

**EFFECT OF FIRM CHARACTERISTICS ON CREDIT CREATION OF LISTED
COMMERCIAL BANKS IN KENYA**

By

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DECLARATION

I declare that this dissertation is my original work and has not been previously published or submitted elsewhere for award of a degree. I also declare that this contains no material written or published by other people except where due reference is made and author duly acknowledged.

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ABSTRACT

This study investigates the influence of firm characteristics on credit creation among listed commercial banks in Kenya over the period from 2019 to 2023. The primary objective is to examine how capital adequacy, asset quality, management efficiency, and bank size affect the ability of these banks to extend credit, measured as the ratio of total loans to total deposits. A descriptive correlation research design is employed, utilizing panel data analysis with fixed and random effects models to assess the relationships between the variables. The target population comprises all 12 listed commercial banks in Kenya, with secondary data sourced from the Central Bank of Kenya and published financial reports. The findings indicate a significant positive relationship between capital adequacy and credit creation, suggesting that higher capital buffers enhance lending capacity. Asset quality also exhibits a positive correlation with credit creation, indicating that lower non-performing loan ratios support greater lending potential. Management efficiency shows a marginally negative effect, implying that efficient operations may reduce capital buffers to prioritize lending. Bank Size demonstrates no significant impact on credit creation. The study underscores the importance of robust capital standards, effective credit risk management, and operational efficiency in enhancing credit creation. These findings provide insights for banks and regulators to strengthen financial stability and support sustainable credit growth in Kenya.

Key words: Capital adequacy, asset quality, management efficiency, bank size

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TABLE OF CONTENTS

ABSTRACT	iv
ACKNOWLEDGEMENT	v
DEDICATION	ix
LIST OF FIGURES AND TABLES	x
No table of figures entries found	x
LIST OF FIGURES	xi
ABBREVIATIONS AND ACRONYMS	xii
OPERATIONAL DEFINITION OF KEY TERMS	xiii
CHAPTER ONE	1
INTRODUCTION	1
1.1 Background of the Study.....	1
1.1.1 Firm characteristics.....	5
1.1.2 Credit Creation	8
1.1.3 Listed Commercial Banks	12
1.2 Statement of the Problem	14
1.3 Objectives of the study	17
1.3.1 General objectives	17
1.3.2 Specific objectives	17
1.4 Investigate the Null Hypothesis	17
1.5 Relevance of the Research	18
1.6 Scope of the Study.....	19
LITERATURE REVIEW	20
2.1 Introduction	20
2.2 Theoretical Review	20
2.2.1 Credit Creation Theory.....	20
2.2.2 Buffer Capital Theory.....	21
2.2.3 Financial Intermediation Theory	22
2.2.4 Bank Shiftability Theory.....	24
2.2.6 Disaggregated Credit Creation Theory (Modern Extension)	27
2.3 Empirical Review	28
2.3.1 Capital Adequacy and Credit Creation.....	28
2.3.2 Asset Quality and Credit Creation.....	34
2.3.3 Management Efficiency and Credit Creation	38
2.3.4 Bank Size and Credit Generation	41

2.4 Summary of Literature Review	44
2.4 Conceptual Framework	48
2.6 Operationalization of the study variables	49
CHAPTER THREE	51
RESEARCH METHODOLOGY	51
3.1 Introduction	51
3.2 Research Design	51
3.3 Target Population	52
3.4 Sampling Frame	53
3.5 Data Collection procedure	53
3.5.1 Data Analysis and Presentation	54
3.5.2 Model Specification	56
3.6 Diagnostic Tests	57
3.6.1 Hausman Test	57
3.6.2 Test of Normality	57
3.6.3 Multicollinearity Test	57
3.6.4 Heteroscedasticity Test	58
3.6.5 Autocorrelation Test	58
3.6.6 Cross-Sectional Dependence Test	58
CHAPTER FOUR	59
DATA ANALYSIS AND PRESENTATION	59
4.1 Introduction	59
4.2 Descriptive Analysis	59
4.3 Trend Analysis	60
4.3.1 Trend in Capital Adequacy	61
4.3.2 Trend in Asset Quality	62
4.3.3 Trend in Management Efficiency	63
4.3.4 Trend in Bank Size	65
4.4 Panel Data Analysis	66
4.4.1 Random Effects Model	66
4.4.2 Fixed Effects Model	68
4.5 Diagnostic Tests	69
4.5.1 Breusch-Pagan Lagrange Multiplier (BP-LM) Test	69
4.5.2 Hausman Test	70
4.5.3 Multicollinearity Test (Variance Inflation Factor)	71

4.5.4 Heteroscedasticity Test (Breusch-Pagan / Cook-Weisberg)	71
4.6 Discussion of the Findings	72
CHAPTER FIVE	76
SUMMARY, CONCLUSION AND RECOMMENDATIONS OF THE STUDY	76
5.1 Introduction	76
5.2 Summary of the findings	76
5.2.1 Impact of Capital Adequacy on credit creation	76
5.2.2 Impact of Asset Quality on Credit Creation	78
5.2.3 Impact of Management Efficiency on Credit Creation	80
5.3 Conclusion of the Study	81
5.4 Recommendations of the Study	83
5.5 Limitations of the Study	85
5.6 Areas of Further Investigation.....	86
REFERENCES.....	88
APPENDICES	90
Appendix I: Letter of Authorization.....	90
Appendix II: Secondary Data collection sheet.....	91
Appendix III: Names of Listed Commercial Banks in Kenya	92

DEDICATION

This research dissertation is dedicated to my family especially my wife for encouraging me to continue with my education despite the family responsibilities while taking care of our kids during my studies. She was also committed in praying and offering unconditional support for me to achieve my goal with without her support and commitment, I would have not managed to pursued masters of science in commerce.

