHAPTER ONE: INTRODUCTION

1.1 Introduction

This chapter investigates the capital structure and the financial performance of commercial banks quoted at Nairobi Securities Exchange (NSE) in Kenya. Furthermore, this section provides an overview of capital structure and financial performance, outline the problem statement, explain the purpose, objectives, questions, and scope of the study, highlight its significance, and discuss its limitations.

1.2 Background of Study

The assessment of capital structure and performance of listed commercial banks necessitates understudy comprised of debt, equity, financial reserves, and earnings. Debt financing, while potentially enhancing returns through leverage, can increase financial risk and reduce profitability if not managed prudently (Odipo *et al.*, 2023). Equity, as a more stable source of capital, supports long-term investments and resilience but may dilute control and reduce return on equity. Financial reserves play a critical role in absorbing shocks, maintaining liquidity, and sustaining confidence among stakeholders, especially in periods of market volatility (Boateng *et al.*, 2022). Meanwhile, earnings reflect a bank's internal financing capability and profitability history, indicating operational efficiency and growth potential. The optimal balance among these components is crucial, as misalignment may hinder a bank's ability to achieve sustainable financial performance (Chauhan *et al.,* 2024). Therefore, examining these capital structure elements collectively provides a comprehensive lens to understand their individual and joint influence on the performance of listed commercial banks.

In the context of listed commercial banks, particularly within emerging and transitional economies, the composition of capital structure comprising debt, equity, financial reserves, and earnings plays a pivotal role in shaping financial performance (Dabi *et al.*, 2023). Regulatory frameworks such as Basel III, market volatility, and shifting investor expectations have heightened the need for banks to strategically structure their capital to balance profitability with stability. In such environments, debt may be constrained by prudential limits to mitigate systemic risk, while equity financing becomes essential for meeting capital adequacy requirements and attracting investor confidence (Tripathi *et al.*, 2024). Financial reserves serve as buffers against credit and market shocks, reinforcing resilience during economic downturns. Similarly, earnings reflect not only historical profitability but also a bank's ability to internally fund growth and innovation without overreliance on external sources (Brusov & Filatova, 2023; Mutua & Atheru, 2020). Hence, understanding how these capital components function within the regulatory, economic, and market-specific context is crucial to accurately assess their collective impact on bank performance and guide strategic financial decisions.

This section presents background of banks' capital structure, and finance performance. In addition, Nairobi Security Exchange (NSE) history and commercial banks listed or quoted in NSE as discussed below. Further, Abu-Alrop (2020) noted that the banks financial performance in Rusia Stock Exchange (RSE) has shown some notable trends recently. The Russian banking sector, which is one of the largest in Europe, has experienced a high level of capital consolidation. This trend is largely due to the Central Bank's policy aimed at reducing the number of financial institutions. As a result, over five hundred bank licenses have been revoked. Despite this reduction, the sector remains

dominated by a few major banks, with Sberbank holding the largest share of assets (Barajas *et al*., 2023).

Overall, the banks financial performance in Singapore Exchange (SGX) has been strong, bolstered by favorable economic conditions and strategic initiatives. Recently, the financial trends for these listed banks have been notably positive. (Ul Rehman *et al.*, 2024). The sector has benefited from higher net interest margins (NIM) and increased loan growth, driving higher profitability forecasts. The outlook for Singapore banks has been revised to "improving" from "neutral," indicating a positive trajectory. Additionally, the sector has seen a rise in share prices, with major banks like DBS and United Overseas Bank (UOB) showing significant gains (Siddique et al., 2020).

Similarly, listed banks financial performance in Egypt has been steadily improving, driven by regulatory measures and strategic enhancements. Kamel *et al.* (2022) noted that the listed banks financial performance at Egyptian Exchange (EGX) has shown some positive trends recently. The sector has benefited from improved financial stability and efficiency, driven by strategic initiatives and regulatory support from the Central Bank of Egypt (CBE) (Wagdi & Salman, 2022). The CBE's efforts to maintain financial stability and manage banking crises had played a vital role in enhancing the performance of these banks.

In Botswana, financial performance of listed banks on the Botswana Stock Exchange (BSE) has shown positive trends recently (Kablay & Gumbo, 2021). Key banks such as Standard Chartered Bank Botswana (Stanchart) and First National Bank Botswana (FNBB) have reported significant gains. Stanchart, in particular, saw an appreciation of 40.8% over a recent period, while FNBB and Botswana Diamonds (BOD) also posted gains

of 26.0% and 25.0% respectively (Sathyamoorthi et al., 2020). These trends indicate a robust performance in the banking sector, driven by strategic initiatives and favorable market conditions. The BSE has also seen overall market growth, with increased turnover and investor confidence.

In Tanzania, quoted banks at Dar es Salaam Stock Exchange (DSE) had recorded positive financial performance trends. According to Mkaro *et al.* (2023), indicated that the sector has experienced strong growth, with profits before tax reaching TZS 1.4 trillion in 2022, a 38% increase from TZS 1 trillion in 20211. Net profit also saw a significant rise to TZS 875,027 billion compared to TZS 676,863 million in the previous year (Temba et al., 2023). Key banks like CRDB Bank PLC and NMB Bank PLC have maintained strong positions, with CRDB seeing a 46% increase in net income after tax from TZS 280,455 million in 2023 to TZS 408,904 million in 2024. This growth has been driven by strategic initiatives, improved financial stability, and increased credit allocation to crucial sectors.

In Kenya, Nalianya and Miroga (2020) in their study indicated that banks quoted at Nairobi Securities Exchange (NSE) recently registered positive financial performance trends. Key indicators such as Core Earnings per Share (EPS) recorded a weighted growth of 26.6% in the fiscal-year 2022, as compared to 82.9% of the previous year. This performance highlights the resilience of the banking sector despite challenging economic conditions, including elevated inflationary pressures. Additionally, growth in private sector credit has been a significant driver, with an increase to 13.2% in April 2023 from 11.7% in February 2023 (Onsongo *et al.,* 2020).

1.2.1 Capital Structure

Odipo *et al.* (2023) alluded that capital structure of an organization represents a financial framework, made up of debt and equity used to finance the organization. Essentially, capital structure involves establishing the funds for operations through a mix of equity and debt. Tripathi *et al.* (2024) described capital structure as a method used to finance a company by combining long-term capital sources such as preference and ordinary shares, loans, debentures, and loan stock, along with short-term liabilities like overdrafts and other payables.

Chauhan *et al.* (2024) opined that capital structure involves a mix of different securities utilized by a firm in funding their operations. According to various definitions, capital structure comprises the equity and debt utilized to support a company's activities. Companies often face the challenge of choosing between equity and debt, particularly when financing long-term investments. The amount of debt financing depends on factors such as interest on debts, financial distress costs, income tax, market imperfections, and company income (Tripathi *et al*., 2024). A decrease in interest rates makes long-term debts more appealing (Odipo *et al*., 2023).

In Germany listed commercial banks capital structure typically involves balanced mix of the equity and the debt financing. Major banks like Deutsche Bank, Commerzbank, and Kreditanstalt für Wiederaufbau leverage both domestic and international capital markets to maintain optimal financial performance and stability (Braun & Deeg, 2020). Equity capital is a significant component, providing a strong foundation and enabling banks to absorb potential losses. Simultaneously, debt instruments such as bonds and loans are employed to fund various operations and growth initiatives (Braun & Deeg, 2020).

Further, capital structure of quoted commercial banks within South Africa are characterized by a balanced approach to equity and debt financing (Oyetade *et al*., 2023). Major banks such as Absa, FirstRand, Nedbank, and Standard Bank maintain robust capital and liquidity levels to ensure financial stability and resilience. These banks leverage both domestic and international capital markets to optimize their financial performance and meet regulatory requirements (Oyetade *et al*., 2023)

In addition, banks capital structure of listed at Uganda security exchange typically involves a mix of equity and debt financing, with a notable reliance on short-term debt (Serwadda, 2019). Also, the main banks such as Stanbic Bank Uganda, Absa Bank Uganda, and Standard Chartered Bank Uganda utilize both domestic and international capital markets to maintain financial stability and support growth initiatives.

Additionally, commercial banks capital structure of listed at NSE in Kenya typically involves balanced mix of equity and/or debt financing (Okumu *et al*., 2023). Moreover, the key banks such as Equity Bank, KCB Group, and Co-operative Bank of Kenya utilize both domestic and international capital markets to maintain financial stability and support growth initiatives.

1.2.1.1 Debt

Debt refers to borrowed funds that must be repaid over time, accompanied by interest expenses (Hu *et al*., 2024). It's a primary source of external financing for many businesses, helping to bridge financial gaps for firms lacking adequate resources. In a company's capital structure, debt capital often involves long-term bonds used for financing investments, with repayment over time and interest limited to the present (Hu et al., 2024).

Debt financing fills financial shortfalls for firms with insufficient internal funds (Mehzabin *et al*., 2023). Borrowers must repay borrowed amounts including a service charges like loan interest and/or fees and (Tripathi *et al.,* 2024). It's essential for businesses with limited internal resources to finance operations and investments (Koech *et al*., 2020).

Debt financing, as Dinh and Pham (2020) suggest, offers fixed returns due to fixed interest costs. It's suitable for firms with a solid equity base and is contingent on security value and liquidity. Companies with higher gearing can raise more debt (Koech *et al*., 2020). In the Euro area, French banks have a stronger capital structure having a Common Equity Tier 1 (CET1) ratio of 11.3% (Boateng et al., 2022). Ghanaian banks are heavily debt-financed, with approximately 80.23% debt and 17.77% equity, dominated by short-term debt (Dabi *et al*., 2023).

In Kenya, debt financing negatively impacts the performance of listed commercial banks. By December 2022, twenty-eight banks held around KES 2.1 trillion in low-risk domestic government debt, comprising 47.3% of domestic government debt (KBA, 2024).

1.2.1.2 Equity

Equity involves founders or initial shareholders exchanging part of their company ownership for external funding, potentially reducing their control over the company (Lyu & Chen, 2022). Equity can have several impacts of commercial banks financial performance: One of the impacts is that capital adequacy where higher equity levels improve a bank's adequacy of capital ratio, crucial for absorbing potential losses and maintaining financial stability. This enhances creditworthiness and reduces borrowing costs (Chauhan *et al*., 2024).

The other impact is that equity financing positively influences profitability as it

doesn't require regular interest payments, improving net income margins? Earnings and equity financing have been shown to positively affected on commercial banks financial performance. A higher equity base provides a buffer against financial distress, reducing insolvency risk and leading to better risk management and stable financial performance (Dinh & Pham, 2020).

Turkish banks emphasize Tier 1 common equity as a significant part of their capital structure (Yıldırım & Çelik, 2021). In addition, the combined CET1 capital of Turkish banks is about 11.3%, reflecting resilience and regulatory compliance (Yıldırım & Çelik, 2021). In Tanzania, banks predominantly rely on debt financing but maintain a common equity Tier 1 capital (CET1) of approximately 10%, indicating resilience (Hafidh, 2021).

1.2.1.3 Capital Reserves

Capital reserves represent the minimum funds an organization should have set aside for emergencies (Boateng *et al*., 2022). According to Rahman *et al*. (2023), these reserves bolster a firm's financial health, as they consist of a portion of earnings set aside for this purpose. Dinh and Pham (2020) elaborate that reserves are accumulated over an accounting year to meet necessary levels set by management for current assets, taxes, insurance, debt repayment, and other operational costs. In the UK, capital reserves have been required since 1989, with supervisors setting minimum capital requirements above the Basel Accord's 8% standard (Raja, 2022). In India, the Reserve Bank of India mandates a capital reserve of 11.50%, including a 2.5 per cent Capital Conservation Buffer (CCB), under Basel III norms starting from 2019 (Pervez *et al*., 2023).

Nigeria's Central Bank recently increased the minimum capital base for banks to N500 billion (Nwite *et al*., 2022). In Kenya, the Central Bank's Banking Act of 2008

requires commercial banks to maintain a minimum core capital of 1 billion shillings (Okumu *et al*., 2023). These regulations underscore the importance of capital reserves in ensuring the financial health and sustainability of banking institutions worldwide (Okumu *et al*., 2023).

1.2.1.4 Earnings of Banks

Earnings consists of portion of an organization net income which is kept rather than distributed in dividend forms, used for reinvestment in capital assets or to pay off debts (Mutua & Atheru, 2020). Odipo *et al*. (2023) highlighted that earnings constitute of a percentage of net income that is retained by the firm to reinvestment or for debt repayment, registered in balance sheet under shareholders' equity. These earnings comprises both revenue and/or capital reserves, sometimes resulting in a capital reserve or sinking fund. Preference shares, termed quasi-equity by Anozie *et al*. (2023), combine elements of both equity and debt. They are prioritized over ordinary shares for dividends and asset proceeds but offer fixed returns without voting rights, affecting the company's gearing ratio.

In Germany, banks must achieve a return on equity (ROE) of 3% to 4% to avoid operating profit shortfalls (Farkasdi *et al.,* 2021). In 2022, South African banks like FirstRand and Absa Bank achieved ROEs of 20.6% and 16.6%, respectively (Nyoka, 2019). Over the past decade, commercial banks within Sub-Saharan Africa (SSA) have had an average returns on assets around 2%, higher than global counterparts (Flamini *et al*., 2020). In Kenya, the banking sector's growth was driven by a significant increase in earnings and share premiums, with capital and reserves rising by 6.9% from December 2022 to December 2023, according to Central Bank of Kenya (CBK, 2024).

1.2.2 Financial Performance

Financial performance (FP) shows how a company uses its limited resources to generate revenue (Odipo *et al*., 2023). A firm's performance is gauged by its profitability, particularly return on equity, total capitalization, and profit margins. Further, FP is subjective measure of how effectively a firm uses its assets in generating income, giving an overall picture of financial health over time and allowing for comparisons within the industry.

Anozie *et al*. (2023) suggest that performance is evaluated by employing a balanced scorecard, that focus on the financial metrics, customer satisfaction, the internal business processes, and/or growth and learning. The financial performance of the commercial banks is often assessed using ratios like the Return on Assets (ROA), the Return on Equity (ROE), and the Net Interest Margin (NIM) (Chauhan *et al*., 2024).

ROE, a key financial ratio, indicates just how much profit a firm generates using shareholders' equity (Chauhan *et al*., 2024). A higher ROE suggests better profit generation and efficient use of shareholder funds, reflecting effective management. Moreover, it is computed by quotient of net income after taxes and total equity capital, showing the return rate on the stockholders' investments.

1.2.3 Capital Structure and Financial Performance

In Dubai banking industry has seen rising net profits and stable liquidity, despite challenges such as low oil prices (El-Chaarani & El Abiad, 2019). This stability is attributed to well-capitalized banks and lower cost-to-income ratios. In addition, the banks have experienced growth in non-interest income, which has contributed significantly to their profitability. This includes income from fees, commissions, and other non-lending

activities (Azmeh & Hamada, 2022).

Moreover, Ye (2021) noted that the largest Chinese banks, as well as "Industrial and/or Commercial Bank of China (ICBC), China Construction Bank (CCB), and Bank of China (BOC)," have raised significant amounts of equity through rights issues and private placements, ensuring they meet stringent capital requirements. Although equity financing has become more prominent, large state-owned banks in China still rely significantly on debt, particularly in the form of bond issuance, to finance their activities. Chinese banks have consistently maintained high levels of profitability, underpinned by a large domestic market, strong government support, and relatively high interest margins (Dong *et al.*, 2020).

In 2017, Bank of Ghana (BoG) increased the bank minimum capital requirement from 120 to 400 GH₵ million that can be approximated to USD 80 million, a significant move to strengthen banking industry financial stability (Ankomah *et al*., 2023). The increase in capital requirements pushed banks to focus on strengthening their equity base through retained earnings, fresh capital injections, and mergers. Also, banks have used debt financing, such as long-term borrowings and subordinated loans, to leverage their capital structure. However, with the regulatory shift and a focus on equity to meet capital adequacy ratios, reliance on debt financing has decreased. While some banks still maintain a composition of debt-equity in their capital structure, the trend has been to shift towards a more equity-heavy structure to comply with prudential standards and reduce leverage risks (Yensu *et al*., 2024).

1.2.3 Commercial Banks Quoted in Nairobi Security Exchange

The Kenyan financial industry features CBK as the main regulator, overseeing 43

banks, one institution of mortgage, eleven microfinance companies taking deposit, two foreign bank representative offices, and eighty-six forex bureaus (CBK, 2024). This proposed study is centered on the banks' capital structure and performance.

To regulate these banks, the CBK employs the CAMEL rating system, that assesses the asset quality, the capital adequacy, the management quality, the earnings, and/or liquidity. The CBK enforces rules on the minimum capital requirements for Kenyan banks, aligning with international standards set by the Basel Committee. In 2008, the CBK reviewed these requirements for commercial banks and mortgage finance institutions to increase the stability and efficiency of the quoted banking and the financial system (CBK, 2024).

1.3 Statement of the Problem

Capital structure is a crucial determinant of the financial performance of commercial banks quoted in NSE. In year 2022, Kenyan banking industry's total assets stood at Kes 6.5 trillion, equivalent to approximately 66% of Kenya's GDP during the same period (KBA, 2024). Further, a report 2024 released by the Kenya Bankers Association (KBA), Kenya's economy attained growth rate of 5.6% in 2024, up from 4.9% in previous year. In addition. the banking sector played a crucial role in this resilience, with assets growing by Kes 1.2 trillion (17.6%) in 2023, and deposits rising by 15.1%, fueled by mobile and online banking (KBA, 2024).

However, despite the overall positive trends, the banking sector faced challenges where by pre-tax profits declined by 9.1% in 2023 to 2024, even though operating income increased by 21.0%. Thus, the industry's adaptability and sustainable practices remain critical as it navigates (KBA, 2024).