LIST OF FIGURES AND TABLES

Table 1: Research gap45

No table of figures entries found.

LIST OF FIGURES

Figure 4. 1 Capital Adequacy	61
Figure 4. 2 Asset Quality	62
Figure 4. 4 Management Efficiency.....	64
Figure 4. 3 Bank Size.....	65

ABBREVIATIONS AND ACRONYMS

BCBS:	Based Committee on Banking Supervision
CAMEL:	Capital Adequacy, Asset Quality, Management Efficiency, Earning and Bank size
CAR:	Capital Adequacy Ratio
CBK:	Central Bank of Kenya
DEA:	Data Development Analysis
ES:	Efficient Structure
GDP:	Gross Domestic Product
GMM:	Generalized Method of Moment
MENA:	Middle East and North Africa
NSE:	Nairobi Stock Exchange
STATA	Statistical Software for Social Sciences

OPERATIONAL DEFINITION OF KEY TERMS

- Asset quality:** Refers to the ability of a bank's resources to generate income and is linked to borrowers' repayment capacities. Alhassan, Kyereboah, Coleman, and Andoh (2014) highlight that high asset quality results in lower default rates and increased profitability. Effective management of asset quality is essential for banks to maintain stability and support long-term growth.
- Capital adequacy:** Refers to the buffers that commercial banks must maintain to prevent operating below the minimum capital requirements. Menawi (2020) emphasizes that adequate capital protects banks against potential losses, ensuring financial stability. It also enables banks to manage credit issuance effectively, which is vital for maintaining public confidence and sustaining operations during economic fluctuations.
- Credit creation:** Is the process by which banks extend loans to stimulate financial development and economic growth. As Werner (2014) notes, this process injects bank size into the economy, facilitating investment and consumer spending. The capacity for credit creation is influenced by factors such as capital adequacy and asset quality, which together determine a bank's ability to lend responsibly.
- Firm characteristics:** Encompasses the internal factors, including managerial and demographic aspects, that shape a bank's operational

environment. According to Buvanendra, Sridharan, and Thiagarajan (2017), effective management of these characteristics is crucial for banks to leverage strengths and mitigate weaknesses. The ability to adapt to market changes while optimizing internal resources significantly impacts a bank's success.

Management efficiency: Is the capacity of banks to generate profits from limited resources. Phan and Daly (2014) argue that optimizing operations is vital for enhancing profitability. Factors such as strategic decision-making and effective resource allocation contribute to this efficiency, enabling banks to sustain a competitive edge in a challenging market.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Credit creation is one of a bank's most important functions. Werner (2014) conducted a study which states that the process of creating credit involves lending to lenders loans that are significantly larger than the deposits held by commercial banks. Therefore, when the bank has satisfied the demand of its depositors, loans and advances made from excess reserves constitute a bank credit, with the intention of bringing in more revenue for the bank. Banks are regarded as credit main manufacturers or credit creation factories through the credit creation process. Bank deposits are mostly lent to borrowers, with the remaining, smaller share being held for clients upon demand. It is important to remember that the banking system, not a single bank, is what allows loans to be extended again.

On global perspective, bank credit creation results in financial development and aggregate economic expansion (Werner 2014) but it has been under different constraints for instance, in European countries, credit creation has been under strict banking regulations by 1 the base committee on banking supervision (BCBS) whose objectives has been to strengthen capital and bank size positions by banks. The BCBS, precisely Basel 3, Base 2 and base 1 came up with regulations like the capital adequacy ratio (CAR) and bank size coverage ratio as checks for the banks' capital and bank size profiles during financial crisis (Oino 2021)

The European banks have been compelled to adhere to regulations by Basel committee that influence their level of credit creation (Castellano& Duborec,2018). In Indian credit creation context, the reserve bank of India (2018) noted that banks' credit creation needs to adhere to capital adequacy prudential norms. This can only mean that capital adequacy requirements-that is, the ratio of a bank's capital to its assets are what propel credit creation in

India. For example, these norms prescribe minimum capital to risk weighted assets ratios of 9%, and Indian public banks are advised to maintain the capital adequacy ratio as prescribed by the respective regulators (Lessambo,2013). In India, capital sufficiency affects the production of credit. It is mandatory for banks in India to maintain a certain amount of capital to guard against bank collapses. The goal is to improve financial stability, which serves as a buffer against systemic crises, and keep banks from taking on excessively high risks. Although

Nigeria does not have a currency board system, Umoru and Aghedo (2017) state that a similar reasoning holds true for other African nations. The dollarization of the economy prevents Nigeria's central bank from freely increasing the country's base money supply. Besides, most of the African countries have their credit creation subject to the structure of economy(Maturu,2021),for instance, In Senegal, Tanzania and Uganda respective central banks have fixed exchange rate thus credit expansion is limited to only aligns with the target exchange rate .In developing economies such as those in Africa and South America, credit creation is faced with some challenges aside from the issue of Based committee regulations. In Panama the way distribution of base money takes place from the central bank of the country to other commercial banks relative to industrialized countries that are developed thus apply indirect instruments, the open market operations, in order to improve bank size in the system of banks, Panama lacks a deep financial market to rely on operations of open market and is compelled to apply direct monetary policy instruments, most prominently, rediscount quotas and credit restrictions which are credit creation constraints(Doumpos, Gaganis& Pasiouras,2015).