Hence, several studies done on capital structure of banks and the financial performance. On empirical gaps Prenaj *et al.* (2024) focused on non-listed companies in Kosovo while the current study will cover listed commercial banks. Another, study In India, Tripathi *et al*. (2024) determined the moderating influence of the capital structure and relationship between corporate governance and the firm value. Thus, the current study covered gaps on influence of the bank capital structure and the financial performance of quoted banks at NSE. More empirical gaps were identified from *Yensu et al.* (2024) who focused on the capital structure and profitable of quoted companies within Ghana Stock Exchange, since the study was general while the current study is specifically on banks. Further, gaps were filled on commercial banks listed in NSE as a study by Manal et al. (2020) from Jordan capital structure and the growth of the firms. Another, gap is from the study in Kenya by Odipo *et al*. (2023) that was based the influence of the capital structure and the quoted manufacturing firm's financial performance at NSE.

On conceptual gaps, Githinji (2022) study was centered on share capital and quoted banks financial performance at NSE. Hence, this current study filled the gaps studying more variables on equity, reserves and debt. Moreover, Atheru (2020) research focused on capital structure and financial performance of listed manufacturing firms at NSE, thus this research focused on capital structure and financial performance, only used earnings as dependent variable. Thus, the current research improved on that by adding debt, equity and financial reserves and more so centered on listed banks. Another conceptual gaps were identified in the study of Magoma *et al.* (2022) which investigated the effect of the capital structure on the financial performance of listed banks in DSE. The study was centered on

capital adequacy thus, this current study filled the gaps studying totally new variables on equity, reserves, debt and earnings.

On methodologically gaps left by the study of Arhinful *et al.* (2023) was based fixed effects and random effects models of 10 years ranging from 2011 to 2020, while the current study has similar time period of ten years ranging from 2015 to 2024 but covering a more recent analysis and specific to quoted banks as the above study was based on both listed and no-listed financial institutions in Ghana. Also, Nazir et al. (2021) study used panel data of five years 2013–2017, while this study used panel data of 10 years. Further, in Vietnam, Dinh and Pham (2020) the study used least square regression data for the period from 2015 to 2019 of 30 the pharmaceutical enterprises which the current study used partial least square. Moreover, Mamaro and Legotlo (2020) study was based on panel data of one year that is 2010 to 2019 from retail firms at JSE, while the current study was based on ten years ranging from 2015 to 2024. The weakness of the above studies using panel data is that it was based on shorter period which did not give a conclusive finding on capital structure and financial performance. Thus, the current study improved on the issue of capital structure that relates to use of equity, debt, financial reserves and earnings by listed bank to attain financial performance.

1.4 Purpose of the Study

The purpose of this research was to assess the capital structure and the banks financial performance at NSE within Kenya.

1.5 Objectives of the Study

The research had the general objectives, and the specific objectives.

1.5.1 General Objective

The research objective was to assess the effect of capital structure on the financial performance of commercial banks at NSE in Kenya.

1.5.2 Specific Objectives

The study examined the following specific objectives:

i. To evaluate the effect of debt on financial performance of commercial banks listed in NSE, Kenya.
ii. To establish the effect of equity on financial performance of commercial banks listed in NSE, Kenya.
iii. To explore the effect of financial reserves on financial performance of commercial banks listed in NSE, Kenya.
iv. To determine the effect of earnings on financial performance of commercial banks listed in NSE, Kenya.

1.6 Hypothesis

The study hypotheses were:

i. **H_{O1}:** Debt has no statistically significant effect on the financial performance of commercial banks listed in NSE, Kenya.
ii. **H_{O2}:** Equity has no statistically significant effect on the financial performance of commercial banks listed in NSE, Kenya.
iii. **H_{O3}:** Financial reserves has no statistically significant effect on the financial performance of commercial banks listed in NSE, Kenya.
iv. **H_{O4}:** Earnings has no statistically effect on the financial performance of commercial banks listed in NSE, Kenya.

1.7 Significance of the Study

The study benefits the government by providing valuable insights to policymakers, including the Central Bank of Kenya. Moreover, these findings helps policymakers develop financial structure policies that enable banks to make optimal choices between equity and debt as modes of financing. In addition, the ~~project~~ study's findings were invaluable to the management of listed companies by highlighting the key factors related to capital structure and its impact on the performance of quoted commercial banks in the NSE. This research enhanced an understanding of effective fund-raising approaches to boost performance and achieve market leadership.

Additionally, the study significantly benefits researchers by enriching existing knowledge gaps and literature. In addition, financial consultants and analysts found it particularly useful for their advisory services on financing methods, especially for listed commercial banks in the NSE.

1.8 Scope of the Study

The project study focused solely on the capital structure relationship with financial performance of commercial banks quoted at NSE. The study analyzed performance data from these banks on the NSE over a 10-year period from 2015 -2024. No study has been done to include year 2024 the latest study is that of Anam and Wanjala (2024) that include panel data of 2011-2015. Also, the study assessed four variables that are debt, equity, financial reserves and earning. Also, the study was confined on 3 theories that are MM Model, Pecking Order Theory (POT), and Trade-off Theory (ToT). Finally, the study was only based within Nairobi City where commercial banks are listed in NSE.

1.10 Delimitations of the Study

This research was about how capital structure of listed commercial banks influence financial performance. The first delimitation was that the research studied four capital structure components that are debt, equity, share capital and earnings. Lastly, the research was based on three theories that is MM Model, Pecking Order Theory (POT), and Trade-off Theory (ToT).

1.11 Assumptions of the Study

One of the key assumptions is that of sample size choosen is representative hence, the findings wer generalized. In addition, the second on is that the study assumed all participants give relevant information required for this proposed research provided. Also, the research assumed that panel data is the most suitable for th study. The study assumes that macroeconomic conditions such as inflation, interest rates, and exchange rates remained relatively stable during the study period, allowing the observed financial performance to be attributed primarily to capital structure decisions rather than external economic shocks. Further, it was assumed that all the commercial banks listed on the Nairobi Securities Exchange adhere to standardized financial reporting frameworks for instance International Financial Reporting Standards (IFRS). This ensured consistency, comparability, and reliability of the financial data used in the analysis. Finally, the research assumed that changes in capital structure influence financial performance, rather than financial performance driving changes in capital structure. This assumption supports the direction of the analysis and interpretation of the regression results.

1.9 Limitations of the Study

Listed commercial banks may regard certain information as confidential and, therefore, may be hesitant to disclose it. Nevertheless, the researcher overcome this by relying on financial statements. Additionally, the researcher might not be able to verify the accuracy of the financial reports obtained from online sources. In addition, it is not unusual for companies to produce altered financial reports that present them favorably to the potential investors. This study assumed the accuracy of the data since no companies have been reported for this offense. Hence, the study compared different sources including those financial statements shared by banks with CBK, CMA and NSE.

1.12 Theoretical Framework

The study was underpinned on 3 theories: MM Model, Pecking Order Theory (POT), and Trade-off Theory (ToT). They are discussed as below.

1.12.1 Modigliani and Miller Theory

The theory was invented by two professors Modigliani and Miller in 1958, the MM the proposition is the initial theory of capital structure, proposed a under market that has ideal conditions. The MM n asserts that value of a company is determined by its productivity rather than its capital structure, highlighting the principle that money is neutral in finance. In addition, the theory posits that the value of a business is unrelated to its financing decisions on capital structure (Brusov *et al.*, 2022).

Further, a company's value might be associated with its capital structure, as debt holders are prioritized over shareholders in cases of financial leverage. Said (2025) outlined several assumptions: perfect capital markets without bankruptcy or operational costs, market information symmetry, and doesn’t affect debt on a company's income beyond

taxes and/or charges. (Neugebauer *et al*., 2023). However, it's significant to note that even in an ideal capital market, factors such as bankruptcy, costs of transaction, asymmetric information, and the effect of debt to income before interest and tax still exist (Clark *et al.,* 2023). The relevance of this theory to the study lies primarily in its first discovery, which stated that considering taxes, firms will choose debt due to the tax shield result, as they are likely to perform better than those without debt. Also, it helps in explaining the effect of long-term debt on financial performance (Khan *et al.*, 2023).

MM theory has its limitations and theoretical gaps. Firstly, the M&M theory assumes perfect market conditions, which rarely exist in reality (Bossone, 2024). Markets are subject to imperfections such as taxes, transaction costs, and bankruptcy costs. These factors can significantly influence a bank's capital structure, and the performance financially, highlighting a gap between the theory and practical application (Bajaj *et al*., 2021). Secondly, the theory does not consider the impact of asymmetric information. In real markets, managers often have more relevant information on the firm's prospects than investors. This discrepancy can lead to adverse selection and moral hazard issues, which are not accounted for in the M&M framework (Bajaj *et al*., 2021).

Furthermore, the theory assumes that investors and firms can borrow using same interest rate, which is not the practice case. Firms often face higher borrowing costs due to risk premiums, creditworthiness, and other market conditions (Bossone, 2024). These gaps suggest that while the M&M theory offers a valuable foundation for comprehending capital structure, it needs to be complemented with additional further study that is conducted on quoted banks at NSE.

1.12.2 Pecking Order Theory

Myers and Majluf in year 1984 came up with Pecking Order Theory (POT) which suggests that firms follow specific hierarchy when making financial decisions. Due to information asymmetry, increases of financing cost. Moreover, to the theory notes that firms prioritize their sources of finance (Yıldırım & Çelik, 2021). Also, they first utilize internal financing until it is exhausted, then use debt, and finally, consider equity as the last resort. Additionally, internal financing is chosen because it incurs no flotation costs or disclosure expenses (Frank *et al.,* 2020). In addition, this indicates that firms seek external finance only when internal financial resources are insufficient for financing a project. Compared to debt, equity issues face more significant challenges due to asymmetric information (Frank *et al.,* 2020). But, selection is inherent in external funds, albeit to varying degrees, leading managers to prefer debt over equity.

The POT does not begin with the concept of an optimal capital structure. Instead, it emphasizes the empirical observation that firms have a clear preference for using internal financing over external sources (Tesema, 2024). When internal funds are insufficient to support investment opportunities, firms may opt for external financing. If they do, they will select from various external financing options to minimize the additional costs associated with asymmetric information (Naranjo *et al.,* 2022). Consequently, the preferred order of financing can be as follows: internal financing first, followed debt, and finally equity financing.

In addition, POT has several theoretical gaps. Firstly, the theory assumes that managers possess more information about the company's value and the future prospects than investors than investors, leading to adverse selection in equity issuance (Frank *et al.,* 2020). However, it does not fully address how firms handle this informational asymmetry

beyond the financing hierarchy. It overlooks the potential for mechanisms like signaling or reputation building that could mitigate adverse selection effects.

Secondly, the theory simplifies financing decisions into a linear hierarchy, which might not capture the complexity of real-world scenarios (Yıldırım & Çelik, 2021). Firms often consider a multitude of factors, such as market conditions, economic forecasts, and strategic priorities, which are not adequately reflected in pecking order framework.

Moreover, POT also assumes that firms consistently prioritize internal financing over external financing due to its lower costs. (Frank *et al*., 2020). However, it does not consider situations where retaining earnings might not be feasible or desirable, such as when firms need to distribute dividends to maintain shareholder satisfaction or when internal funds are insufficient for large-scale investments (Singh *et al*., 2021).

1.12.3 Trade-off Theory

The final theory of this proposed research is that of trade ToT, initially invented by Robichek and Myers in 1966 and further developed by Myers in 1984, is based on the tax and the agency cost models. Moreover, firms can achieve an maximum capital structure through balancing the benefits of the debt against its costs. This theory suggests that firms determine its composition of debt and equity by evaluating the respective costs and the benefits of each option (Esghaier, 2024). For example, while debt financing offers tax advantages, it also incurs costs related to financial distress, bankruptcy, and agency issues (Ai *et al.*, 2020).

In addition, the tax bankruptcy trade-off perspective posits that firms balance tax advantages of the debt against the costs associated with bankruptcy (Esghaier, 2024). The ToT is significant because it illustrates that firms are financed partly with debt and partially

equity (Brusov & Filatova, 2023). In a going concern scenario, companies lack sufficient reserves to support ventures. Consequently, this principle demonstrates the impact of equity on performance financially. While this theory offers valuable insights, it presents several theoretical gaps. Firstly, the ToT assumes that companies can precisely calculate the optimal level of debts by weighing the marginal benefits and costs. In reality, quantifying these factors is complex and uncertain, making the theoretical precision difficult to achieve (Deng, 2023).

Secondly, the theory largely focuses on static trade-offs without fully considering the dynamic nature of capital structure decisions by listed commercial banks in NSE (Agyei *et al*., 2020). Firms operate in fluctuating economic environments and face changing market conditions, regulatory landscapes, and internal factors, which can all influence their financing choices over time. The static framework of the Trade-off Theory does not adequately capture these dynamic aspects (Çerkezi, 2013).

1.13 Conceptual Framework

Based on the prior research, the variables for this study are identified and presented in the conceptual framework shown in figure 1.1. In addition, variables that are independent will be debt, equity, reserves, and earnings. The dependent variables will be financial performance. The relationship is represented by the figure 1.1.

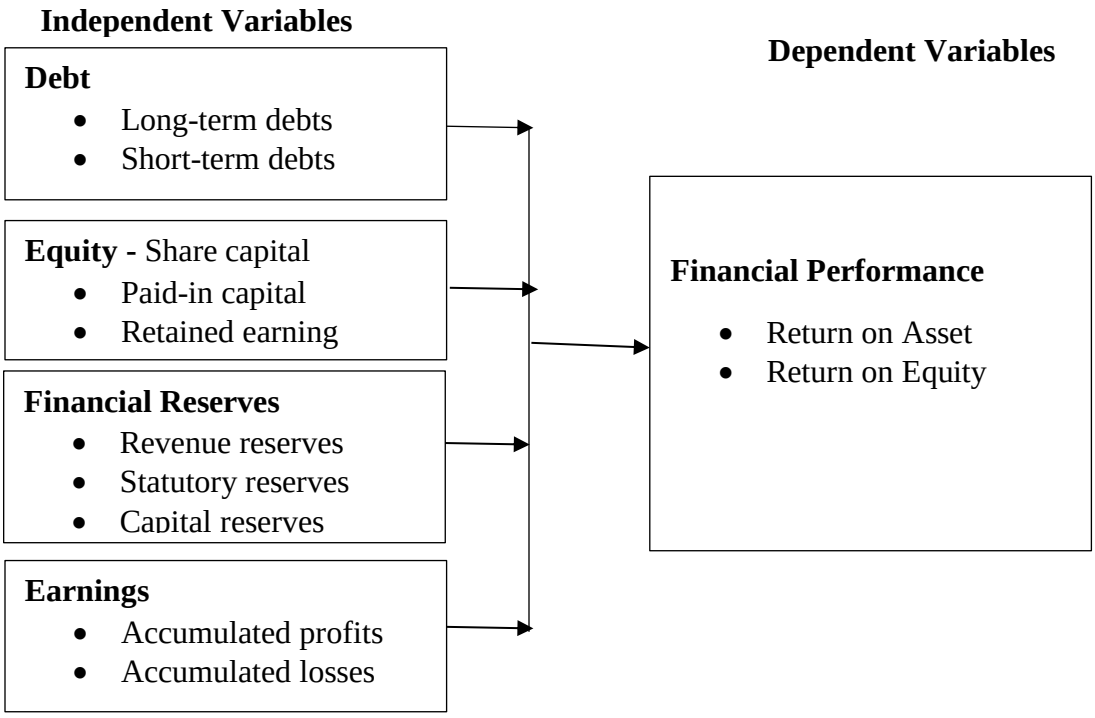


Figure 1.1 The Conceptual Framework

Source: Author (2025)

In the figure 1.1 shows that debt was determined through long term and short-term debts. In addition, equity was measured using share capital, paid-in capital and retained earnings. Moreover, reserves were determined by revenue, statutory and capital reserves. Also, earnings were measured by stock and cash dividends.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter reviews the literature for capital structure relationship with financial performance of quoted banks at NSE. Additionally, the literature covered topics such as debt, equity, reserves, and earnings. Finally, this section summarized the findings and identify any research gaps.

2.2 Empirical Literature Review

The literature review presented findings on debt, equity, reserves, earnings, and the mediating role of banking regulations.

2.2.1 Debt and Financial Performance

Nazir *et al*. (2021) conducted research on the Pakistan Stock Exchange to examine the debt and listed firms performance for over a five year period. Further, study employed regression that was pooled ordinary least squares, random-effects analyzing a sample that was cross-sectional of thirty Pakistani firms from the automobile seector, cement industry, and sugar firms between 2013 and 2017. The findings indicated that short and long term debt had significant negative impact firm profitability. However, sales growth and firm size positively affected profitability of companies in non-financial sector. While their findings showed a negative relationship between debt and profitability, the exclusion of broader capital structure components offers a narrow view. The current study improved upon this by evaluating multiple elements of capital structure, providing a more comprehensive understanding of how these components jointly affect financial performance in banks. Moreover the current study targeted listed commercial banks in

Kenya using panel data, provides a more sector-relevant and methodologically robust investigation.

Sasan *et al.* (2022) investigated whether how financial ratios of high ranking three listed firms at Philippine Stock Exchange (PSE) showed substantial differences before pandemicand during the pandemic. In addition, the findings showed no significant impact of debt-related ratios (quick ratio, current ratio, asset -equity, debt ratio, debt-equity, net profit margin, and return on assets) on performance may reflect temporary external shocks, not long-term capital structure dynamics. The current study filled the gaps by examining data for 10 years, allowing a clearer view of how debt influences financial performance under normal economic conditions. Also, the above study used averages and paired t-tests that failed to assess causal relationships. Hence this study, by contrast, used panel data techniques that is random effects models, which were more robust for exploring the relationship between debt and performance over time, across multiple entities.

In Tokyo Stock Exchange, Arhinful *et al.* (2023) conducted a study on the automotive industry, construction sector, electronics firms, metal companies, and telecommunications sectors, revealing that firms in these industries had traditionally relied on debt financing for their business operations and investment activities, they were not preferring equity financing. In Japan, debt financing is preferred as a cost-effective source of capital compared to equity financing. Moreover, the study analyzed two hundred and fity seven companies from the aforementioned sectors from 2000 to 2021. The above study analytical approach was strong, the focus on non-financial firms limits the relevance of their conclusions for banking institutions. In particular, the study emphasized interest coverage and debt service, metrics which behave differently in the banking sector due to

interest income being part of core operations. This currecnt study rightly shifts the focus to performance indicators more aligned with banking that are ROA and ROE. More gaps were identified from the mixed results from the above study that underscore the complex and context-dependent nature of debt's effect on performance. It suggested that not all debt is harmful, and its effect depends on structure, cost, and usage efficiency thus, this study captures by distinguishing between types of debt (short-term vs long-term) and examining their individual influence on bank performance.

In South Africa, “Mamaro and Legotlo" (2020) analyzed effect of debt financing of quoted retail companies at Johannesburg Stock Exchange (JSE) on financial performance for over the period from 2010 to 2019. Also, the study employed a fixed effects model, using the financial performance ratios with ROE as the profitability measure and dependent variable. The findings indicated that lagged return on equity, total debt to total assets, and sales growth had a significant positive effect on financial performance. On the other hand, long-term debt to total assets and firm size were found to negatively affect financial performance. These mixed findings emphasized the need to differentiate between short-term and long-term debt when analyzing financial performance something this study explicitly addressed. This distinction was even more critical in banks, where short-term liabilities like customer deposits dominate, and long-term borrowing may signal liquidity stress or funding mismatches. Use of ROE was important, relying solely on it limits the understanding of performance from a broader financial perspective. Thus, thius study incorporated both ROE and ROA a valuable addition, particularly for banks, where ROA better reflects operational efficiency independent of leverage.

In Tanzania, Magoma *et al.* (2022) explored the financial performance of seven commercial banks listed on the Dar es Salaam Stock Exchange (DSE) over a five-year period, from 2016 to 2020. The study used the CAMEL model, evaluating capital adequacy, asset quality, management efficiency, earnings quality, and liquidity to comprehensively assess the banks' financial strength. An explanatory research design was implemented to determine the cause-and-effect relationship between bank performance and these factors. Secondary data were obtained from audited financial statements and annual reports, and pre-regression analyses, including multicollinearity and Durbin-Watson tests, were performed. The results indicated that management efficiency and capital adequacy were the primary factors impacting the financial performance. The study lacks a focused analysis on debt ratios, such as debt-to-equity, total debt-to-assets, or interest coverage, which are key indicators when evaluating how debt financing influences bank performance. This study filled this gap by explicitly isolating debt as a capital structure component and analyzing its influence on financial outcomes. Also, by not distinguishing between short-term vs. long-term debt or analyzing debt cost, the study failed to capture the risk-return trade-offs involved in bank debt financing. The current research addresseed this by examining different forms of debt financing and assessing their direct impact on performance indicators like ROA and ROE. Finally, the above study had a limited scope that reduces the statistical power and robustness of the findings. This study improvesdon this by utilizing a longer time frame (10 years), which better captures trends and volatility, and offering a larger or similarly structured sample from a different but comparable market (Kenya), enhancing generalizability.

A study in Kenya by Dador *et al*. (2024) examined the impact of the short-term debt-asset ratio on the financial performance of commercial banks. The research utilized a descriptive design to gather data on debt financing practices. The study focused on forty-three commercial banks in Nairobi County that had been operational from 2004 to 2022. Using census and secondary data from the annual financial statements and reports of these banks, correlation analyses were performed to explore the relationship between debt financing and the financial performance. The above study used descriptive and cross-sectional methods with correlation and linear regression analysis, relying on snapshot insights from a large dataset spanning 2004–2022 that lack of panel data methods of random effects, reduces the robustness and ability to control for unobserved heterogeneity over time. This study addressed this methodological gap by utilizing panel data techniques, which yield more reliable and dynamic insights into the debt–performance relationship across time and institutions.

2.2.2 Equity and Financial Performance

Handema and Haabazoka (2020) examined the effects of capital structure management on the profitability of commercial banks in Zambia using an explanatory research design. The study analyzed panel data from the monthly financial statements of individual banks over the period from 2010 to 2017. Fixed Effects regression models and Granger causality tests were employed to identify the direction of causation between the variables. The findings indicated an insignificant and negative impact of equity financing on the financial performance of commercial banks in Zambia. This contradicts many theoretical and empirical findings that associate higher equity levels with improved financial performance, due to reduced financial risk and interest obligations as per Trade-

Off Theory used in this research. However, the negative impact may reflect overcapitalization or inefficient use of equity in Zambia's banking context. The current study adds value by testing this relationship in Kenya's capital market environment, where equity structures, regulation, and investor dynamics may lead to different outcomes. The study treats equity financing as a broad category without breaking it down into components such as retained earnings, common equity, or additional paid-in capital. This generalization limits the depth of insights, as different forms of equity may have varying impacts on performance. This research improved upon this by evaluating distinct equity components as part of the capital structure, allowing for a more nuanced understanding of their individual contributions to bank profitability.

Obuobi *et al.* (2020) assessed the impact of capital structure on the financial performance of banks in Ghana. They used the debt ratio as a proxy for capital structure and return on assets, return on equity, and earnings per share as proxies for bank performance. The study focused on seven out of the eleven banks listed on the Ghana Stock Exchange as of 2017, analyzing data from their annual financial statements over a seven-year period from 2008 to 2014. The findings indicated that capital structure negatively impacts bank performance, aligning with various reviewed studies. The study used only the debt ratio to represent capital structure in their study of listed Ghanaian banks. This approach excludes equity financing, which is a critical counterpart to debt in determining a firm's optimal capital mix. By focusing solely on debt, the study neglects the role of shareholder capital in enhancing or constraining performance. This current study filled the gaps of this limitation by incorporating equity (as well as earnings and reserves) to capture the full spectrum of financing strategies and their implications on financial outcomes.

Muhammed *et al*. (2024) examined how capital structure influences the financial performance of Ethiopian commercial banks. The study adopted a quantitative approach with an explanatory research design, analyzing six years of audited financial reports from fourteen commercial banks in Ethiopia. The random effects regression model findings revealed that the loan-to-deposit ratio and total deposit-to-total asset ratio positively and significantly impact financial performance, whereas the asset growth ratio has a negative effect. The above study evaluated financial performance in relation to ratios such as loan-to-deposit, asset-to-equity, and capital adequacy but did not explicitly analyze equity as a standalone variable or in comparison with debt. Although some variables such as asset-to-equity and capital adequacy touch on capital structure indirectly, equity as a core financing component was not isolated for its unique impact on performance. This left a major conceptual and analytical gap. Thus, this study filled the gap by incorporating equity as a capital structure variable, enabling a clearer understanding of how ownership capital contributes to profitability and risk management in listed banks. In addition, the above study examined operational ratios and performance drivers like deposit behavior and asset growth, but did not include debt levels, financial reserves, or retained earnings, which are essential for evaluating capital structure holistically. Capital structure includes both equity and debt financing, and internal sources like retained earnings, which are critical for banks that aim to meet capital adequacy while reducing reliance on external funding. This research addressed this shortfall by incorporating a broader set of capital structure variables, thus offering more complete insights into financial strategy and sustainability.

Githinji (2022) explored the influence of share capital and preferred stock on the financial performance of banks quoted at NSE. The research used a cross-sectional survey

design, targeting all eleven commercial banks listed on the NSE. Secondary data were gathered through a datasheet, and the study encompassed all the listed banks. Data analysis involved both descriptive and inferential statistics. The study focused specifically to equity-based instruments namely share capital and preferred stock, which are core components of a firm's capital structure. The study found a strong positive correlation between these variables and financial performance, highlighting the potential value of equity financing in enhancing firm outcomes. Despite the fact this emphasis aligns with the current study's aim to assess equity's role in bank performance, the exclusive focus on correlation lacks explanatory power regarding causality or time-based performance trends. Equity may relate positively to performance, but without longitudinal analysis, it's unclear whether this relationship holds over time or is influenced by external macroeconomic or regulatory conditions. This study addressed this gap by including a broader set of capital structure variables debt, equity, financial reserves, and earnings enabling a holistic assessment of how banks manage funding to optimize performance.

2.2.3 Financial Reserves and Financial Performance

Huu *et al.* (2020) empirically investigated the effect of CAMEL components on the financial performance of commercial banks in Vietnam. The CAMEL framework focuses on broad dimensions of bank health (Capital, Asset quality, Management, Earnings, and Liquidity), making it highly relevant for regulatory assessment. However, CAMEL does not explicitly capture capital structure breakdowns, such as the proportion of debt, equity, and reserves, which are critical to understanding the financing strategy of banks. As such, the above study lacks the precision needed to assess how internal capital reserves like retained earnings compare to external financing such as debt in driving bank performance.

The current research advanced the literature by examining financial reserves in the context of pecking order theory and trade-off theory, which is more aligned with financial decision-making frameworks than the regulatory-focused CAMEL approach. Moreover, the above study used a 6-year panel (2013–2018), relatively short and outdated panel limits the generalizability and relevance of findings, especially in a rapidly changing financial environment. Thus, this study used 10 years of panel data, providing a longer-term and more up-to-date perspective. This allowed to assess how financial reserves affect performance before, during, and after major economic or policy changes, such as interest rate shifts, regulatory tightening, or global financial crises.

Okctah and Ekwcronu (2020) investigated the factors affecting the financial reserves of publicly listed manufacturing companies in Nigeria. The research used a retrospective survey approach, analyzing data from 2010 to 2017 with panel regression analysis. The findings revealed that the capital structure has a negative and insignificant impact on financial reserves. Financial reserves serve different functions in manufacturing firms like for reinvestment or stability in capital-intensive industries compared to commercial banks, where they are a regulatory buffer, part of Tier 1 capital, and influence creditworthiness and liquidity. By focusing on listed commercial banks, this current study contextualizes financial reserves within the regulatory and operational frameworks of banking, providing more relevant and actionable insights into financial performance dynamics for banks. Also, the above research investigated financial reserves as a dependent variable, rather than as a determinant or explanatory variable in the context of financial performance. This current study determines financial reserves as an independent variable within the capital structure, analyzing its impact on profitability (ROA, ROE). This shift

aligns more directly with capital structure theory and performance-driven financial decision-making.

Chireka and Fakoya (2017) analyzed the determinants of corporate financial reserves in South African retail companies. Utilizing panel data regression, they explored the correlation between firm cash reserves and several influencing factors. The study revealed that the size of a company's cash reserves is significantly impacted by its capital structure, dividend payments, cash flow volatility, and the availability of liquid asset alternatives. In retail, financial reserves such as cash reserves are often maintained for liquidity management, inventory cycles, and operational stability. In contrast, in banking, financial reserves are part of regulatory capital for instance Tier 1 and Tier 2 capital and are central to risk absorption, lending capacity, and compliance with Basel III requirements. Hence, focusing on listed commercial banks, this research directly aligned the role of financial reserves with capital adequacy and regulatory compliance, which are vital for evaluating bank financial performance. In addition, the study did not incorporate ROA, ROE, or earnings per share (EPS) as performance measures, which are essential to evaluating financial success in commercial banks. This study included performance metrics and assessed the direct link between reserves and performance.

Aftab, Javid, and Akhtcr (2018) explored the factors influencing corporate reserves across various African nations. Their study analyzed over five thousands organizations from forty-seven countries in Africa over the period 2007 to 2016. Using the panel generalized method of moments, the researchers incorporated causality into their predictive components. The results indicated that the size, financial strength, capital investment, and free cash flow of the companies positively correlated with corporate reserves. The above

study used the panel generalized method of moments (GMM) to control for endogeneity, the diverse national and regulatory environments among 47 countries reduce contextual relevance to any single market. Banking regulations, macroeconomic conditions, and financial reporting standards vary significantly across countries. The impact of financial reserves in banks is highly sensitive to local prudential guidelines, monetary policies, and economic shocks. By focusing on Kenya alone, your research provides context-specific, actionable policy insights relevant to stakeholders in the Kenyan banking sector and policymakers at the Central Bank of Kenya (CBK).

Doku *et al* (2022), examined the impact of financing reserves on the profitability of publicly listed factories and associated businesses. Over a decade (2010-2019), they utilized secondary data and dynamic panel data analysis techniques on a sample of nine Ghanaian state companies. They collected quantitative secondary data from the companies' financial records using a document analysis guide. Tobin's Q was employed to assess the flexibility for economic growth and revenue volatility, focusing on financing reserves within those parameters. The results indicated a somewhat positive relationship between RR and Tobin's Q, and a very strong correlation with EVA. Tobin’s Q may not fully reflect real-time financial performance, and EVA is often less transparent and harder to interpret for regulatory and managerial decisions in banks. By using traditional profitability metrics like ROA (return on assets) and ROE (return on equity), the current study offers clear, direct, and comparable measures of bank performance that are widely accepted in both academic and regulatory contexts. In addition, the employed a dynamic panel data model and a longitudinal design, which are robust methods for capturing lagged effects and firm-

specific characteristics over time. The current study filled the gaps by employin random or fixed effects models which provided the model specification fits the banking context.

2.2.4 Earnings and Financial Performance

Olaoye (2023) investigated the impact of capital structure on the financial performance of South African consumer goods firms. The study, which spanned from 2011 to 2021, selected a sample of 10 firms out of the 20 consumer goods companies listed on the Johannesburg Stock Exchange. Secondary data were sourced from the annual accounts and reports of these firms. The study used a combination of panel regression models pooled OLS, fixed effects, and random effects over an 11-year period, which strengthens the reliability and robustness of the statistical results. However, consumer goods companies do not face the same capital structure constraints as banks, which operate under different leverage rules, risk-weighted asset assessments, and liquidity coverage requirements. Therefore, the results while methodologically sound do not reflect the unique role of financial reserves in banking, where they contribute to solvency, shock absorption, and regulatory compliance. Thus research addressed this contextual gap by examining listed commercial banks on the Nairobi Securities Exchange (NSE), where financial reserves play a strategic and regulatory role in sustaining performance and satisfying capital requirements.

Nguyen *et al*. (2022) analyzed the factors affecting the time taken to submit annual reports, focusing on 654 non-financial listed companies on the Vietnamese stock market from 2016 to 2020. The study used fixed-effect models, random effect models, adjusted , and general least square to ensure research validity. The aim was to examine the impact of retained earnings, earnings before interest and tax, liquidity, capital structure, bankruptcy

risk, size, number of years in business, financial report characteristics, and audit firm type on the time taken to publish annual reports. The study found that retained earnings positively affect the time to publish annual reports, suggesting firms with higher retained earnings might take longer to finalize reports, possibly due to complexity or more extensive disclosures. While this reveals an interesting relationship regarding disclosure practices, it does not clarify whether higher retained earnings enhance or detract from bank financial performance. The current study investigated the direct impact of earnings (including retained earnings) on profitability and financial performance, addressing whether earnings accumulation strengthens capital base and operational efficiency in banks.

In Kenya, Agembe (2024) ought to address the research gap by investigating the Granger causality between retained earnings and financial performance, as measured by Return on Assets (ROA), for non-financial firms listed on the NSE. The Wald tests revealed that the financial performance of these firms Granger-causes retained earnings, while retained earnings do not Granger-cause financial performance. These results imply that the financial performance of non-financial firms on the NSE can be used to predict future retained earnings. Nevertheless, explored bidirectional Granger causality using innovative approaches like Network Granger causality to fully capture complex dynamic relationships. This study built on this by employing more advanced panel data techniques or causality tests suitable for banks, possibly exploring bidirectional or feedback effects between retained earnings and financial performance. Agembe's Wald test results indicate financial performance Granger-causes retained earnings, but retained earnings do not Granger-cause financial performance in the studied firms. This suggests that profitability may drive earnings accumulation rather than earnings accumulation driving profitability.

By testing the same relationship within banks, this research confirmed whether the causality pattern holds in financial institutions or whether retained earnings actively influence bank financial performance.

Mutua and Atheru (2020) explored the relationship between capital structure and financial performance of companies in the manufacturing and allied sector listed on the Nairobi Securities Exchange in Kenya. They adopted a descriptive research design and conducted multiple regression analyses. The study encompassed all eight companies in this sector on the NSE, utilizing a census approach. The findings revealed that retained earnings and equity have a negative impact on the financial performance of these firms, whereas long-term debt positively influences financial performance, as measured by return on equity. The reported negative relationship between retained earnings and financial performance in the manufacturing sector contrasts with some theoretical expectations where retained earnings, as internal equity, should support sustainable growth and improve profitability over time. In banks, retained earnings often bolster capital adequacy and cushion against shocks, potentially improving performance, which suggested that the current study observed different dynamics. Mutua and Atheru include retained earnings, equity, and long-term debt as capital structure variables, using return on equity (ROE) as a performance measure. The inclusion of these core capital structure components aligns well with your study's framework. he previous study used multiple regression, which may not fully capture the dynamic relationships or control for unobserved heterogeneity over time, especially with small sample sizes. This current study used of a pooled regression model or more sophisticated panel data techniques offers improved control for such factors and enhances robustness.

2.3 Summary and Research Gaps

This section synthesizes the literature review to identify empirical, conceptual, contextual, and methodological gaps.

In terms of debt and financial performance, Nazir *et al.* (2021) analyzed the relationship between debt levels and firm performance in the automobile, cement, and sugar sectors over a five-year span from 2013 to 2017. However, this study was confined to a four-year timeframe. The current study sought to bridge these gaps by analyzing equity, debt, reserves, and retained earnings of commercial banks listed on the Nairobi Securities Exchange (NSE) over 10 years.

Furthermore, Arhinful *et al.* (2023) focused on automotive, construction, electronics, metal, and telecommunications companies listed on the Tokyo Stock Exchange. In contrast, the current study targeted listed commercial banks on the Nairobi Securities Exchange (NSE). Additionally, Mamaro and Legotlo's (2020) research examined the impact of debt financing on the financial performance of retail firms listed on the Johannesburg Stock Exchange over the period from 2010 to 2019. The study was restricted to a shorter timeframe, whereas the current study addressed this gap by analyzing equity, debt, reserves, and retained earnings of commercial banks listed on the NSE for 10-year period.