The banking sector in Kenya has been faced with persistent challenges in credit generation instigated by macroeconomic instability and regulatory constraints. From 2013 to 2023, the average private sector credit growth was 8.3%, far below the 12.4% realized in the preceding decade, a testament to the impact of economic disruption like the 2017 election

upheaval and the COVID-19 pandemic (CBK Financial Sector Stability Report, 2024). The 2016 interest rate cap reduced lending to small and medium-sized enterprises (SMEs) by 22% as banks diverted to low-risk government securities that accounted for 30% of their portfolios by 2019 (KBA State of the Banking Industry Report, 2024). Non-performing loans (NPLs) sped up to 14.5% in 2023, driven by agriculture (25% of NPLs) and real estate (20%) defaults, which lowered funds available for new loans (Cytonn Weekly Report #15/2025). These patterns underscore the need to examine how firm-level characteristics compel banks to preserve credit creation amidst external pressures.

The innovation has transformed the banking sector, where digital channels accounted for 68% of transactions as of 2023, accelerating deposit mobilization by 28% over the decade (CBK, 2024). That has not, however, been reflected proportionately in credit creation because the smaller banks with assets below KSh 200 billion could not convert deposits to loans because of liquidity constraints and high provisioning costs (KPMG Kenya Listed Banks 2023 Report). Larger banks, holding 65% of industry deposits, extended 75% of overall credit, showing imbalances driven by bank size and operational capacity (KBA, 2023). This skewed credit provisioning calls into question how firms' characteristics like efficiency of management and asset quality collectively determine lending results in the listed banks in Kenya.

In addition to the macroeconomic and regulatory factors that have acted as stumbling blocks, the development of digital financial services has been a game-changer in modifying the dynamics of credit creation in Kenya. The upscaling of mobile money platforms such as M-Pesa has made it possible for banks to reach underserved populations, expanding deposit bases and making the potential for increased lending capacity quite dynamic. Nonetheless, this has also opened a Pandora's box of new risks: cyber threats and an uptick in competition from fintech firms are some of the areas likely to choke the credit creation avenues by traditional banks if not effectively innovated upon. For example, the COVID-19 pandemic saw a 35% rise

in remote transactions via digital channels, enabling the banks to sustain their liquidity, but this also highlighted differences between the tech-savvy larger banks and those smaller ones with limited digital infrastructure (World Bank, 2023). This calls for an analysis of how firm-specific characteristics interact with technological improvements to influence credit outcomes.

Most importantly, there has historically been an interplay between inflation and interest rate policies in the realm of credit creation in Kenya. For instance, high inflation periods in 2022-2023, caused by disruptions in global supply chains, eroded the value of real deposits and forced the Central Bank of Kenya to increase benchmark rates, hence increasing the cost of borrowing and reducing loan demand. Empirical evidence from comparable emerging markets- for instance, Brazil and India- indicates that banks with strong firm characteristics, such as high levels of capital adequacy, are better positioned to withstand these pressures by maintaining lending volumes through risk pricing strategies (IMF, 2024). In Kenya, this has translated into a two-tiered sector in which well-capitalized banks expand credit, while less well-capitalized ones retreated into safer assets, emphasizing internal firm characteristics as critical in sustaining economic contributions in the face of volatility.

On a regional scale, African banking sectors face similar challenges of credit creation. Elevated NPLs (15% in 2022) and currency devaluation in Nigeria kept credit growth in check at 6.8% per annum, while in South Africa, the banking industry had lending constrained by tight monetary policy (Umoru & Aghedo, 2017; South African Reserve Bank, 2023). Kenya's unique regulatory environment, e.g., CBK's risk-based supervision framework introduced in 2020, has boosted resilience but also increased compliance costs, reducing the lending margin by 10% for medium-sized banks (Maturu, 2021). Such cross-country comparisons necessitate an in-depth examination of Kenya's listed banks in a bid to understand how firm-specific factors can overcome external constraints and enhance credit creation for economic growth.).

1.1.1 Firm characteristics

The Firm characteristics in the banking context revolves around the banks managerial as well as demographic factors comprising part of the firm's internal environment in which the firms' management have full control over them (Buvanendra, Sridharan and Thiyagarajan,2017). Firm characteristics are institutional metrics connected to the cash flows of an organization (Mdoe2017). According to the study banking survey (2018) asset quality, bank size, capital adequacy and managerial efficiency are main characteristics that are used to measure the soundness of banks. The CAMELS model will be used to incorporate various firm features as predictors, with managerial efficiency being assessed as operating profits to net sales (Wafula 2020). The second variable will be realized as core capital to total assets, the third parameter is bank size, hence total assets were used as the measurement (Sporta, 2018).

Firm characteristics also include governance structures and innovation capabilities that are indirect influencers of the bank's lending behavior. Good corporate governance through an independent board and ethical risk management practices can help improve decision-making processes and, therefore, create more sustainable credits. In Kenya, for example, banks with superior governance have been able to withstand the impact brought about by increased regulatory enforcement following the 2016 interest rate caps, as seen by lower default rates and increased investor confidence (African Development Bank, 2022). This shows how demographic and managerial factors influence not just operational efficiency but also resilience in external shocks that allow internal strengths to be tapped into in pursuit of expanded credit operations.

Demographic factors such as the diversity in banks' workforce and skill levels are also helpful for firm characteristics, developing innovative lending products aimed at a diverse set of customer segments. For example, banks with employment of data analytics teams have enhanced credit scoring models, reduced information asymmetry, and enabled more inclusive

lending to SMEs-40 per cent of Kenya's GDP contributors, according to KNBS 2024. Integration of human capital with firm metrics underlines the complex nature of internal environments where efficient management of these elements is able to amplify a bank's competitive advantage in credit markets, especially in a post-pandemic recovery phase.

The efficiency of management is the capacity wielded by the management of banks to judiciously put the banks resources into best use that optimized shareholders value. This allows for risk evaluation and monitoring of credit progress in the market for best performance possible (Bhatia and dash, 2018). According to Al-Rdaydeh matar and Alghzhwai (2017), firms' financial ratios have been used as the best measurement of management performance in organizations. The value shareholders and income of any organization is optimized through efficient. The management efficiency is significant in the performance of bank credit. management efficiency will be measured by operating profit to net sales.

The capability of bank capital entails the amount of resources available at the disposal of banks to efficiently execute the desired goals of the organization. The availability of these resources determines the level of organizational effectiveness in the discharge of their mandate, such as customer satisfaction and credit demand (Mendoza and Rivera 2017). The availability of these resources cushions the effect of a shock that could arise from non-performing loans of the banks, thereby preventing profit erosion of the banks. banks' capital adequacy affects the performance of bank credit (Amaliah *et al.*, 2019). Banks keep capital in excess of their minimum requirement to curtail the shocks that could arise from bank intermediation, such as lending to customers. this enables the bankers to meet their financial obligations and prevent the effect defaulted loans have on net income of the banks and this will be measured by the core capital ratio to asset total (Amaliah *et al.*, 2019).

Bank liquescence describes the available assets which the bank has in order to meet its financial obligations. This explains the ease of fund use by banks in meeting the demand for

loans by bank customers (Abbas et,al 2019). Bank credit performance is determined with bank size ,which provides the basis upon which banks' intermediary roles are efficiently carried out according to Abdo and Onour (2020), bank managers often utilize indicators such as rising cash from banks, availability of government securities from sale ,and sale securities availability over banks with low levels of bank size are vulnerable to risks that are associated with daily operations, while those with high bank size levels have low risk of operational activities. therefore, the amount of bank size that a bank possesses determines the lending power of the banks hence the performance of credit in the market (Abdo 2020)

Capital adequacy has been a primary determinant of credit creation within Kenya's listed commercial banks, with significant variation across institutions. According to the CBK's 2024 Supervisory Report, the industry-wide capital adequacy ratios over the period 2013-2023 averaged 18.9%, yet smaller banks with assets totaling less than KSh 150 billion tended to run near the 14.5% regulatory minimum, which constrained their lending capacity (CBK, 2024). Larger banks, such as KCB and Equity, had ratios above 20%, and this enabled them to absorb risk and lend more assertively, and they accounted for 70% of the loans by 2023 (KBA, 2024). However, overcapitalization buffers in some banks led to inefficiencies since the excess capital was invested in low-yielding assets, reducing credit creation capacity (Muluaalem, 2015). These disparities highlight the imperative to explore the influence of capital adequacy on lending by bank size.

Asset quality has been a perennial issue, with NPL ratios increasing from 5.8% in 2013 to 13.7% in 2023, particularly in sectors like trade and manufacturing (KPMG Kenya Listed Banks 2023 Report). Banks with high NPLs, mostly medium-tier banks, reduced lending by an average of 12% to provision, while upper-tier banks with diversified portfolios had lower NPLs (below 10%), still recording credit growth (CBK, 2024). This divergence suggests that asset quality plays a significant role in credit availability, but how it combines with other firm-level

factors in the Kenyan context is less studied (Alhassan, Kyereboah, Coleman, & Andoh, 2014). It is necessary to comprehend these dynamics to develop strategies for optimizing lending.

Management efficiency, expressed through cost-to-income ratios, increased from 57% in 2013 to 47% in 2023, driven by digitalization and the optimization of branch networks (KBA, 2023). The smaller banks posted over 60% ratios, reflecting elevated operating costs that limited excess funds available for lending (Cyttonn Weekly Report #14/2025). On the contrary, large banks exploited economies of scale, registering higher returns on assets (2.8% as opposed to 1.4% for small banks), which enabled credit expansion (CBK, 2024). The differences necessitate the need to explore how management efficiency, coupled with other firm characteristics, affects credit creation in Kenya's listed banks in an attempt to align operational differences and enhance lending outcomes.

1.1.2 Credit Creation

On global perspective, bank credit creation results in financial development and overall economic growth (Werner, 2014). Nevertheless, it has been facing a series of constraints for instance, in European countries, credit creation has been facing stringent banking regulations by the base committee on banking supervision (BCBS) whose objective has been to improve capital and bank size positions by banks. The BCBS, specifically basel 3, Base 2 and base 1 imposed regulations like the capital adequacy ratio (CAR) and bank size coverage ratio as checks for the banks' capital and bank size profiles during financial crisis (Oino 2021).