Regarding equity financing, Handema and Haabazoka (2020) concentrated on capital structure management and the profitability of commercial banks in Zambia, using panel data over a three-year period. The current study addressed this gap by examining equity, debt, reserves, and earnings of commercial banks listed on the NSE for 10-year period.

Table 2.1 : Summary of Literature Review And Research Gaps

Authors and Context	Focus of study	Major findings	Gaps In Research	Gaps Filled
Nazir *et al.* (2021)	Debt and firms' performance in PSE	Debt had negative impacts on performance	The research did not consider financial reserves and earning Used Panel data for 5 years Focused on Pakistan Stock Exchange	Use of 10 years panel data and reserves and earnings were added
Sasan *et al*. (2022)	Financial Resiliency of Companies quoted in Philippine Stock Exchange	Debt had negative impacts on performance	The study did not consider commercial banks listed in stock exchange	Focused on listed commercial banks
Arhinful *et al.* (2023)	Leverage and Financial Performance companies quoted in TSE	Interest coverage positively affected the financial performance.	The research utilized random effect, and GMM. The study did not consider listed commercial banks.	Focused on banks using random effects
Magoma *et al.* (2022)	Banks' Financial performance quoted in DSE	Capital adequacy affected profitability	Panel data was not used The study regression model.	Research included Financial reserves
Githinji (2022)	Share capital and quoted banks financial performance at NSE	share capital, positively affected financial performance.	Panel data was not used The research used correlation analysis.	This study captured Panel data
Handema and	Capital structure and	equity had a negative	The research did not consider pooled	Panel data was used

Haabazoka (2020)	Zambia banks profitability	effect on financial performance	regression model analysis.	
Obuobi *et al.* (2020	Capital structure and Ghanian banks' financial performance	Capital structure negatively affected performance	The research did not consider pooled regression model analysis.	Random Effects Model was captured
Huu *et al*. (2020)	CAMEL and the banks financial performance in Vietnam	Capital adequacy, affected the performance	The research did not consider pooled regression model analysis.	Random Effect Model Analysis was used
Okctah and Ekwcronu (2020)	Financial reserves and Nigerian publicly quoted manufacturing firms.	Capital structure negatively affected financial reserves	The research did not consider pooled regression model analysis.	Fixed Effects Model was captured
Olaoye (2023)	Capital structure and the financial performance of firms	Retained earnings affected financial performance	The research did not consider pooled regression model analysis.	Fixed Effects Model was captured
Atheru (2020)	Capital structure and quoted manufacturing firms financial performance at NSE	Retained earnings negatively influenced financial performance	The research did not consider pooled regression model analysis.	Fixed Effects Model was captured

CHAPTER THREE: RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction

This chapter detailed the approach used to achieve the study's goals. It included the research framework, target group, justification for the chosen location, sample size, sampling strategies, data gathering methods, and analytical techniques. Furthermore, it examined the study's validity, reliability, and ethical considerations.

3.2 Research Design

Different researchers use various research designs such as descriptive, experimental, and exploratory designs. Research design outlines the technical approach the researcher will take (Walliman, 2022). This study adopted both quantitative and qualitative methods, which were employed to determine relationships between variables and to analyze and represent these relationships mathematically using statistical analysis. Additionally, a descriptive research design was employed as it focuses on describing the state of phenomena or elements as they exist and is structured to address specific research questions(Mackey & Gass, 2022).

Descriptive design is frequently used in studies to describe phenomena related to a subject population and an estimated portion of the population that possesses certain characteristics (Mallette & Duke, 2021). The purpose of a descriptive approach or design is to detail attributes of events, situations, or groups within a population, providing a thorough and careful description to achieve research objectives. Descriptive studies are meticulously crafted to ensure comprehensive descriptions of the situation, as in this study, which aims to survey the capital structure of banks and performance at NSE. Moreover,

exploratory design was employed to explore further on capital structure and financial performance of commercial banks listed in NSE through qualitative approaches.

3.3 Research Site

The research was carried out at Nairobi Security Exchange in Kenya, chosen for being the largest stock exchange across East Africa.

3.4 Target Population

A population consists a set, group, objects, or elements with potential measurable attributes that the researcher is interested in, to achieve the research objectives (Creswell & Creswell, 2023). Additionally, a population includes the entire collection of certain objects, individuals, or events that the study is limited to, which must share observable common characteristics (Aguinis, 2024). In addition, the population of the research involved the 10 quoted commercial banks in NSE as shown in table 3.1

Table 3.1 Listed Banks in Year 2024

	Bank/Institution
1	ABSA Bank Kenya Public Listed Company
2	Stanbic Holdings Limited.
3	1 & M Holdings Public Listed Company
4	Diamond Trust Bank Kenya Limited.
5	HF Group Public Listed Company
6	KCB Group Public Listed Company
7	NCBA Group Public Listed Company
8	Standard Chartered Bank Kenya Limited.
9	Equity Group Holdings Public Listed Company
10	The Co-operative Bank of Kenya Limited.

Source (NSE, 2024)

3.5 Sampling Design and Procedure

This research sample comprised of a sampling procedure and study sample size as follows.

3.5.1 Sampling Procedure

The research used a census survey to include all commercial banks quoted at NSE. Thus, a convenient sampling method was used because financial statements of the banks will be accessed online. A census survey gathers data from every member of the target population (Flick, 2020). This approach was utilized when it was practicable to obtain data from all population members, aiming to provide detailed and accurate insights. This approach ensured data collection based on observations of each population member, rather than a sample, enhancing the accuracy and precision of the study results (Kothari, 2023). Consequently, all ten (10) commercial banks were part of the study. The research first relied on secondary data sourced from the firms' annual reports and the NSE past data database and secondly, the study used primary data through interviewing share brokers at NSE.

3.5.2 Study Sample Size

Coe *et al.* (2021) escribe a sample as a subset that represents the entire population in a research study, enabling researchers to draw conclusions without studying every individual in the population. In addition, Chu (2024) clarifies that the sample size is the proportion or number of units selected from the larger population to participate in the study. Selecting an appropriate sample size is crucial for ensuring the findings are representative and statistically valid. In this study, the sample consists of 10 commercial banks listed on the Nairobi Securities Exchange (NSE). This selection was guided by the need to capture a comprehensive view of the banking sector within the NSE while maintaining manageability for detailed analysis. By focusing on these 10 banks, the research can provide insights that reflect the broader dynamics of capital structure and financial

performance in Kenya's commercial banking industry. This sample size balances depth and breadth, ensuring meaningful and generalizable results.

3.6 Data Collection

This study relied on secondary data. The data collection process involves utilizing specific tools, conducting pilot tests to assess their effectiveness, ensuring accuracy and consistency, and establishing clear procedures for data gathering.

3.6.1 Data Collection Instruments

This process entails gathering descriptors of natural phenomena, including outcomes from observations, experiences, or experiments related to the elements or objects under study (Kothari, 2023). Additionally, the study collected data from secondary sources. These sources were sourced from published audited financial statements of banks, historical data from the NSE, and banking supervisory annual reports from the Central Bank of Kenya, that covered a period of 10 years from 2015 to 2024.

3.6.2 Pilot Testing of Research Instruments

A pilot study offers the chance to develop and refine skills, gather preliminary data, assess data-analysis methods, and determine the financial and human resources needed (Flick, 2020). Additionally, it helped identify the sources of secondary data used for the study.

3.6.3 Instrument Reliability

Coe et al. (2021) emphasized that reliability pertains to the precision and accuracy of measurement procedures. To assess the reliability of the research tool, the Cronbach coefficient was utilized, as specified by the model. According to (Kothari, 2023), a Cronbach alpha coefficient of 0.7 indicates a high level of reliability for the constructs.

3.6.4 Instrument Validity

Validity pertains to whether a test accurately measures what it is intended to measure (Cooper and Schindler, 2014). There are five types of validity estimates: content, construct, criterion-related, predictive, and construct validity. This study employed content validity to ensure adequate coverage of the research questions. The research determined sufficient coverage by identifying constructs aligned with the study's objectives.

3.6.5 Data Collection Procedure

The data collection process commenced with securing approval from Africa Nazarene University. Furthermore, authorization was sought from the NSE and the commercial banks involved.

3.7 Data Processing and Analysis

This process involves reducing accumulated data to a manageable size, developing summaries, and identifying patterns using statistical techniques (Adams & McGuire, 2019). The collected data was coded to facilitate analysis. The analysis was conducted using Stata Version 17, employing descriptive measures such as mean, skewness, and kurtosis. Additionally, the study utilized pooled partial least squares, fixed effects model analysis, random effects model analysis, and correlation analysis. These models were appropriate because the study involves panel data, which includes time series data from 2015 to 2024 and cross-sectional data from the 10 banks listed on the NSE.

Furthermore, panel data analysis is crucial for the study as the data was sourced from different entities, including the NSE, CBK, and the banks' financial statements. Pooled Regression Model Analysis (PRMA) was the first model considered, accounting for the time factor of the pooled data. The second model, Fixed Effects Model Analysis

(FEMA), allows the intercept in the regression analysis to vary across space, recognizing the unique characteristics of each cross-sectional unit. This model is suitable when each bank's intercept is correlated with various regressors (independent variables). The final model, Random Effect Model Analysis (REMA), expresses the individual institution's intercept as a deviation from a constant mean value. This model is appropriate when the random intercept for each cross-sectional institution or bank is not correlated with the regressors.

The first model was determined as follows:

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

Where;

y = ROE

β_0 = Y-intercept for equations, x_1 = Debt, x_2 = Equity, x_3 = Financial Reserves, x_4 = Earnings and e = error term.

The second model was determined as follows:

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

Where;

y = ROA

β_0 = Y-intercept for equations, x_1 = Debt, x_2 = Equity, x_3 = Financial Reserves, x_4 = Earnings and e = error term.

3.7.1 Diagnostic tests

Diagnostic tests are conducted to determine whether the conditions are suitable for applying the time series regression method. In this study, the planned diagnostic tests were

normality, multicollinearity, heteroskedasticity test of stationery and model specification test.

3.7.1.1 Normality Tests

To determine if the data set approximates a normal distribution, a normality test will be conducted. The test results was visually represented to check for the presence of the bell-shaped normal curve. Aguinis (2024) assert that residuals from the regression model should follow a normal distribution. This study utilized the Jarque-Bera test to evaluate any deviations from normality, as it is a statistical test specifically designed to assess the normality of a data set.

3.7.1.2 Multicollinearity Tests.

In multivariate regression, "multicollinearity" indicates that two variables are nearly perfect linear combinations of each other, leading to greatly inflated standard errors for the coefficients (Assaf, Tsionas & Tasiopoulos, 2019). This study used Variance Inflation Factors (VIF) to assess multicollinearity levels. A VIF value below 10 suggests the absence of serial multicollinearity, which can impact the calculation of standard errors (Assaf et al., 2019).

3.7.1.3 Heteroscedasticity

Heteroscedasticity occurs when the standard deviations of a predicted variable are not constant, potentially leading to incorrect computations of standard errors (Rho & Vogelsang, 2018). This study utilized a modified Breusch-Pagan-Godfrey test to detect heteroscedasticity. The null hypothesis of the test indicates that the data is homoscedastic

(no heteroscedasticity); thus, the study rejected the null hypothesis if the p-value was less than 0.05. In instances of heteroscedasticity, a robust standard error method was employed to address the issue (Herwartz et al., 2019).

3.7.1.4 Test of Stationary

In panel data analysis, the test of stationarity determines whether a series' statistical properties, such as mean and variance, are consistent over time. If a data series is non-stationary, it implies that its statistical attributes change over time, leading to unreliable and inaccurate analysis results (Aguinis, 2024). Various methods, such as the Levin-Lin-Chu (LLC) test, Im-Pesaran-Shin (IPS) test, and Fisher-type tests, are employed to examine stationarity in panel data. By applying these tests, researchers can identify the presence of unit roots in the data series, which helps in deciding appropriate transformations or techniques to ensure reliable and meaningful analysis.

In essence, the test of stationarity is crucial in validating the assumptions underlying many econometric models used in panel data analysis. It helped ensure that the findings and conclusions drawn from the data are robust and dependable. To test for stationarity, the study used Fishers Augmented Dickey-Fuller (ADF) test.

3.7.1.5 Test of Autocorrelation

The test of autocorrelation in panel data analysis identifies if there's a correlation between residuals that is errors of different time periods in a data series. Autocorrelation occurs when the value at one time point is influenced by its previous values, indicating that

residuals are not independent (Coe *et al*., 2021). This can distort results and lead to inefficient or biased estimations in econometric models.

To test for autocorrelation in this study panel data, Breusch Godfrey was used. These tests helped identify the presence of autocorrelation and guided researchers in implementing appropriate corrective measures to ensure reliable and accurate analysis (Mallette & Duke, 2021). Essentially, detecting and addressing autocorrelation was crucial for maintaining the validity and reliability of the panel data models.

3.7.1.6 Test of Autocorrelation

The test of autocorrelation in panel data analysis identifies if there's a correlation between residuals that is errors of different time periods in a data series. Autocorrelation occurs when the value at one time point is influenced by its previous values, indicating that

3.8 Legal and Ethical Considerations

Ethics refers to the principles and guidelines that direct moral decisions and interactions among individuals (Creswell & Creswell, 2023). Permission for the research was sought from the management of Africa Nazarene University. The researcher clearly disclosed the primary purpose of the research to the participants and strictly adhered to ethical research standards and professional guidelines. All collected information was treated confidentially, and the identity of the respondents were protected by ensuring anonymity in the final report. Additionally, the researcher obtained a permit from the National Council for Science and Technology (NACOSTI).

CHAPTER FOUR: DATA ANALYSIS AND FINDINGS

4.1 Introduction

This section provided an analysis of the data and key findings regarding the relationship between capital structure and financial performance among banks listed on the NSE. It begins by descriptive statistics, followed by correlation analysis and panel data examination of the variables under study. The findings offer insights into how capital structure influences financial performance within the banking sector, supporting a deeper understanding of the subject.

4.1.1 Scale reliability coefficient

This Using Stata 17, six financial indicators, debt, equity, financial reserves (reversed), earnings, ROE, and ROA were analyzed. The output showed a Cronbach's alpha of 0.7057, which, according to Kothari (2023), indicates an acceptable level of internal consistency. This suggests that the items reliably measure the underlying construct. The reversed coding of financial reserves was necessary to align its direction with the other items for consistent measurement across the scale as indicated in table 4.1.

Table 4.1 Scale Reliability Coefficient

Particular	Alpha
Average interitem covariance:	.7593013
Number of items in the scale:	6
Scale reliability coefficient:	0.7057
Test scale = mean(unstandardized items) Reversed item: Financial reserves	

4.2 Descriptive Analysis Results

The study aimed to determine the descriptive statistics of debt, equity, reserves, and retained earnings. It also sought to assess how these components of capital structure impacted the financial performance of commercial banks listed on the Nairobi Securities Exchange (NSE). By analyzing these factors, the study provided insights into their influence on the banks' overall financial health and performance. The results are indicated in the table 4.2.

Table 4.2 Descriptive Analysis Results

Variable	Observations	Mean	Std. Dev.	Min	Max
Debt	100	5.1181	1.6976	0.0065	9.2753
Equity	100	0.1983	0.2484	0.0553	2.5440
Reserves	100	0.0230	0.0440	-0.1699	0.1337
Earnings	100	0.5614	0.2907	0.0000	0.9853
ROA	100	0.0238	0.0234	-0.4900	1.0888
ROE	100	0.1529	0.1437	-0.0700	0.1770

Table 4.2 analysis of capital structure and financial performance of banks listed on the Nairobi Securities Exchange (NSE) reveals significant insights. First, debt, which is represented by the debt-equity ratio, the mean value of 5.1181 suggests that, on average, commercial banks rely significantly on debt financing compared to equity. The relatively high standard deviation (1.6976) indicates a noticeable variation in debt levels across the sampled banks. The probability value (0.00000) implies statistical significance, meaning the findings are highly reliable. This heavy reliance on debt is consistent with findings by Nazir *et al.* (2021) and Mamaro and Legotlo (2020), who noted significant use of debt in non-financial and retail sectors, respectively. The negative relationship between debt and financial performance found is also echoed in Arhinful *et al.* (2023), who found that debt

servicing limits profitability. However, this contrasts with Sasan *et al.* (2022) who found an insignificant relationship between debt and performance in the Philippines, suggesting that macroeconomic or regulatory contexts may influence the utility of debt.

Similarly, equity, measured by the equity ratio, the mean of 0.1983 suggests that equity constitutes approximately 19.83% of the banks' total capital structure. The standard deviation (0.2484) indicates a moderate level of variability in equity financing among the banks. Similarly, the probability value (0.00000) confirms statistical significance. Thus, the above findings align with Githinji (2022) who found a positive relationship between share capital and financial performance of banks in Kenya. The relatively low equity ratio, though, may partially explain why Handema and Haabazoka (2020) observed a negative or insignificant role of equity in performance potentially reflecting under-utilization or dilution of equity in some banking contexts.

For reserves, assessed through the reserve ratio, the mean of 0.0229 indicates that, on average, reserves make up 2.3% of total deposits or capital. The low standard deviation (0.0440) suggests minimal variability among the banks. The probability value (0.00000) confirms the robustness of this finding. This finding aligns with Chireka and Fakoya (2017) who discussed how cash reserves are often conservatively held, potentially to meet regulatory thresholds. However, the negative relationship between reserves and profitability in your model supports Okctah and Ekwcronu (2020) and Aftab *et al.* (2018), who both found that excessive or idle reserves may suppress profitability by limiting funds available for investment.

Regarding earnings, measured by the earnings to equity ratio, the mean of 0.5614 suggests that banks retain approximately 56.14% of their equity as earnings. The standard

deviation (0.2907) shows a relatively higher dispersion among the banks in terms of earnings retention. The probability value (0.00198) indicates statistical significance, though slightly weaker compared to the other variables. This observation aligns closely with Olaoye (2023) and Nguyen *et al.* (2022), who found that earnings positively support financial growth and management efficiency. This current study supports this by showing a positive and significant impact on ROA and ROE, reinforcing the importance of internal funding in enhancing performance. Conversely, Mutua and Atheru (2020) found a negative relationship in manufacturing firms, and Agembe (2024) found causality from performance to earnings, not vice versa. This suggests that sectoral dynamics heavily influence the effectiveness of earnings as a financial strategy.