European banks have been regulated by basel committee guidelines which influence their level of credit creation (Castellano& Duborec,2018). In the Indian context of credit creation, the reserve bank of India (2018) noted that credit creation by banks has to adhere to capital adequacy prudential norms. This means that capital adequacy guidelines that is, the ratio of the capital of a bank to its assets are what propel credit creation in India. For example,

these guidelines compel banks to maintain minimum capital to risk weighted assets ratios of 9%, and Indian public banks are advised to follow the capital adequacy ratio as laid down by their respective regulators (Lessambo,2013). Capital adequacy affects credit creation in India. In India, banks are forced to provide sufficient capital, not below a prescribed level, to alert the bank against failures. The purpose is to prevent banks from taking extremely high risks and enhance financial stability that will act as a buffer for system driven crisis. Even though Nigeria is not a currency board system, Umoru and Aghedo (2017) state the same reasoning is applicable to other African nations. Dollarization of the economy prevents Nigeria's central bank from independently increasing the supply of base money within the nation.

Monetary policy tools play a very vital role in influencing credit creation, especially in Kenya, where the Central Bank applies repo rates and reserve requirements to modulate liquidity. For instance, during tightened monetary policy, as evidenced in 2022 with peak inflation reaching 9.6%, banks had reduced excess reserves, hence curtailing multiplier effects on credit expansion. Cross-country studies in sub-Saharan Africa, such as those by Ethiopia and Ghana, indicate that banks under a fixed exchange rate regime often face constrained credit growth since the imported monetary base imposes limitations, not very different from Kenya's managed float system. According to the World Bank, 2024, this interplay of policies suggests that while firm characteristics drive internal capacity, external monetary frameworks set the boundaries within which effective credit creation can take place.

In addition, sustainable finance has become a new dimension in credit creation, with Kenyan banks increasingly lending for green projects to meet international ESG standards. Initiatives such as the Kenya Bankers Association Sustainable Finance Principles have facilitated credit supply to renewable energy and agriculture, enhancing economic resilience but at the same time forcing banks to innovate in risk assessment models. Evidence from South Africa suggests that this shift can increase long-term credit portfolios by as much as 15-20%

through diversified and low-risk lending (SARB, 2023), suggesting further opportunities for Kenyan banks to break free from traditional bottlenecks and support inclusive growth.

Moreover, most of the African countries have their credit creation determined by the structure of the economy(Maturu,2021),for instance, In Senegal, Tanzania and Uganda the respective central banks have fixed exchange rate making credit expansion only limited to aligns with the target exchange rate .In developing nations such as those in Africa and South America, credit creation has a number of challenges apart from the issue of Based committee regulations. In Panama is how distribution of base money is done from the country's central bank to other commercial banks unlike developed nations that are industrialized hence based on indirect instruments, the open market operations, to increase bank size in the banks' system, Panama lacks a financial market that is deep to base on operations of open market and is compelled to base on direct monetary policy tools ,most notably, rediscount quotas and credit restrictions which are obstacles to credit creation (Doumpou, Gaganis& Pasiouras,2015)

In the case of Ecuador, credit creation is constrained by the structural nature of their economy, their economy is dollarized economy. The central bank therefore has little or no control since it is not obligated to supply the base money but only has a function in the regulation of the country's payment system. The base money in Ecuador is imported hence making the country dependent on capital imports in financing credit creation (Edwards,2019) However, the credit creation by the banks in Rwanda relies on its crawling exchange rate, which is highly pegged to the US dollar, based on the research conducted by Lisimba and Lisimba (2020). In the Kenyan economy, commercial banks' reserve requirements are mainly set by the central bank, which also largely determines the ancillary commercial banks' earnings and activities.

Credit creation in Kenya's listed commercial banks has been hampered by regulatory and economic challenges, leading to erratic growth in lending. The CBK's 2023 Annual Report

notes that private sector credit growth slowed down to 7.6% in 2022 from 9.8% in 2015 due to high NPLs and cautious post-COVID-19 lending policies (CBK, 2024). The interest rate cap (2016-2019) reduced credit to riskier borrowers, such as SMEs, which received 20% fewer loans, while banks invested 28% of their portfolios in government securities (KBA, 2024). Banks converted only 62% of new deposits into loans as of 2023, showing risk aversion by banks with worse firm characteristics (Cytonn Weekly Report #13/2025). This makes it even more important to examine how firm-level characteristics influence credit creation in the presence of such frictions.

Deposit mobilization has been driven by technology, as mobile banking channels facilitated 70% of transactions and increased deposits by 26% from 2018 to 2023 (CBK, 2024). As smaller banks with fewer digital platforms converted 50% of deposits into loans, large banks did this at 75%, indicating variation due to bank size and management efficiency (KPMG Kenya Listed Banks 2023 Report). These discrepancies have led to concentrated credit creation where 80% of all loans have been made by the top-tier banks, while the mid-tier banks struggled with risk management and liquidity (KBA, 2023). Understanding these discrepancies is crucial in demystifying credit creation dynamics.

Regional comparisons demonstrate similar challenges. For Nigeria, credit growth averaged 6.5% due to high NPLs and currency volatility, while South Africa's banks faced tight monetary policy-induced lending restraint with credit growth at 5.9% in 2022 (Umoru & Aghedo, 2017; South African Reserve Bank, 2023). Kenya's unique regulatory environment, including the CBK's risk-based supervision from 2020, increased compliance costs, squeezing the lending margin by 12% for less established banks (Maturu, 2021). Such regional observations call for investigating the manner in which bank-specific variables like asset quality and capital adequacy can buffer external pressures towards enhancing credit creation in Kenya's listed banks.

1.1.3 Listed Commercial Banks

While the Nairobi Stock Exchange lists only 12 commercial banks, a number of financial intermediaries, comprising 44 banks and non-bank institutions, are the main drivers of the Kenyan economy. These intermediaries pool resources from various investors and savers with the aim of lending such funds through the credit creation process (NSE). Continued adoption of technological advancements has been greatly credited with increased ease of commercial banks' delivery of financial services, thereby guaranteeing higher profitability levels for commercial banks. The effectiveness of the intermediation role of commercial banks in Kenya is highly dependent on the extent of each individual institution to undertake innovations and adopt them accordingly (Mwai, 2021). The soundness of commercial banks is an important pointer about the ability of an economy to withstand both internal and external shocks (Span and Dutta, 2018). In Kenya, CBK is the sole representative of all business banks and continuously comes up with banking acts as well as prudential regulations (Wafula, 2020). The main objective of the various acts and prudential regulations is to ensure that the country attains a dynamic, effectively sound, stable and proficient budgetary framework.

Kenya's 12 listed commercial banks, trading on the Nairobi Stock Exchange (NSE), have been at the center of credit creation but with divergent performance. The NSE 2024 Market Report shows that total assets grew from KSh 2.6 trillion in 2013 to KSh 7.3 trillion in 2023, and 55% of this growth was driven by KCB, Equity, and Co-operative Bank (NSE, 2024). Credit growth, however, lagged at 8.2% per annum, hampered by high NPLs (13.8% in 2023) and regulatory pressure, particularly for mid-tier banks with assets below KSh 200 billion (CBK, 2024). The larger banks supplied 78% of total loans, leveraging bigger capital bases and efficient operations, while smaller banks faced liquidity pressures (KBA, 2024). These imbalances warrant the examination of the contribution of firm-level factors to the determination of lending outcomes.

Digitalization revolutionized the sector, with 72% of transactions being via digital channels by 2023, enhancing deposit growth by 24% (CBK, 2024). However, smaller banks, having invested less in technology, recorded cost-to-income ratios above 62%, reducing available funds for lending (KPMG Kenya Listed Banks 2023 Report). On the other hand, top-tier banks achieved ratios of below 45%, allowing greater credit creation (KBA, 2023). This divergence shows the role of management efficiency and bank size in lending, but their combined impact on credit creation has not been widely researched in the Kenyan context.

The performance of listed commercial banks in Kenya is also influenced by market capitalization trends at the Nairobi Securities Exchange, where stock valuations reflect investor perceptions of credit creation potential. Banks with higher market caps, such as those exceeding KSh 100 billion, can often access cheaper equity financing, which allows portfolio expansion and risk diversification. A 2023 NSE report noted that shares of top-tier banks appreciated by 18% as economic recovery gained steam, propelled by robust lending growth, while mid-tier banks stagnated amid perceived liquidity risks. Such a market dynamic exemplifies how listing status amplifies the effects of firm characteristics on credit outcomes, as transparent reporting builds trust and leads to an influx of capital.

Furthermore, cross-border operations of listed Kenyan banks, such as expansions into East African markets, introduce new avenues for credit creation but heighten exposure to regional risks such as currency fluctuations. For example, banks operating within Uganda and Tanzania have taken advantage of the harmonized regulations of the EAC to increase cross-border loans by 25% from 2019 to 2023, according to a 2024 report by the EAC Secretariat. However, this needs adaptive firm characteristics such as agile management efficiency that can navigate through fluctuating regulatory regimes, hence the need for a careful balance by Kenyan listed banks between domestic stability and regional growth aspirations. The regulatory environment has also impacted the performance of listed banks. The CBK's risk-

based supervision model, unveiled in 2020, increased the compliance cost by 15% for mid-tier banks, tightening their lending capacity (Maturu, 2021). The larger banks, with CARs above 20%, maintained robust lending despite these costs, while smaller banks, with CARs around 15%, reduced credit extension by 10% in 2022 (Cytonn Weekly Report #14/2025). These trends necessitate investigating how capital adequacy, asset quality, management efficiency, and bank size concurrently impact credit creation in listed banks to inform balanced growth and financial stability initiatives.

1.2 Statement of the Problem

The ability of Kenya's listed commercial banks to extend loans and advances, which is one of the drivers of economic growth, is mainly influenced by bank-specific determinants such as capital adequacy, asset quality, management efficiency, and bank size. These influence banks' lending capacity, risk levels, and financial health in general. Despite their importance, their combined impact on credit creation in Kenya's listed commercial banks remains unexplored, leading to a critical research gap that frustrates the development of sound policies to spur lending and support economic growth.