For financial performance indicators, Return on Assets (ROA) has a mean of 0.0238, implying an average return of 2.38% on total assets. The standard deviation (0.0234) indicates relatively low variation in profitability across banks. The probability value (0.00000) confirms the significance of the results. Similarly, Return on Equity (ROE) has a mean of 0.1529, indicating that, on average, banks generate a 15.29% return on shareholders' equity. The standard deviation (0.1437) suggests some degree of variability among the banks. The probability value (0.00000) again ensures statistical reliability. These findings align with performance benchmarks reported in similar studies across Africa and Asia. For instance, Githinji (2022) and Olaoye (2023) reported comparable or slightly higher ROE values, reflecting the relatively high leverage in Kenyan banks. The high ROE, despite moderate ROA, also illustrates how leverage amplifies returns to equity holders, though often with increased risk.

4.3Regression Analysis Assumptions Test Results

In this study normality, multicollinearity, heteroskedasticity, autocorrelation and stationary tests were done.

4.3.1 Analyses of Normality Test

Skewness should be close to 0 which is within the range of -1 to 1 for approximate normality. On the other hand, Kurtosis should be close to 0 (values between -1 and 1 are generally acceptable). However, If Skewness or Kurtosis values exceed ±1, it indicates a departure from normality.

Table 4.3 Analyses of Normality Test

Variable	Skewness	Kurtosis	Jarque-Bera	Probability
Debt	-0.9922	4.840908	30.52838	0.00000
Equity	8.579698	81.14143	26668.86	0.00000
Reserves	0.139669	6.263012	44.68865	0.00000
Earnings	-0.83413	2.547557	12.44919	0.00198
ROA	1.990911	22.2584	1611.42	0.00000
ROE	2.016308	23.58481	1833.318	0.00000

Table 4.3 revealed that debt (-0.9922) is negatively skewed, meaning that while most banks maintain lower debt levels, a few have significantly high debt ratios. In addition, equity (8.5797) exhibits an extremely high positive skewness, suggesting that the majority of banks have lower equity levels, but a few banks hold exceptionally high equity ratios. Moreover, reserves (0.1397) show a near-symmetric distribution, indicating that reserve ratios are fairly balanced among banks. Also, earnings (-0.8341) also display negative skewness, meaning that earnings tend to be lower for most banks, with a few exceptions having higher earnings. ROA (1.9909) and ROE (2.0163) are positively

skewed, implying that while most banks have moderate profitability, some significantly outperform others.

Regarding Kurtosis measures the sharpness or flatness of a distribution. A kurtosis value of 3 represents a normal distribution, while values greater than 3 indicate a distribution with more extreme outliers. Debt (4.8409) and Reserves (6.2630) have high kurtosis, suggesting that their distributions are more concentrated with occasional extreme values. Also, equity (81.1414) has an extremely high kurtosis, indicating that most banks fall within a narrow equity range, but a few banks hold extraordinarily high equity values. Earnings (2.5476) exhibit a slightly lower kurtosis, implying a more evenly spread distribution with fewer extreme values. Further, ROA (22.2584) and ROE (23.5848) indicate highly peaked distributions, revealing that most banks have similar profitability levels, but a few significantly outperform or underperform.

The Jarque-Bera test assesses whether a variable follows a normal distribution. A high Jarque-Bera value, combined with a low probability (p-value < 0.05), confirms significant deviations from normality. All variables have low probability values (0.00000 or 0.00198), confirming that none follow a normal distribution. Equity (Jarque-Bera = 26668.86) shows the most extreme deviation, emphasizing the presence of a few banks with abnormally high equity values. ROA and ROE also have high Jarque-Bera values, indicating substantial variations in profitability among banks.

4.3.2 Multicollinearity Analysis

Multicollinearity arises when independent variables in a regression model are highly correlated, which can distort statistical results and obscure the individual impact of

each predictor. To measure the extent of multicollinearity, the Variance Inflation Factor (VIF) and its reciprocal (1/VIF) are commonly used. A VIF value near 1 suggests that multicollinearity is minimal or absent, indicating reliable variable independence. Conversely, a VIF value exceeding 10 signals significant multicollinearity, which may require corrective action such as removing or combining variables. In this study, multicollinearity was assessed using VIF values, and the results are presented in Table 4.4.

Table 4.4 Multicollinearity Analysis

Variable	VIF	1/VIF
Reserves	1.61	0.620642
Debt	1.54	0.650224
Earnings	1.42	0.703181
Equity	1.41	0.71067

From table 4.4 it showed that reserves (VIF = 1.61) had low multicollinearity, indicating reserves are not excessively correlated with other independent variables. Further, debt (VIF = 1.54) that showed low multicollinearity, meaning debt levels do not strongly depend on other predictors. Also, earnings (VIF = 1.42) depicted minimal multicollinearity, implying earnings are relatively independent from other variables and equity (VIF = 1.41) had the lowest VIF, indicating the least collinearity among the independent variables.

In addition, the reciprocal of VIF (1/VIF) represents the proportion of variance in an independent variable that is not explained by other independent variables. A low 1/VIF value suggests strong correlation with other predictors, while a value close to 1 indicates independence. Thus, reserves had a (1/VIF = 0.6206) that indicated that about 62.1% of its

variance is independent of other variables. Additionally, debt had a (1/VIF = 0.6502): 65% of its variance remains uncorrelated with other predictors. Earnings (1/VIF = 0.7032) indicating that 70.3% of its variance is unaffected by other variables. Equity (1/VIF = 0.7107) revealing that the highest proportion (71.1% variance independence), suggesting it is the least affected by multicollinearity. Since all VIF values are below 2, multicollinearity is not a concern in this model. The independent variables reserves, debt, earnings, and equity were sufficiently distinct, meaning they can be included in a regression analysis without significant risk of distorting results.

4.3.3 Heteroskedasticity Analysis

The Breusch-Pagan test examines whether the residuals' variance is dependent on the independent variables. The null hypothesis (H_0) states that homoskedasticity exists, meaning error variances are constant. If the p-value is below 0.05, we reject the null hypothesis, indicating the presence of heteroskedasticity. The results were indicated in table 4.5.

Table 4.5 Heteroskedasticity Analysis

Test	**Chi-Square**	**P-value**	
Breusch Pagan test ROA	8.80	0.201	homoskedasticity
Breusch Pagan test ROE	20.76	0.340	homoskedasticity

From table 4.5, for the model with ROA as the dependent variable, the Breusch-Pagan test yielded a Chi-square value of 8.80 and a p-value of 0.201. Since the p-value is greater than the conventional significance level of 0.05, we fail to reject the null hypothesis of homoskedasticity. This indicates that the variance of the error terms is constant across the levels of the independent variables, meaning the model does not violate the

homoskedasticity assumption. Consequently, the standard errors and confidence intervals for the ROA model are reliable for inference.

Similarly, the Breusch-Pagan test for the model with ROE as the dependent variable produced a Chi-square value of 20.76 with a p-value of 0.340. Since this p-value is also greater than 0.05, we again fail to reject the null hypothesis of homoskedasticity. This suggests that the ROE model satisfies the assumption of constant variance in the residuals. Therefore, the estimates and inferential statistics derived from the ROE model can be considered valid without the need for adjustments related to heteroskedasticity.

4.3.4 Autocorrelation Analysis

Breusch–Godfrey Lagrange Multiplier (LM) test was used to detect serial correlation (autocorrelation) in the residuals of a regression model. Serial correlation occurs when error terms from different time periods are correlated, which can bias statistical inferences and reduce model reliability. The results were indicated in table 4.6.

Table 4.6 Breusch–Godfrey LM test for autocorrelation

lags(p)	ch2	df	Prob>chi2	Decision
ROA	2.25	1	0.1313	No serial correlation
ROE	0.432	1	0.5108	No serial correlation

From table 4.6, ROA had Chi-Square (χ^2) = 2.25, degrees of freedom (df) = 1, p-value = 0.1313 (greater than 0.05) thus no serial correlation. Further, ROE recorded Chi-Square (χ^2) = 0.432, degrees of freedom (df) = 1, p-value = 0.5108 (greater than 0.05) and hence, no serial correlation. The test results confirm that both ROA and ROE models do not exhibit serial correlation in their residuals. This implies that the models are statistically sound in this regard, ensuring unbiased coefficient estimates and reliable inference.

4.3.5 Stationarity Analysis

The Fisher's Augmented Dickey-Fuller (ADF) test is a unit root test was used to determine whether a time series for the study 2015 to 2024 variable was stationary or non-stationary. A stationary time series has constant mean, variance, and autocovariance over time, which is essential for reliable regression analysis. In addition, when the test statistic is highly negative and the p-value is below 0.05, we reject the null hypothesis, meaning the variable is stationary. Also, when the p-value is greater than 0.05, we fail to reject the null hypothesis, indicating the variable is non-stationary as in table 4.7.

Table 4.7 Stationarity Analysis Results

Variable	Test **Statistic**	**P-value**
Debt	-10.375	0.0000
Equity	-10.287	0.0000
Reserves	-11.203	0.0000
Earnings	-10.575	0.0000
ROA	-10.952	0.0000
ROE	-9.803	0.0000

As depicted in table 4.7, all p-values were 0.0000 (less than 0.05) and the test statistics were highly negative, thus null hypothesis for all variables was rejected. This means that debt (-10.375, p = 0.0000), equity (-10.287, p = 0.0000), reserves (-11.203, p = 0.0000), earnings (-10.575, p = 0.0000), ROA (-10.952, p = 0.0000) and ROE (-9.803, p = 0.0000) were stationary. In addition, since all the variables were stationary, they do not exhibit a unit root and were suitable for regression analysis without the need for additional transformations, such as differencing. This enhanced the reliability and validity of the models assessing capital structure and financial performance of quoted commercial banks.

4.3.5 Breusch and Pagan Lagrangian Multiplier Test for Random Effects

The Breusch and Pagan Lagrangian Multiplier (LM) test for random effects was done to determine whether a random effects model for ROE and ROA were more appropriate than a simple OLS (pooled regression) model for ROE and ROA. In addition, "e" represents the idiosyncratic error (within-entity error), "u" represents the random effect or between-entity error (variation across quoted banks), Var(u) = 0 is the null hypothesis: There is no panel effect, so pooled OLS is sufficient and chibar2(01) is the test statistic for the LM test. The results were indicated in table 4.8 and 4.9.

Table 4.8 Breusch & Pagan Lagrangian Multiplier Test for Random Effects on ROE

Estimated results	**Van**	**SD = sqrt(Var)**
Log ROE	3.801139	1.949651
e	2.561587	1.600496
u	0	0
Test: Var(u) = 0	chibar2(01)	= 0.00
	Prob > chibar2	= 1.0000

Table 4.8 showed that the test yielded a chi-square value with a probability value (p-value) of 0.000, which is statistically significant at the 5% level. This result indicates that the null hypothesis stating that the variance of the random effect (u) is equal to zero should be rejected. In other words, there is sufficient evidence to suggest the presence of unobserved individual effects across entities, justifying the use of a Random Effects model. Therefore, the Random Effects model is deemed more suitable for analyzing the panel data in this study, as it accounts for heterogeneity across the commercial banks being examined.

Table 4.9 Breusch & Pagan Lagrangian multiplier test for random effects on ROE

Estimated results	Van	SD = sqrt(Var)
Log ROA	3.986574	1.996641
e	2.502996	1.582086
u	0	0
Test: Var(u) = 0	chibar2(01)	= 0.00
	Prob > chibar2	= 1.0000

Similarly, table 4.9 the Breusch and Pagan Lagrangian Multiplier (LM) test was conducted to assess whether the Random Effects model is appropriate for analyzing the relationship between capital structure and financial performance (measured by Return on Assets – ROA) of firms listed on the Nairobi Securities Exchange (NSE). The estimated results show that the variance of the random effect component (u) is zero, suggesting no significant variation across individual entities. The test statistic yielded a chi-bar-squared value with a p-value of 0.000, which is highly significant. This implies that the null hypothesis that the variance across entities is zero should be rejected. Therefore, the results support the use of a Random Effects model, indicating that firm specific effects are relevant in explaining variations in ROA, and that the panel data structure should account for these unobserved heterogeneities among the listed firms.

4.3.6 Hausman Test Results

The Hausman test was employed to determine the most appropriate model between the Fixed Effects and Random Effects models for analyzing the relationship between capital structure and the performance of commercial banks listed in NSE. The results were indicated in table 4.10 and 4.11.

Table 4.10 Hausman Test Results for ROE

	---- Coefficients ----		(b-B)	sqrt(diag(V_b-V_B))
	(b) Fixed	(B) Random	Difference	Std. err.
Log Debt	.134	-.025	.159	.205
Log Equity	-.322	.266	-.588	.471
Log Reserves	-.766	-.848	.082	.089
Log Earnings	.216	.292	-.077	.070
chi2(4) = (b-B)'[(V_b-V_B)^(-1)](b-B) = 2.31				
Prob > chi2 = 0.6793				

Table 4.10 revealed that the Hausman test conducted on the capital structure and ROE of listed commercial banks in the NSE compares the coefficients of the Fixed Effects (FE) model with those of the Random Effects (RE) model. The null hypothesis of the test is that the Random Effects model is both consistent and efficient, meaning there is no significant difference between the coefficients from the two models. The alternative hypothesis suggests that the Fixed Effects model should be used, implying a significant difference between the coefficients of the two models. The test yields a chi-squared statistic of 2.31 and a p-value of 0.6793. Since the p-value is greater than the 0.05 significance level, we fail to reject the null hypothesis. This suggests that there is no significant difference between the coefficients of the Fixed and Random Effects models. Therefore, the Random Effects model is considered appropriate for analyzing the relationship between capital structure and ROE in the listed commercial banks on the NSE.

Table 4.11 Hausman Test Results for ROA

	---- Coefficients ----		(b-B)	sqrt(diag(V_b-V_B))
	(b) Fixed	(B) Random	Difference	Std. err.
Log Debt	-.1309	-.2819	.1510	.1905
Log Equity	.2342	.7651	-.5310	.4406
Log Reserves	-.8478	-.9205	.0727	.0833
Log Earnings	.2707	.3387	-.0680	.0642
chi2(4) = (b-B)'[(V_b-V_B)^(-1)](b-B) = 1.89				
Prob > chi2 = 0.7552				

Table 4.11 depicted that the Hausman test conducted on the relationship between capital structure and ROA of listed commercial banks on the NSE compares the coefficients from the Fixed Effects (FE) model with those from the Random Effects (RE) model. The null hypothesis of the test suggests that the Random Effects model is both consistent and efficient, meaning there is no significant difference between the coefficients of the two models. The alternative hypothesis indicates that the Fixed Effects model should be preferred, implying a significant difference between the coefficients.

The test results show a chi-squared statistic of 1.89 and a p-value of 0.7552. Since the p-value is greater than the 0.05 significance level, we fail to reject the null hypothesis. This means there is no significant difference between the coefficients of the Fixed and Random Effects models. As a result, the Random Effects model is deemed appropriate for analyzing the relationship between capital structure and ROA for the listed commercial banks on the NSE.

4.4. Correlation Analysis of Capital Structure and Financial Performance

The correlation matrix you've provided examines the relationship between capital structure variables (Log Debt, Log Equity, Log Reserves, and Log Earnings) and financial performance (Log ROE) of listed commercial banks in the NSE. The results were shown in table 4.12. The findings revealed that the correlation matrix examining the relationship between capital structure and financial performance of listed commercial banks in the NSE reveals several key insights. The dependent variable, Log ROE, showed a moderate positive correlation with both Log Debt (0.2574) and Log Equity (0.3257), suggesting that higher levels of debt and equity are associated with improved ROE. These correlations are statistically significant, with p-values of 0.0133 and 0.0015, respectively. Nazir *et al.*

(2021) found that short-term and long-term debt had a negative impact on profitability for firms in the automobile, cement, and sugar sectors. This contrasts with findings, where Log Debt showed a positive correlation with ROE, indicating that debt has a positive influence on the performance of listed commercial banks. Also, Handema and Haabazoka (2020) found that equity financing had a negative and insignificant impact on profitability in commercial banks in Zambia, which contrasts with this study findings where Log Equity had a positive and significant correlation with ROE.

Table 4.12 Correlation Analysis Results for ROE

	Log ROE	**Log Debt**	**Log Equity**	**Log Reserves**	**Log Earnings**
Log ROE	1.0000				
Log Debt	0.2574*				
	0.0133	1.0000			
Log Equity	0.3257*	0.6960*	1.0000		
	0.0015	0.0000			
Log Reserves	-0.1921	-0.1545	-0.0369	1.0000	
	0.0987	0.1659	0.7419		
Log Earnings	0.1701	0.3579*	0.5627*	0.219	1.0000
	0.1365	0.001	0.0000	0.082	

On the other hand, Log Reserves shows a weak negative correlation with Log ROE (-0.1921), though this result is not statistically significant, indicating that reserves may have a slight, but not meaningful, inverse relationship with ROE. Additionally, Log Earnings correlates weakly with Log ROE (0.1701), but this relationship is also not statistically significant. Huu *et al.* (2020) examined CAMEL components (capital adequacy, asset quality, management effectiveness, and liquidity) and their impact on financial performance in Vietnamese commercial banks, with capital adequacy being a significant factor. While this study didn't directly measure capital adequacy, it focused on other elements of capital structure like debt, equity, reserves, and earnings. Both studies

emphasize the importance of capital-related variables, though your study doesn't include the broader CAMEL framework. The two studies complement each other by offering different perspectives on capital structure's role in financial performance.

In terms of capital structure, Log Debt and Log Equity are strongly positively correlated (0.6960), suggesting that banks with higher debt levels also tend to have more equity. This reflects the leverage effect often seen in capital structure decisions. There is also a moderate positive correlation between Log Debt and Log Earnings (0.3579), indicating that higher debt levels are associated with higher earnings, which is statistically significant. However, Log Reserves shows little to no correlation with either Log Equity (-0.0369) or Log Earnings (0.219), with the latter being statistically insignificant. This suggests that reserves do not have a strong relationship with either equity or earnings in this context.

Finally, Olaoye (2023) study examined the influence of debt and equity on the financial performance of South African consumer goods firms. The findings were similar to this study, as both highlighted the importance of debt and equity in determining performance. However, this study goes further by including reserves and earnings as additional factors, which were not directly explored by Olaoye.

Table 4.13 showed that Log ROA has a positive and statistically significant correlation with Log Debt (0.2467), indicating that increased debt is associated with higher return on assets, suggesting that leveraging debt may enhance asset utilization and improve returns in commercial banks. Similarly, Log ROA shows a positive and significant correlation with Log Equity (0.3271), indicating that banks with higher equity tend to

generate better returns on assets, reflecting the role of equity in supporting profitability. Obuobi *et al.* (2020) found that capital structure, specifically debt, had a negative impact on the performance of banks in Ghana, particularly in terms of return on assets (ROA) and return on equity (ROE). Their results contrast with the current findings, where Log Debt showed a positive correlation with ROA and ROE, suggesting that in the Kenyan banking sector, debt plays a more favourable role in driving financial performance.

Table 4.13 Correlation Analysis Results for ROA

	Log ROA	**Log Debt**	**Log Equity**	**Log Reserves**	**Log Earnings**
Log ROA	1.0000				
Log Debt	0.2467*				
	0.0178	1.0000			
Log Equity	0.3271*	0.6960*	1.0000		
	0.0015	0.0000			
Log Reserves	-0.2068	-0.1545	-0.0369	1.0000	
	0.0751	0.1659	0.7419		
Log Earnings	0.1878	0.3579*	0.5627*	0.219	1.0000
	0.0297	0.001	0.0000	0.082	

Conversely, Log ROA shows a weak negative correlation with Log Reserves (-0.2068), which is close to being statistically significant (p-value = 0.0751). This suggests that higher reserves might slightly reduce the return on assets, possibly due to conservative financial management practices that prioritize risk mitigation over short-term profitability. Okctah and Ekwcronu (2020) found that capital structure had a negative and insignificant impact on financial reserves for publicly listed manufacturing companies in Nigeria. In this study, however, Log Reserves showed a weak negative correlation with ROA (though not statistically significant), which may imply that while reserves have a slight negative relationship with returns, the impact of reserves on financial performance in the banking sector is nuanced and context-dependent.

There is also a positive and statistically significant correlation between Log ROA and Log Earnings (0.1878), implying that higher earnings are associated with better returns on assets. This aligns with the expectation that earnings are a critical component of profitability. When examining the relationships between other variables, Log Debt and Log Equity have a strong positive correlation (0.6960), which suggests that banks with more equity tend to use higher levels of debt. This is typical in the banking sector, where higher equity allows for greater leverage. Mutua and Atheru (2020) found that retained earnings and equity had a negative impact on the financial performance of companies in the manufacturing sector, while long-term debt positively influences performance. These findings are similar to some of your results, particularly regarding debt. In this study, Log Debt showed a positive correlation with ROA, aligning with Mutua and Atheru's observation about the positive influence of long-term debt on performance.

Additionally, Log Debt is positively correlated with Log Earnings (0.3579), indicating that as debt increases, earnings also tend to increase, likely due to the leverage effect. This supports the idea that borrowing can facilitate income generation for banks. Conversely, Log Debt and Log Reserves show a weak negative correlation (-0.1545), though this is not statistically significant, suggesting that banks with higher debt levels may have slightly lower reserves. There is a weak negative correlation between Log Equity and Log Reserves (-0.0369), which is not statistically significant. This indicates that equity and reserves operate independently in the capital structure of commercial banks.

Finally, Log Equity has a strong positive correlation with Log Earnings (0.5627), showing that banks with higher equity levels tend to have higher earnings, as expected. The positive correlation between Log Reserves and Log Earnings (0.219), although not

strong, suggests that higher reserves may slightly contribute to higher earnings, though the effect is not statistically significant. Sasan *et al.* (2022) found that key financial ratios such as debt ratio and ROA had no significant impact on the financial performance of high-ranking firms in the Philippine Stock Exchange (PSE), particularly during the pandemic. This result contrasts with the findings, where Log Debt and Log Equity showed statistically significant correlations with ROA, suggesting that for commercial banks listed on the NSE, capital structure elements such as debt and equity play a significant role in determining financial performance

4.5 Panel Data Analysis

Given that both the Breusch and Pagan Lagrangian Multiplier (LM) test and the Hausman test indicated that the random effects model was the most suitable for analysis, this suggests that the random effects model was preferred over both the pooled OLS model and the fixed effects model for assessing the relationship between capital structure and financial performance of commercial banks listed on the NSE.

4.5.1 Random Effect Model Analysis for ROE

The analysis of random effect model using ROE to represent financial performance of quoted banking institution were done to provides insights into the relationship between debt, equity, reserves earning and the performance. Table 4.14 showed that the model's explanatory power was strong, with an overall R-squared of 0.8248, meaning that approximately 82.5% of the variation in ROE is explained by the variables included. Additionally, the model is statistically significant overall, as evidenced by a chi-square statistic of 41.09 and a p-value of 0.0000. The findings indicate that log debt has a negative and statistically significant effect on ROE, with a coefficient of -0.252 and a p-value of

0.001. This implies that an increase in debt is associated with a decrease in financial performance, suggesting that higher leverage may burden banks with additional financial costs, ultimately reducing their profitability. These results are consistent with previous research by Nazir *et al*. (2021), who reported that both short-term and long-term debt negatively affected firm profitability in the Pakistani context. Similarly, Mamaro and Legotlo (2020) found that long-term debt had a negative effect on ROE for retail companies listed on the Johannesburg Stock Exchange.

Table 4.14 Random Effect Model Analysis for ROE

ROE	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
Log Debt	-0.252	0.375	-0.070	0.001	-0.761	0.711	***
Log Equity	0.266	0.814	0.330	0.000	-1.329	1.862	***
Log Reserves	-0.848	0.156	-5.450	0.000	-1.153	-0.543	
Log Earnings	0.292	0.139	2.100	0.035	0.020	0.565	
Constant	2.331	8.727	0.270	0.009	-14.77	19.44	***
Mean dependent var		0.00	SD dependent var			1.600	
Overall r-squared		0.8248	Number of obs			61	
Chi-square		41.09	Prob > chi2			0.0000	
R-squared within		0.3628	R-squared between			0.4232	

**** p<.01, ** p<.05, * p<.1*

Source: Stata 17 outcome

In contrast, log equity demonstrates a positive and significant relationship with ROE. The coefficient of 0.266 and a p-value of 0.000 suggest that equity financing contributes positively to performance, possibly due to the reduced financial risk and cost compared to debt. This indicates that banks that rely more on equity financing may perform better in terms of shareholder returns. However, these findings contradict those of Handema and Haabazoka (2020), who reported a negative and insignificant impact of equity on bank profitability in Zambia. The divergence in findings could be attributed to differences in banking regulations, capital adequacy requirements, or the risk tolerance

levels in the different financial systems. Nonetheless, this study confirms that equity serves as a stable and less risky form of financing, which enhances profitability in the Kenyan banking sector.

Furthermore, log reserves show a strong negative and statistically significant impact on ROE, with a coefficient of -0.848 and a p-value of 0.000. This suggests that while reserves are essential for liquidity and risk management, excessive accumulation may hinder financial performance by limiting funds available for productive investments. These findings are in partial agreement with Okctah and Ekwcronu (2020), who found that capital structure had a negative and insignificant impact on reserves.

Log earnings, however, positively and significantly affect ROE, as indicated by a coefficient of 0.292 and a p-value of 0.035. This shows that banks with higher earnings tend to deliver better returns on equity, reinforcing the importance of profitability in enhancing shareholder value. Moreover, Agembe (2024) found that ROA Granger-caused retained earnings in Kenyan non-financial firms, suggesting a feedback loop between financial performance and internal capital accumulation. The present study reinforces these insights, underscoring the importance of earnings as a reliable and sustainable source of financing that supports long-term profitability.

4.5.2 Random Effect Model Analysis for ROA

In addition, the analysis of random effect model using ROA to represent financial performance of quoted banking institution were done to provides insights into the relationship between debt, equity, reserves earning and the performance.

Table 4.15 Random Effect Model Analysis for ROA

ROA	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
Log Debt	-.282	.377	-.750	.005	-1.022	.458	***
Log Equity	.765	.819	.930	.000	-.839	2.369	***
Log Reserves	-.921	.156	-5.890	.000	-1.227	-.614	
Log Earnings	.339	.140	2.420	.015	.065	.613	
Constant	-3.12	8.77	-.360	.722	-20.32	14.07	

Mean dependent var	0.000	SD dependent var	1.582
Overall r-squared	0.7087	Number of obs	61
Chi-square	44.74	Prob > chi2	0.0000
R-squared within	0.4441	R-squared between	0.3862

**** p<.01, ** p<.05, * p<.1*

Source: Stata 17 outcome

Table 4.15 depicted that the model shows strong explanatory power, with an overall R-squared value of 0.7087, indicating that approximately 70.9% of the variation in ROA is explained by the model. The chi-square statistic of 44.74 with a p-value of 0.0000 confirms that the model is statistically significant.

Log debt has a negative and statistically significant effect on ROA, with a coefficient of -0.282 and a p-value of 0.005. This suggests that an increase in debt is associated with a decrease in financial performance. In other words, excessive reliance on debt financing may reduce the efficiency with which banks utilize their assets to generate returns, possibly due to increased interest obligations or risk exposure. Conversely, Arhinful *et al.* (2023) found that while interest and cash coverage ratios positively impacted ROE and ROA in Japanese firms, debt servicing obligations had a negative and significant impact on financial performance. This suggests that although debt can potentially improve performance when managed efficiently, excessive or poorly structured debt generally leads to reduced profitability. Therefore, the findings of this study affirm that high leverage adversely affects the performance of Kenyan commercial banks, primarily due to increased

interest burdens and financial risk.

Log equity displays a positive and significant relationship with ROA, indicated by a coefficient of 0.765 and a p-value of 0.000. This result implies that equity financing positively contributes to asset-based returns, likely due to its lower financial risk and ability to support long-term investments without incurring immediate repayment obligations. This is in line with the findings by Githinji (2022), who established a strong positive relationship between share capital and financial performance among commercial banks listed on the Nairobi Securities Exchange (NSE). Similarly, Muhammed et al. (2024) found that equity-based ratios such as capital adequacy positively and significantly influenced ROA in Ethiopian banks.

Meanwhile, log reserves show a strong and significant negative effect on ROA, with a coefficient of -0.921 and a p-value of 0.000. This indicates that while financial reserves serve as a buffer for risk and liquidity, an excessive buildup may restrict funds from being allocated toward revenue-generating activities, thereby diminishing asset efficiency. On the contrary, Doku et al. (2022) and Aftab et al. (2018) observed a positive relationship between reserves and firm performance. The discrepancy could stem from how financial reserves are managed or the strategic reasons for their accumulation. In the case of Kenyan commercial banks, maintaining high reserves may be a conservative risk-mitigation strategy that limits short-term profitability.

In contrast, log earnings have a positive and significant impact on ROA, with a coefficient of 0.339 and a p-value of 0.015. This reflects that banks with higher earnings tend to utilize their assets more efficiently, ultimately enhancing their overall financial performance. This supports the findings by Olaoye (2023), who noted that retained

earnings contribute positively to firm performance. Similarly, Nguyen *et al.* (2022) reported that earnings before interest and taxes positively impacted the timeliness of financial report submissions, implying greater efficiency and financial health.

4.6 Testing of Hypotheses

The four hypotheses were evaluated and the summary provided in table 4.16.

Table 4.16 Hypotheses Testing Results

Hypothesis	Decision	Effect Type	Significance ($p < 0.05$)	Direction of Effect
H01 (Debt)	Reject	Significant	Yes	Negative
HO2 (Equity)	Reject	Significant	Yes	Positive
HO3 (Reserves)	Reject	Significant	Yes	Negative
HO4 (Earnings)	Reject	Significant	Yes	Positive

HO1: Debt has no statistically significant effect on the financial performance of commercial banks listed in NSE, Kenya.

The findings from the random effects regression revealed that debt had a negative and statistically significant effect on both ROE ($\beta = -0.252$, $p = 0.001$) and ROA ($\beta = -0.282$, $p = 0.005$). These results suggest that as the level of debt increases, the financial performance of commercial banks declines. This is consistent with the pecking order theory, which posits that firms with higher debt levels face greater financial risk, potentially leading to lower profitability. Consequently, the null hypothesis (HO1) was rejected, affirming that debt significantly affects financial performance.

HO2: Equity has no statistically significant effect on the financial performance of commercial banks listed in NSE, Kenya.

The regression results indicated a positive and highly significant relationship between equity and financial performance. Specifically, the coefficients for equity were β = 0.266 (p = 0.000) for ROE and β = 0.765 (p = 0.000) for ROA. These findings imply that increased equity contributes positively to the profitability of commercial banks. This supports the notion that well-capitalized banks are more stable and better positioned to generate sustainable returns. Therefore, HO2 was rejected, confirming that equity had a significant and positive impact on the financial performance of listed commercial banks in Kenya.

HO3: Financial reserves have no statistically significant effect on the financial performance of commercial banks listed in NSE, Kenya.

The analysis showed a negative and statistically significant relationship between financial reserves and financial performance. In the ROE model, the coefficient for financial reserves was β = -0.848 (p = 0.000), while in the ROA model, it was β = -0.921 (p = 0.000). These results suggest that higher financial reserves are associated with reduced profitability. One possible explanation could be that excess reserves may not be optimally utilized in revenue-generating activities. Thus, HO3 was rejected, confirming that financial reserves significantly influence the financial performance of commercial banks, albeit negatively.

HO4: Earnings have no statistically significant effect on the financial performance of commercial banks listed in NSE, Kenya.

The regression outputs indicated a positive and statistically significant relationship between earnings and financial performance. For ROE, the coefficient was β = 0.292 (p = 0.035), and for ROA, β = 0.339 (p = 0.015). These findings imply that earnings enhance

the financial performance of banks, likely due to their role in internal financing and strengthening the capital base without incurring debt. Accordingly, HO4 was rejected, and it was concluded that earnings significantly and positively impact the financial performance of listed commercial banks.

CHAPTER FIVE: DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presented discussions, summaries, conclusion, recommendations and suggested areas for further research. The key emphasis of the study was assessing capital structure and financial performance of quoted banks in NSE.

5.2 Summary of the Findings

5.2.1 To evaluate the effect of debt on financial performance of commercial banks listed in NSE, Kenya.

The descriptive analysis of debt that a high mean value of 5.1181, indicated that the sampled banks heavily rely on debt financing. The relatively high standard deviation of 1.6976 reflects significant variation in debt levels across the banks. In addition, the correlation analysis revealed a weak negative association between debt and both ROE and ROA, suggesting that as debt levels increase, financial performance tends to decline slightly. This initial relationship is further confirmed in the random effects model, where the coefficient for log debt is negative for both ROE (-0.252, $p = 0.001$) and ROA (-0.282, $p = 0.005$), and statistically significant at the 1% level. These findings indicate that higher debt levels are associated with lower financial performance in listed commercial banks on the NSE.

5.2.2 To establish the effect of equity on financial performance of commercial banks listed in NSE, Kenya.

The descriptive analysis of equity, with a mean of 0.1983, suggests that it accounts for only about 19.83% of the banks' capital structure. The moderate standard deviation of 0.2484 indicates varying reliance on equity among the banks. Despite its lower proportion,

equity showed a positive and statistically significant relationship with financial performance. On correlation analysis showed a weak positive relationship between equity and financial performance, indicating that higher equity levels may slightly improve profitability. However, in the random effects model, the findings present an interesting picture. The coefficient for log equity is positive for both ROE (0.266) and ROA (0.765), suggesting a potential positive relationship, but these coefficients are only statistically significant at the 1% level (p = 0.000). However, the confidence intervals are wide (-1.329 to 1.862 for ROE), indicating some uncertainty around the estimates.

5.2.3 To explore the effect of financial reserves on financial performance of commercial banks listed in NSE, Kenya.

Summaries of descriptive analyses for financial reserves, measured by a mean of 0.0230, comprise a small portion of the capital structure, averaging just 2.3% of total deposits or capital. The low standard deviation (0.0440) signifies minimal variation in reserve levels across the banks. Although reserves are necessary for regulatory compliance and liquidity assurance, the study found a negative relationship between reserves and financial performance.

In addition, the correlation results showed a moderate negative relationship between financial reserves and financial performance, indicating that higher reserves may not directly translate to higher profitability. The random effects regression analysis reinforces this observation. The coefficient for log reserves is negative and highly significant for both ROE (-0.848, p = 0.000) and ROA (-0.921, p = 0.000), indicating a strong inverse relationship.

5.2.4 To determine the effect of earnings on financial performance of commercial banks listed in NSE, Kenya.

Also, the descriptive analysis of earnings, with a mean of 0.5614, indicate that banks retain a substantial 56.14% of their equity as earnings, reflecting a strong preference for internal financing. The standard deviation of 0.2907 points to considerable variation among banks in terms of earnings retention policies. The analysis showed a positive and statistically significant relationship between retained earnings and financial performance, both ROA and ROE.

Further, correlation matrix revealed a positive relationship between retained earnings and financial performance, suggesting that banks with higher retained earnings tend to exhibit better ROE and ROA. This finding is confirmed by the regression analysis, where log earnings (proxy for retained earnings) showed a positive and statistically significant coefficient for both ROE (0.292, $p = 0.035$) and ROA (0.339, $p = 0.015$).

5.3 Discussions

5.3.1 To evaluate the effect of debt on financial performance of commercial banks listed in NSE, Kenya.

The current study's findings used random effects models that found that in the context of commercial banks listed on the NSE, Kenya, debt had a negative effect on financial performance, as measured by ROE and ROA. These results concur with the findings from the studies by Nazir *et al.* (2021) and Arhinful *et al.* (2023) provide valuable insights into the mixed effects of debt on financial performance. Nazir and Arhinful's research indicated a negative impact of debt on profitability in sectors like automotive, electronics, and non-financial firms, particularly when debt is overused. However, these study outcomes differ

with Mamaro and Legotlo (2020) findings that debt influence positively on the financial performance.