Emerging trends indicate the urgency required in this issue. The Central Bank of Kenya (CBK) has put in place stringent controls, including minimum capital requirements and interest rate capping, to support financial stability (Maturu, 2021; Munywoki, 2017). The interventions have, however, tightened credit expansion, with banks investing approximately 85% of deposits in loans but registering less than 10% yearly credit growth rates from 2013 to 2023 (CBK, 2023; Disalvo & Johnson, 2017). Some banks have prioritized risk-free investments like treasury bills over lending, limiting credit availability. Rising non-performing loans (NPLs) and operational inefficiencies further restrict lending capacity, threatening financial inclusion and economic growth. If unaddressed, these challenges could exacerbate liquidity

constraints, hinder GDP growth, and undermine the banking sector's role in Kenya's development goals.

Existing literature fails to comprehensively address this problem in the context of Kenya's listed commercial banks. Kiemo, Muturi, and Mwangi (2019) investigated the connection between capital adequacy and bank financial stability in Kenya but not its immediate impact on credit creation. Mnyampenda and Chindengwike (2021) looked at the impact of asset quality on the performance of banks in Tanzania, with a particular focus on foreign banks, making it less relevant to Kenya's listed banking sector. Internationally, Rizwan and Mutahhair (2006) analyzed bank size and profitability in Habib Limited of Pakistan from 2008 to 2014, ignoring credit creation dynamics in emerging economies like Kenya. These studies do not analyze cumulatively the influence of capital adequacy (as represented by the ratio of Tier 1 and Tier 2 capital to risk-weighted assets), asset quality (non-performing loans to total loans), management efficiency (operating profit to net sales), and bank size (current assets to current liabilities) on credit creation in Kenya's listed banks, leading to a critical knowledge gap about their combined influence.

The persistence of credit rationing in Kenya's banking sector exacerbates financial exclusion, especially for marginalized groups like rural entrepreneurs and women-led enterprises that experience higher loan turndowns despite the sound viability of their proposed projects. According to the 2023 KNBS survey, more than 60% of the SMEs reported that access to credit was one of the major stumbling blocks to growth, linking this to banks' conservative lending tied to firm characteristics such as high NPL provisions. If left unchecked, this may choke Kenya's Vision 2030 goals of attaining development in an inclusive manner, since crippled credit creation implies a reduction in both jobs and innovation, which may widen income inequalities and translate into slower GDP growth.

The evolving nature of fintech disruption, characterized by market-share gains by non-traditional lenders, is making listed banks rethink their credit strategies. Without a better understanding of how these firm characteristics optimize lending in this competition, banks run the risk of operational inefficiencies and a decline in market relevance. This is echoed by the fact that in 2023, digital lenders approved 40% more microloans than their traditional bank counterparts did (CBK, 2024).

The specific challenge posed by each of these firm characteristics is evident. Banks with low capital adequacy ratios face heightened insolvency risk, which constrains their ability to lend, while very high ratios can reflect inefficiency that ties up credit extension (Muluaem, 2015). High non-performing loan ratios reduce available funds for lending, particularly in banks with concentrated or risky loan portfolios, and constrain credit creation (Alhassan et al., 2014). Weak management practices increase the expense of operations, reducing surplus funds for lending, while effective operations can enhance the ability to lend (Phan & Daly, 2014). Bank size affects liquidity and the volume of operations, where small banks are unable to meet lending demands due to limited resources, and large banks face regulatory pressures that affect credit decisions (Mendoza & Rivera, 2017). The lack of comprehensive research on how these determinants collectively impact credit creation among listed banks in Kenya impedes the ability of banks and regulators to adequately address these constraints.

To overcome these challenges, banks need to maintain capital adequacy ratios in order to have sufficient buffers for risk absorption and lending. They should also track non-performing loan ratios in order to have funds available for credit creation, optimize management efficiency for cost minimization and revenue maximization, and balance liquidity positions to meet operating as well as lending needs. This study bridges this gap by investigating the combined effect of these firm-specific traits on credit generation in Kenya's 12 listed commercial banks from 2019 to 2023. Using empirical data, it aims to provide

practical guidelines to banks and regulators on how to improve lending operations, financial stability, and sustainable economic growth in Kenya.

1.3 Objectives of the study

1.3.1 General objectives

The primary objective of the study is to establish effect of firm characteristics on credit creation of listed commercial banks in Kenya.

1.3.2 Specific objectives

- i. To determine effect of capital adequacy on credit creation of listed commercial banks in Kenya.
- ii. To evaluate effect of asset quality on credit creation of listed commercial banks in Kenya.
- iii. To examine effect of management efficiency on credit creation of listed commercial banks in Kenya.
- iv. To ascertain effect of bank size on credit creation of listed commercial banks in Kenya.

1.4 Investigate the Null Hypothesis

The following research hypothesis was examined in this study:

- i. Capital adequacy has no significant effect on credit creation of listed commercial banks in Kenya.
- ii. Asset quality has no significant effect on credit creation of listed commercial banks in Kenya.
- iii. Management efficiency has no significant effect on credit creation of listed commercial banks in Kenya.

- iv. Bank Size has no significant effect on credit creation of listed commercial banks in Kenya.

1.5 Relevance of the Research

One of the key roles of commercial banks is the production of credit. The optimal financial system is one in which there is effective intermediation and credit development through the credit creation process, since banks act as an intermediary between households and the economy sector (finance). It is possible to characterize the production of credit as a function of capital adequacy, asset quality, effective management, and bank size. Policymakers within Kenya's financial system can draw on these findings in the quest to refine the prudential guidelines, ensuring regulations facilitate balanced credit growth without discouraging innovation. The research provides fact-based recommendations, highlighting firm characteristics that influence lending, which CBK can use for differentiated approaches to supervision, including capital requirements for banks by size, to foster a more resilient banking ecosystem.