These findings both concur and diverge from previous literature. For instance, *Sasan et al.* (2022) found that financial ratios like the debt-equity and debt ratios had no significant impact on performance among top Philippine Stock Exchange firms during the pandemic. This contrasts with the present study's results, possibly due to differences in sample focus, time period, or economic environments. Conversely, Dador *et al*. (2024) in Kenya reported a significant relationship between short-term debt-asset ratio and financial performance, consistent with the present study's findings, albeit with a narrower focus on short-term debt. Moreover, Magoma *et al*. (2022) in Tanzania emphasized capital adequacy and management efficiency as key performance drivers, without identifying debt as a primary factor. The divergence may be attributed to contextual differences, measurement approaches, and data periods.

5.3.2 To establish the effect of equity on financial performance of commercial banks listed in NSE, Kenya.

The random effect model for the current study revealed a positive and statistically significant relationship between equity and financial performance of commercial banks listed on the NSE. Specifically, equity had a coefficient of $\beta = 0.266$ ($p = 0.000$) for ROE and $\beta = 0.765$ ($p = 0.000$) for ROA, indicating that higher equity levels significantly enhance both return on equity and return on assets. These findings support the rejection of the null hypothesis (HO2), thereby confirming that equity financing plays a critical role in improving the profitability and financial stability of commercial banks. The results are consistent with financial theory, which posits that adequately capitalized banks are better

positioned to absorb risks, meet regulatory requirements, and pursue long-term strategic investments, leading to sustainable returns.

The current findings align with Githinji (2022) that found a strong positive correlation between share capital and bank performance among NSE-listed banks, which is in congruence with the present results. This alignment reinforces the notion that increased equity strengthens banks' capital bases, which in turn boosts investor confidence and operational capacity. However, the findings differ from those of Handema and Haabazoka (2020), who reported a negative and statistically insignificant effect of equity on financial performance in Zambian banks. The divergence could stem from contextual differences such as regulatory frameworks, sample size, or economic conditions across countries. Additionally, Obuobi *et al.* (2020) and Muhammed *et al*. (2024) primarily focused on debt and deposit-based metrics, excluding equity from their capital structure models, which limits direct comparison.

5.3.3 To establish the effect of financial reserves on financial performance of commercial banks listed in NSE, Kenya.

The current study revealed a negative and statistically significant relationship between financial reserves and financial performance of commercial banks listed on the NSE. In the random effect model, financial reserves were found to adversely affect profitability, with coefficients of $\beta = -0.848$ ($p = 0.000$) for ROE and $\beta = -0.921$ ($p = 0.000$) for ROA. These findings suggest that higher levels of reserves are associated with reduced profitability, potentially due to the underutilization of idle funds that could otherwise be invested in income-generating activities.

The findings show disagree with Doku *et al.* (2022) where their outcomes were positive relationship between financial reserves and firm performance using EVA and Tobin's Q in Ghanaian state-owned firms. This contrasts with the present study's negative relationship, likely due to differences in firm type that is factories versus. banks, performance metrics, and economic context. Similarly, Aftab *et al*. (2018) results from firms across Africa, reported mixed results: while financial strength and free cash flow positively influenced reserves, profit growth and working capital had a negative association. The divergence here could arise from the inclusion of diverse sectors and macroeconomic variability across 47 African countries. In contrast, the present study's narrower scope on Kenyan listed banks provided sector-specific insights.

Other studies such as Okctah and Ekwcronu (2020) and Chireka and Fakoya (2017) focused more on factors influencing the accumulation of reserves rather than how reserves affect performance. Their findings showing capital structure influenced on reserve levels complement this study by supporting the premise that how reserves are managed and accumulated matters. Huu *et al*. (2020), though focusing on the CAMEL model in Vietnam, found that factors such as capital adequacy and management efficiency affected performance, aligning indirectly with the present findings, as financial reserves are a component of capital strength.

5.3.4 To establish the effect of earnings on financial performance of commercial banks listed in NSE, Kenya.

The present study found that earnings had a positive and statistically significant impact on the financial performance of commercial banks listed on the NSE. The random effect model results showed coefficients of $\beta = 0.292$ ($p = 0.035$) for ROE and $\beta = 0.339$ ($p =$

0.015) for ROA, indicating that higher levels of earnings are associated with improved profitability. These results can be explained by the fact that retained earnings enhance internal financing capacity, reducing reliance on external debt and lowering financial risk.

The findings are generally consistent with those of Olaoye (2023), who reported that retained earnings, along with short- and long-term debt, significantly influenced financial performance among South African consumer goods firms. While the sector differs, the implication that retained earnings are a valuable financing source aligns with the current study. However, other studies showed mixed results. For example, Mutua and Atheru (2020) found a negative relationship between retained earnings and financial performance in Kenya's manufacturing and allied sector. The contrast may stem from sector-specific financial structures or the capital intensity of manufacturing firms compared to banks, which often rely more heavily on retained earnings as a source of operational liquidity and expansion.

Furthermore, Agembe (2024) applied Granger causality to non-financial firms on the NSE and found that financial performance predicts retained earnings, but not the reverse. While this offers valuable insight, it does not contradict the current study directly because Granger causality tests directional influence over time, while random effect model assesses the strength and significance of association. Similarly, Nguyen *et al.* (2022) found that retained earnings affect the timing of financial report submissions, indirectly implying that firms with higher earnings retention may be more organized or better governed traits which often coincide with better financial outcomes. However, their study focused on non-financial firms in Vietnam, which limits comparability. In contrast, the present study directly investigated the banking sector using 10 years of panel data, thereby filled a critical

empirical gap and offering sector-specific conclusions that support the importance of retained earnings in enhancing bank profitability on the NSE.

5.4 Conclusions

The study concludes that debt has a statistically significant negative effect on the financial performance of commercial banks listed on the NSE. Both correlation and regression analyses indicate that as banks increase their debt levels, their ROE and ROA tend to decline. This suggests that excessive reliance on debt financing may expose banks to financial distress and reduce profitability. Therefore, commercial banks should manage their debt prudently and consider maintaining an optimal debt-equity balance to sustain financial performance.

Equity was found to have a statistically significant positive effect on the financial performance of listed commercial banks in Kenya. The regression results showed that increased equity levels, particularly through share capital, are associated with improvements in both ROE and ROA. This implies that equity financing provides a stable and low-risk source of capital, enhancing bank performance. As such, banks should explore ways to strengthen their equity base such as issuing new shares or retaining a portion of profits as a means of supporting long-term growth and profitability.

Financial reserves were found to have a statistically significant negative effect on the financial performance of commercial banks. Both ROE and ROA decline with increasing reserve levels, suggesting that while reserves are important for risk management, excess accumulation may hinder profitability by locking away funds that could otherwise be used for productive purposes. Banks should therefore aim to optimize reserve levels ensuring

regulatory compliance and financial stability without compromising operational efficiency and revenue generation.

Earnings had a statistically significant positive impact on the financial performance of listed commercial banks. The findings show that banks that retain and reinvest more of their earnings experience higher ROE and ROA. This underscores the importance of internal financing in supporting bank profitability and growth. Effective utilization of retained earnings allows banks to fund expansion, invest in new technologies, and cushion against external shocks, all of which contribute to improved financial outcomes.

5.5 Recommendations

5.5.1 Policy Implications

The findings suggest that debt has a significant negative impact on the financial performance of commercial banks listed on the NSE, as evidenced by the negative coefficients for both ROA and ROE. As such, it is crucial for commercial banks to develop and implement robust debt management policies. These policies should ensure that debt levels are maintained at a sustainable level, preventing banks from becoming over-leveraged and reducing the risk of financial instability. Regulators, particularly the CBK, could consider reinforcing regulations regarding optimal debt-to-equity ratios, offering clear guidelines on the acceptable balance of debt and equity financing. In addition, regular monitoring and stress testing of banks' financial health could help identify and address potential risks early, safeguarding the overall stability of the banking sector. Policymakers may also explore incentive structures that encourage banks to seek alternative financing sources, such as equity, which could reduce their dependency on debt.

The positive relationship between equity and financial performance in the findings

highlights the importance of maintaining adequate equity capital. Policymakers and financial regulators should work toward creating an environment that encourages equity financing, especially for commercial banks. This could involve introducing tax incentives for retained earnings or relaxing regulatory capital requirements for banks with a higher equity base. Additionally, the process of issuing new equity could be streamlined to encourage more banks to raise capital through public offerings. Providing such incentives would not only strengthen individual banks' financial positions but also contribute to the overall stability of the financial system. Regulators, such as the CBK, should also continue to prioritize the maintenance of capital adequacy standards, ensuring that banks maintain sufficient equity to absorb shocks during periods of economic volatility.

However, the negative relationship between financial reserves and financial performance, as seen in the study, suggests that banks should adopt a balanced approach to reserve accumulation. While having adequate reserves is critical to ensuring that banks can withstand financial distress, maintaining excessively high reserves may limit their ability to generate profits. Financial regulators should, therefore, set guidelines for banks on maintaining an optimal level of reserves. These guidelines should ensure that banks do not accumulate excessive reserves at the expense of profitability, while still ensuring adequate protection against potential risks. Furthermore, regulators could allow greater flexibility for banks in managing their reserves, taking into account market conditions and the bank’s specific performance goals. Regular monitoring of reserve levels should also be conducted to ensure that banks are not tying up funds that could be more profitably invested.

Earnings play a significant role in strengthening the financial position of

commercial banks, as reflected by the positive impact of retained earnings on ROA and ROE. Policymakers should encourage banks to retain more of their earnings, as this internal capital can provide a buffer against economic shocks and support long-term growth. One way to achieve this is by offering tax incentives or other favorable treatment for banks that choose to retain a higher proportion of their earnings rather than paying them out as dividends. By promoting the retention of earnings, regulators would help banks build a stronger equity base and reduce their reliance on external funding. Moreover, policies should encourage banks to reinvest these earnings in growth-oriented initiatives, such as technology upgrades, new services, or geographic expansion. This would not only enhance their profitability but also ensure sustainable long-term growth, benefiting both the banks and the broader economy.

5.5.2 Management Practices

Based on the study findings, several management practice recommendations can be made to improve the financial performance of commercial banks listed on the NSE. Firstly, the negative and statistically significant effect of debt on both ROE and ROA indicates that excessive reliance on debt financing diminishes profitability. Therefore, bank management should reduce dependence on debt as a primary source of funding. Instead, they should adopt more conservative borrowing strategies and prioritize financing through less risky alternatives.

Further, management should therefore prioritize building up equity through strategies such as issuing more shares, encouraging shareholder reinvestment, and using profit retention to grow the equity base. Strengthening equity positions enhances a bank's ability to absorb shocks, comply with regulatory capital requirements, and fund expansion

initiatives without incurring debt-related costs or risks. In addition, bank managers should, therefore, strike a balance between maintaining adequate reserve levels and ensuring that excess reserves are directed towards more productive uses. This may involve investing a portion of reserves in low-risk, income-generating assets or optimizing reserve ratios in line with evolving market and regulatory conditions.

Lastly, earnings, particularly retained earnings, were found to have a positive and significant influence on financial performance. This highlights the importance of internal financing in sustaining profitability. Bank management should adopt policies that support the retention and reinvestment of profits rather than distributing excessive dividends. Retained earnings should be strategically allocated to high-impact areas such as technology upgrades, customer service improvements, product development, or branch expansion. Properly managed, retained earnings can strengthen the bank's capital base and reduce reliance on external financing.

5.5.3 Academia

Based on the study's findings, several recommendations can be made for academia to deepen the understanding of capital structure and financial performance in the banking sector. First, this study aligns with the pecking order theory but contrasts with some international findings, academics could investigate how regulatory environments, macroeconomic conditions, and institutional frameworks affect the role of debt in different banking systems. Second, academicians should examine how different equity structures such as common shares, preferred shares, and retained earnings affect bank performance and stability, especially under varying market conditions.

Third, scholars should investigate how banks' balance regulatory requirements with

the goal of maximizing returns, including the effectiveness of various reserve management strategies. Lastly, academicians are encouraged to explore the mechanisms through which retained earnings support growth and efficiency. Studies could focus on sector-specific differences, comparing how retained earnings impact banks versus other financial or non-financial firms.

5.6 Areas for Further Research

Further research could explore the long-term effects of various debt management strategies on a bank's financial stability and overall growth. This would include analyzing how different levels of debt influence key financial metrics like profitability, liquidity, and solvency over extended periods. Understanding how banks can leverage debt in times of economic downturns or financial crises without compromising stability would be crucial in shaping future debt policies. Also, studies could investigate how banks can use their reserve funds effectively to manage risks, support lending activities, and fund strategic investments while maintaining regulatory compliance. Exploring the relationship between reserve management, earnings volatility, and profitability under different macroeconomic conditions could help banks develop more dynamic and adaptive reserve policies.

REFERENCES

Abu-Alrop, J. H. A. (2020). The Impact of Financial Risks on the Performance of Russian Banks. *Industrial Engineering & Management Systems*, *19*(4), 866–876. https://doi.org/10.7232/iems.2020.19.4.866

Adams, K. A., & McGuire, E. K. (2019). *Research methods, statistics, and applications* (Second edition). Sage.

Agembe, A. J. (2024). Granger Causality Model of Retained Earnings and Financial Performance of Non-Financial Firms Listed on the Nairobi Securities Exchange (NSE), Kenya. *European Scientific Journal, ESJ*, *20*(16), 95. https://doi.org/10.19044/esj.2024.v20n16p95

Aguinis, H. (2024). *Research methodology: Best practices for rigorous, credible, and impactful research*. Sage.

Agyei, J., Sun, S., & Abrokwah, E. (2020). Trade-Off Theory Versus Pecking Order Theory: Ghanaian Evidence. *Sage Open*, *10*(3), 2158244020940987. https://doi.org/10.1177/2158244020940987

Ai, H., Frank, M. Z., & Sanati, A. (2020). The Trade-off Theory of Corporate Capital Structure. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.3595492

Anam, N. O., & Wanjala, M. W. (2024). Capital structure and financial performance of listed banks at the Nairobi securities exchange market: A case of Commercial banks in Kenya. *The Strategic Journal of Business & Change Management*, *11*(2), 1077–1089.

Ankomah, K., Samena, F. A., Sikayena, I., Ofori-Oppong, P., Arpoh-Baah, B., Boadi, E., & Harley, K. A. (2023). Capital structure and financial performance of listed non-financial firms in Ghana. *Asian Journal of Empirical Research*, *13*(3), 58–67. https://doi.org/10.55493/5004.v13i3.4860

Anozie, O. R., Muritala, T. A., Ininm, V. E., & Yisau, N. S. (2023). Impact of capital structure on financial performance of oil and gas firms in Nigeria. *Future Business Journal*, *9*(1), 11. https://doi.org/10.1186/s43093-023-00186-4

Arhinful, R., Mensah, L., & Seth Owusu-Sarfo, J. (2023). The Impact of Capital Structure on the Financial Performance of Financial Institutions in Ghana. *International Journal of Finance and Banking Research*, *9*(2), 19–29. https://doi.org/10.11648/j.ijfbr.20230902.11

Azmeh, C., & Hamada, R. (2022). Internal financial determinants of stock prices in the banking sector: Comparative evidence from Dubai and Abu Dhabi Stock markets. *Revista De Métodos Cuantitativos Para La Economía Y La Empresa*, *34*(1), 3–16.

Bajaj, Y., Kashiramka, S., & Singh, S. (2021). Application of capital structure theories: A systematic review. *Journal of Advances in Management Research, 18*(2), 173–199. https://doi.org/10.1108/JAMR-01-2020-0017

Barajas, A., Krakovich, V., & López-Iturriaga, F. J. (2023). Survival of Russian banks: How efficient are the control measures? *European Journal of Management and Business Economics, 32*(3), 320–341. https://doi.org/10.1108/EJMBE-12-2021-0329

Boateng, P. Y., Ahamed, B. I., Soku, M. G., Addo, S. O., & Tetteh, L. A. (2022). Influencing factors that determine capital structure decisions: A review from the past to present. *Cogent Business & Management*, *9*(1), 2152647. https://doi.org/10.1080/23311975.2022.2152647

Bossone, B. (2024). A Modigliani-Miller theorem for the public finances of globalized economies. *International Review of Financial Analysis*, *94*, 103257. https://doi.org/10.1016/j.irfa.2024.103257

Braun, B., & Deeg, R. (2020). Strong Firms, Weak Banks: The Financial Consequences of Germany's Export-Led Growth Model. *German Politics*, *29*(3), 358–381. https://doi.org/10.1080/09644008.2019.1701657

Brusov, P., & Filatova, T. (2023). Capital Structure Theory: Past, Present, Future. *Mathematics*, *11*(3), 616. https://doi.org/10.3390/math11030616

Brusov, P., Filatova, T., & Orekhova, N. (2022). Capital Structure: Modigliani–Miller Theory. In P. Brusov, T. Filatova, & N. Orekhova, *Generalized Modigliani–Miller Theory* (pp. 9–32). Springer International Publishing. https://doi.org/10.1007/978-3-030-93893-2_2

CBK. (2024). *Licensed commercial banks in kenya*. https://www.centralbank.go.ke/bank-supervision/directory-of-licensed-commercial-banks-mortgage-finance-institutions-and-non-operating-holding-companies/

Çerkezi, Mr. Sc. A. (2013). A literature review of the trade−off theory of capital structure. *ILIRIA International Review*, *3*(1), 125. https://doi.org/10.21113/iir.v3i1.103

Chauhan, S., Verma, A., & Kumar, C. V. R. S. V. (2024). Effect of Capital Structure on the Financial and Social Performance of Indian Microfinance Institutions. *FIIB Business Review*, *13*(2), 243–256. https://doi.org/10.1177/23197145221099677

Chu, H. (2024). *Research methods and design beyond a single discipline: From principles to practice*. Routledge, Taylor & Francis Group.

Clark, B., Jones, J., & Malmquist, D. (2023). Leverage and the cost of capital for U.S. banks. *Journal of Banking & Finance*, *155*(23), 107002. https://doi.org/10.1016/j.jbankfin.2023.107002

Coe, R., Waring, M., Hedges, L. V., & Day Ashley, L. (Eds.). (2021). *Research methods & methodologies in education* (3rd edition). SAGE.

Creswell, J. W., & Creswell, J. D. (2023). *Research design: Qualitative, quantitative, and mixed methods approaches* (Sixth edition). SAGE.

Dabi, R. S. K., Nugraha, Disman, & Sari, M. (2023). Capital structure, financial performance and sustainability of Microfinance Institutions (MFIs) in Ghana. *Cogent Economics & Finance*, *11*(2), 2230013. https://doi.org/10.1080/23322039.2023.2230013

Dador, M. C., Githinji, M., & Miluwi, J. (2024). Impact of Short-Term Debt-Asset Ratio on the Financial Performance of Commercial Banks. *The Strategic Journal of Business & Change Management*, *11*(3), 178–190.

Deng, X. (2023). The Capital Structure Through the Trade-Off Theory: Evidence from Chinese Firm. In V. Gaikar, M. Hou, & S. A. Qalati (Eds.), *Proceedings of the 2022 2nd International Conference on Financial Management and Economic Transition (FMET 2022)* (Vol. 227, pp. 461–473). Atlantis Press International BV. https://doi.org/10.2991/978-94-6463-054-1_50

Dinh, H. T., & Pham, C. D. (2020). The Effect of Capital Structure on Financial Performance of Vietnamese Listing Pharmaceutical Enterprises. *The Journal of Asian Finance, Economics and Business*, *7*(9), 329–340. https://doi.org/10.13106/JAFEB.2020.VOL7.NO9.329

Dong, J., Yin, L., Liu, X., Hu, M., Li, X., & Liu, L. (2020). Impact of internet finance on the performance of commercial banks in China. *International Review of Financial Analysis*, *72*, 101579. https://doi.org/10.1016/j.irfa.2020.101579

El-Chaarani, H., & El Abiad, Z. (2019). Analysis of Capital Structure and Performance of Banking Sector in Middle East Countries. *International Journal of Economics and Financial Issues*, *9*(2).

Esghaier, R. (2024). The dynamic trade-off theory of capital structure: Evidence from a panel of US industrial companies. *Studies in Economics and Finance*, *41*(4), 902–922. https://doi.org/10.1108/SEF-04-2023-0200

Farkasdi, S., Septiawan, B., & Alghifari, E. S. (2021). Determinants of Commercial Banks Profitability: Evidence from Germany. *Jurnal Riset Akuntansi Kontemporer*, *13*(2), 82–88. https://doi.org/10.23969/jrak.v13i2.4500

Flamini, V., McDonald, C., & Schumacher, L. (2020). The Determinants of Commercial Bank Profitability in Sub-Saharan Africa. *International Monetary Fund*, *1*(1), 1–32.

Flick, U. (2020). *Introducing research methodology: Thinking your way through your research project* (Third edition). SAGE.

Frank, M. Z., Goyal, V. K., & Shen, T. (2020). The Pecking Order Theory of Capital Structure: Where Do We Stand? *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.3540610

Githinji, R. (2022). Influence of Share Capital and Preferred Stock on Financial Performance of Banks Listed in the Nairobi Securities Exchange, Kenya. *American Journal of Strategic Studies*, *2*(1), 15–27. https://doi.org/10.47941/ajss.804

Hafidh, A. (2021). Examining the effect of capital structure on the banks' performance in Tanzania: A case commercial banks operating in Zanzibar. *International Journal of Management and Economics*, *4*(1), 24–32.

Handema, M., & Haabazoka, L. (2020). The Effect of Capital Structure Management on Commercial Bank Financial Performance: A Case of the Zambian Banking Sector. In E. G. Popkova & B. S. Sergi (Eds.), *Scientific and Technical Revolution: Yesterday, Today and Tomorrow* (Vol. 129, pp. 1716–1736). Springer International Publishing. https://doi.org/10.1007/978-3-030-47945-9_183

Hu, J., Zhong, L., & Qiao, J. (2024). Equity pledge and debt financing of listed companies. *Finance Research Letters*, *59*, 104771. https://doi.org/10.1016/j.frl.2023.104771

Huu, A., Nguyen, Thu, H. N., & Thanh, H., Pham. (2020). Applying the CAMEL model to assess performance of commercial banks: Empirical evidence from Vietnam. *Banks and Bank Systems*, *15*(2), 177–186. https://doi.org/10.21511/bbs.15(2).2020.16

Kablay, H., & Gumbo, V. (2021). Financial Performance of Banks in Botswana. *Journal of Mathematical Finance*, *11*(03), 386–397. https://doi.org/10.4236/jmf.2021.113022

Kamel, M. A., Mousa, M. E.-S., & Hamdy, R. M. (2022). Financial efficiency of commercial banks listed in Egyptian stock exchange using data envelopment analysis. *International Journal of Productivity and Performance Management*, *71*(8), 3683–3703. https://doi.org/10.1108/IJPPM-10-2020-0531

KBA. (2024, May 7). *KBA Members – Kenya Bankers Association*. https://www.kba.co.ke/kba-members/

Khan, S., Bashir, U., Attuwaijri, H. A. S., & Khalid, U. (2023). The Capital Structure Decisions of Banks: An Evidence From MENA Region. *Sage Open*, *13*(4), 215–230. https://doi.org/10.1177/21582440231204600

Kothari, C. R. (2023). *Research Methodology: Methods and Techniques*. New Age International.

Lyu, B., & Chen, H. (2022). Effect of Founder Control on Equity Financing and Corporate Performance-Based on Moderation of Radical Strategy. *SAGE Open*, *12*(2), 215824402210850. https://doi.org/10.1177/21582440221085013

Mackey, A., & Gass, S. M. (2022). *Second language research: Methodology and design* (Third edition). Routledge, Taylor & Francis Group.

Magoma, A., Mbwambo, H., Sallwa, A., & Mwasha, N. (2022). Financial Performance of Listed Commercial Banks in Tanzania: A Camel Model Approach. *African Journal of Applied Research*, *8*(1), 228–239.

Mallette, M. H., & Duke, N. K. (Eds.) (with Parsons, S. A.). (2021). *Literacy research methodologies* (Third edition). The Guilford Press.

Mamaro, L. P., & Legotlo, T. (2020). The Impact of Debt Financing on Financial Performance: Evidence from Retail Firms Listed on the JSE. *Journal of Accounting and Management*, *10*(3).

Manal, S., Mohammad, A. H., Allam, H., & Suliaman, R. W. (2020). Capital Structure, Firm Growth and Firm Performance: Evidence from Jordan. *International Journal of Innovation, Creativity and Change*, *10*(12).

Mkaro, G. H., Lau, L. S., & Choong, C. K. (2023). The determinants of banking sector performance in Tanzania: A pre-post Treasury Single Account analysis. *Cogent Economics & Finance*, *11*(2), 2282812. https://doi.org/10.1080/23322039.2023.2282812

Muhammed, S., Desalegn, G., & Emese, P. (2024). Effect of Capital Structure on the Financial Performance of Ethiopian Commercial Banks. *Risks*, *12*(4), 69. https://doi.org/10.3390/risks12040069

Mutua, L. M., & Atheru, G. K. (2020). Capital Structure and Financial Performance of Companies listed under Manufacturing and Allied Sector at Nairobi Securities Exchange in Kenya. *Journal of Finance and Accounting*, *4*(1), 24–38.

Nalianya, S. N., & Miroga, Dr. J. (2020). Determinants of financial performance of commercial banks in kenya: Case of listed banks on the nairobi securities exchange (nse). *Strategic Journal of Business & Change Management*, *7*(3). https://doi.org/10.61426/sjbcm.v7i3.1714

Naranjo, P., Saavedra, D., & Verdi, R. S. (2022). The Pecking Order and Financing Decisions: Evidence From Changes to Financial-Reporting Regulation. *Journal of Accounting, Auditing & Finance*, *37*(4), 727–750. https://doi.org/10.1177/0148558X20945066

Nazir, A., Azam, M., & Khalid, M. U. (2021). Debt financing and firm performance: Empirical evidence from the Pakistan Stock Exchange. *Asian Journal of Accounting Research*, *6*(3), 324–334. https://doi.org/10.1108/AJAR-03-2019-0019

Neugebauer, T., Shachat, J., & Szymczak, W. (2023). A test of the Modigliani-Miller theorem, dividend policy and algorithmic arbitrage in experimental asset markets. *Journal of Banking & Finance*, *154*(3), 106–125. https://doi.org/10.1016/j.jbankfin.2023.106814

Nguyen, A. H., Nguyen, H. T., Tran, C. Q., & Le, L. Q. (2022). Determinants of Time for Publication Annual Reports: Empirical Evidence from Non-Financial Listed Companies in Vietnam. *International Journal of Financial Studies*, *10*(2), 43. https://doi.org/10.3390/ijfs10020043

Nwite, S. C., Nwogo, J. E., & Ugwu, J. (2022). Impact of capital adequacy on performance of commercial banks in Nigeria. *Journal of Public Administration and Governance Research*, *4*(1), 278–294.

Nyoka, C. (2019). Bank Capital and Profitability: An Empirical Study of South African Commercial Banks. *Comparative Economic Research. Central and Eastern Europe*, *22*(3), 99–116. https://doi.org/10.2478/cer-2019-0025

Obuobi, B., Li, X., Nketiah, E., & Awuah, F. (2020). Relationship between Capital Structure and Banks' Performance; an Evidence of Banks Listed on the Ghana Stock Exchange. *International Journal of Econometrics and Financial Management.*, *8*(1), 13–20.

Odipo, O., Khoya, M., & Getrude, O. (2023). Effect of Capital Structure on Financial Performance of Manufacturing Firms Listed at the Nairobi Securities Exchange. *Global Journal of Management and Business Research*, 11–22. https://doi.org/10.34257/GJMBRCVOL23IS2PG11

Okumu, B. O., Otieno, S., & Baraza, E. (2023). The Effect of Capital Structure on Financial Performance of Commercial Banks Listed at the Nairobi Securities Exchange. *International Journal of Recent Research in Commerce Economics and Management*, *10*(1), 38–45. https://doi.org/10.5281/ZENODO.10054004

Olaoye, A. A. (2023). Effects of Capital structure on the Financial Performance of South African Consumer Goods Firms (2011-2021). *Journal of Services & Management*, *19*(1), 48–61.

Onsongo, S. K., Muathe, S. M. A., & Mwangi, L. W. (2020). Financial Risk and Financial Performance: Evidence and Insights from Commercial and Services Listed Companies in Nairobi Securities Exchange, Kenya. *International Journal of Financial Studies*, *8*(3), 51. https://doi.org/10.3390/ijfs8030051

Oyetade, D., Obalade, A. A., & Muzindutsi, P.-F. (2023). Basel IV capital requirements and the performance of commercial banks in Africa. *Journal of Banking Regulation*, *24*(1), 1–14. https://doi.org/10.1057/s41261-021-00181-1

Pervez, A., Naveenan, R. V., Alyamoor, A. H., Bansal, R., Gupta, A., & Titus, T. J. (2023). *Impact of capital adequacy and risk on bank performance: An empirical study*. 050023. https://doi.org/10.1063/5.0150407

Rahman, Md. A., Hossain, T., & Sen, K. K. (2023). Revisiting the puzzle of capital structure determinants: An empirical study based on UK firms. *Arab Gulf Journal of Scientific Research*. https://doi.org/10.1108/AGJSR-04-2023-0162

Raja, A. (2022). The impact of changes in bank capital requirements. *Staff Working Paper No. 1,00*, *1*(1), 1–48.

Said, S. (2025). The Impact of Capital Structure on Firm Performance: Empirical Evidence from Egypt. *OALib*, *12*(02), 1–16. https://doi.org/10.4236/oalib.1112839

Sasan, C. C., Polinar, M. A. N., Serafin, E. G., & Mahinay, S. T. (2022). Financial Resiliency of the Top Three Listed Companies in the Philippine Stock Exchange. *International Journal of Multidisciplinary: Applied Business and Education Research*, *3*(12), 2509–2515. https://doi.org/10.11594/ijmaber.03.12.04

Sathyamoorthi, C. R., Mapharing, M., & Dzimiri, M. (2020). Liquidity Management and Financial Performance: Evidence From Commercial Banks in Botswana. *International Journal of Financial Research*, *11*(5), 399. https://doi.org/10.5430/ijfr.v11n5p399

Serwadda, I. (2019). The Effects of Capital Structure on Banks' Performance, the Ugandan Perspective. *Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis*, *67*(3), 853–868. https://doi.org/10.11118/actaun201967030853

Siddique, A., Masood, O., Javaria, K., & Huy, D. T. N. (2020). A comparative study of performance of commercial banks in ASIAN developing and developed countries. *Insights into Regional Development*, *2*(2), 580–591. https://doi.org/10.9770/IRD.2020.2.2(6)

Singh, K., Pillai, D., & Rastogi, S. (2021). Pecking Order Theory of Capital Structure: Empirical Evidence for Listed SMEs in India. *Vision: The Journal of Business Perspective*, 09722629211057208. https://doi.org/10.1177/09722629211057208

Temba, G. I., Kasoga, P. S., & Keregero, C. M. (2023). Corporate governance and financial performance: Evidence from commercial banks in Tanzania. *Cogent Economics & Finance*, *11*(2), 2247162. https://doi.org/10.1080/23322039.2023.2247162

Tesema, T. N. (2024). The effect of capital structure on performance: Empirical evidence from manufacturing companies in Ethiopia. *Cogent Economics & Finance*, *12*(1), 2300926. https://doi.org/10.1080/23322039.2023.2300926

Tripathi, V., Goodell, J. W., Madhavan, V., & Kumar, S. (2024). Moderating effect of capital structure on the relationship between corporate governance mechanisms and firm value: Evidence from India. *International Review of Economics & Finance*, *92*, 1336–1350. https://doi.org/10.1016/j.iref.2024.02.082

Ul Rehman, W., Saltik, O., Degirmen, S., Ocak, M., & Shabbir, H. (2024). Dynamics of intellectual capital and financial performance in ASEAN banks. *Arab Gulf Journal of Scientific Research*, *42*(4), 1426–1443. https://doi.org/10.1108/AGJSR-12-2022-0287

Wagdi, O., & Salman, E. (2022). Determinants of a Bank's Performance in Emerging Markets: Evidence from Egypt. *Academy of Accounting and Financial Studies Journal*, *26*(4), 1–21.

Walliman, N. (2022). *Research methods: The basics* (Third edition). Routledge Taylor & Francis Group.

Ye, Z. (2021). Capital Structure and Corporate Performance: A Case of China. *BCP Business & Management*, *15*(5), 403–418. https://doi.org/10.54691/bcpbm.v15i.333

Yensu, J., George Asumadu, Daniel Abayaakadina Atuilik, & Edmond Oppong Peprah. (2024). How does Capital Structure Impact on Profitability of Listed Firms of Ghana Stock Exchange? *Journal of Organizational Behavior Management*, *43*(1), 150–172. https://doi.org/10.5281/ZENODO.10995509

Yıldırım, D., & Çelik, A. K. (2021). Testing the pecking order theory of capital structure: Evidence from Turkey using panel quantile regression approach. *Borsa Istanbul Review*, *21*(4), 317–331. https://doi.org/10.1016/j.bir.2020.11.002

APPENDICES

Appendix 1: Secondary Data Collection Sheet for each listed bank

No	Year	Debt	Equity	Reserves	Earning	ROE	ROA
1	2015						
2	2016						
3	2017						
4	2018						
5	2019						
6	2020						
7	2021						
8	2022						
9	2023						
10	2024						

Appendix 2: Listed Banks at NSE

	Security	Trading Symbol
1	ABSA Bank Kenya Public Listed Company	BBK
2	Stanbic Holdings Limited.	CFC
3	I & M Holdings Public Listed Company	I & M
4	Diamond Trust Bank Kenya Limited.	DTK
5	HF Group Public Listed Company	HFCK
6	KCB Group Public Listed Company	KCB
7	NCBA Group Public Listed Company	NCBA
8	Standard Chartered Bank Kenya Limited.	SCBK
9	Equity Group Holdings Public Listed Company	EQTY
10	The Co-operative Bank of Kenya Limited.	COOP

Appendix 3: Research Permits

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: **577820**

Date of Issue: **14/March/2025**

RESEARCH LICENSE



This is to Certify that Mr.. Abdihalim Mohamed Abdullahi of Africa Nazarene University, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in Nairobi on the topic: ASSESSING THE CAPITAL STRUCTURE AND FINANCIAL PERFORMANCE OF COMMERCIAL BANKS LISTED IN NAIROBI SECURITIES EXCHANGE, KENYA for the period ending : 14/March/2026.

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See overleaf for conditions

Appendix 4: Research Approvals and Letters

5th, February 2025

E-mail: researchwriting.mba.anu@gmail.com

Tel. 0202711213

Our Ref: 20S01DMBA006

The Director.
National Commission for Science,
Technology and Innovation (NACOSTI),
P. O. Box 30623, 00100
Nairobi. Kenya

Dear Sir/Madam:
RE: RESEARCH AUTHORIZATION FOR: ABDIHALIM MOHAMED

Mr. Abdihalim is a postgraduate student pursuing a Master of Business Administration (MBA) at Africa Nazarene University.

As part of his academic journey, Mr. Abdihalim is conducting a research study titled: *"***Assessing the Capital Structure and Financial Performance of Commercial Banks Listed in Nairobi Securities Exchange, Kenya***."*

We kindly request your support in facilitating his research. Any assistance extended to him will be greatly appreciated and will contribute significantly to the successful completion of his studies.
Yours faithfully,

DR. Kimani Gichuhi,

MBA, Coordinator,

School of Business,

Africa Nazarene University.

Appendix 4: Map of Study Area