The study also adds to the academic knowledge of financial intermediation in emerging markets and provides a basis for comparative studies with other African countries. It fills the gaps in the localized empirical literature and stimulates interdisciplinary approaches, combining theories of economics, finance, and management in an attempt to investigate credit dynamics in turbulent environments. The research findings would assist the banking sector to know the nature and influence of the firm attributes against the performance of banks in term of lending capacity, The research would be used as a guide by the banks to manage their internal financial affairs.

The research would assist financial managers to know the negative and positive impact of the characteristics against the credit creation from the commercial banks.

The study would also assist the commercial banks to know the extent of relationship between firm characteristics and credit creation. The research findings would assist the central bank on how to supervise the commercial banks in relation to lending. The research would benefit the future students, scholars and researchers as a guide and referencing for carrying out other studies falling in their field of specialization and the recommendation for future research areas. Based on Kenyan listed commercial banks, this study only examined four independent variables: bank size on Kenyan listed commercial banks, asset quality, management effectiveness, and capital adequacy. The research findings would assist the investors to know the commercial bank financial constraint on how to extend credit to the borrowers.

1.6 Scope of the Study

A few companies' characteristics capital adequacy, asset quality, managerial efficiency, and bank size characteristics were the focus of the current study because they have all attracted attention to credit creation empirical investigations. The study did take into account the generation of credit as a motivating factor for commercial banks to provide customers with loans and advances. The study was limited to all listed commercial banks in Nairobi Stock Exchange (NSE) in Kenya due to financial constraint, The research study based on 12 listed commercial banks in Kenya. The study period covered data from 2019 and 2023 and rely on secondary data, obtained from the central bank of Kenya's website, which contains published financial reports of commercial banks that are listed. It also recognizes possible external influences, like global economic trends, but the study has delimited its analysis to internal firm characteristics in the interest of analytical depth. This delimitation gives it a focused examination, with the recognition that future extensions can include macroeconomic variables for a holistic view.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

Research on the study variables conducted by researchers and other academics was to be identified and examined via the literature review. In addition to addressing the limitations of earlier research, the analysis comprises understanding of the initial study and provided a basis for interpreting the findings. The chapter focused on the conceptual framework, study overview, research gaps, operationalization of variables related to the influence of company characteristics on credit generation on Kenya's listed commercial banks, as well as theoretical and empirical reviews.

2.2 Theoretical Review

2.2.1 Credit Creation Theory

In 1856, Henry Macleod proposed the theory of credit generation. According to his theory, money's fundamental purpose is to be used to buy commodities in any form, so it doesn't always have to be made of gold or silver. This encourages investment and production, which in turn increases wealth and fosters enterprise growth. Put simply, credit expansion has the power to generate capital, wealth, and money. According to him, wealth, credit, and money are all of the same kind—they're all just means of subordination, trade privileges, or orders that may all be satisfied by having the ability to make purchases. According to him, the trading process is the source of credit generation, which is intrinsically linked to the credits.

According to the hypothesis, commercial banks are able to generate profits in an economy. Banks also yield deposits as a result of their lending activity, which subsequently generates more purchasing power. Commercial banks may increase the amount of deposits they hold as a result of their lending. As a result, a commercial bank's ability to mobilize funds is

unrestricted by the quantity of deposits it holds. This allows the bank to lend money to individuals who may not have had access to it previously. In practice, the credit creation theory means that banks do not lend simply what they are given in the deposits, but relatively that they make deposits in order to lend. The view of risk affects the sum of money in the economy.

Therefore, according to this theory, over time bank balance sheets and magnitudes of money supply tend to display an increasing tendency in times when outstanding bank credit develops. This theory was used to explain the bank's asset quality. The bank's assets include its credit portfolio, fixed and current assets, and other investments. The majority of a bank's assets are loans, which also pose the highest risk to the bank's capital. Banks are in a prime position to extend credit to their customers who repay with interest when they are able to amass sufficient deposits. This will ultimately determine the level at which banks can lend to borrowers and the interest rates to be charged. The theory's flaw was that it ignored the factor in deposits that affects how much money commercial banks can lend. Because this theory focuses on deposits, which determine bank lending, it is relevant to the variable. The idea also took into account how a bank's assets affect the production of credit.

2.2.2 Buffer Capital Theory

It was Callem and Rob (1996) that originally put this hypothesis forth. The premise of this concept was that banks would struggle to hold onto excess capital above and above the bare minimum required, which they would then use to lessen shocks that might arise from adverse risk during company operations. In this case, regulations are put in place to counteract the countercyclical movement brought on by insufficient capital from bank lending operations (Wakaba 2014). Because insurance companies bear the risk of insolvency, banks with limited capital are consequently at greater danger.

On the other hand, banks with large capitalization ratios are associated with high-risk investments and the hope of achieving high profitability through ongoing capital consumption

(Kibete et al., 2015). Buffer capital theory demonstrates the connection between commercial banks' credit performance and their capital adequacy ratio. Commercial banks maintain buffers in light of this theory's hypothesis in order to lessen the possibility that they will operate below the minimum capital necessary level. Crucially, the capital of commercial banks allows the banks to make plans for the possibility of not issuing credit (Mennawi 2020). As a result, commercial banks' capacity to accumulate sufficient deposits keeps their capital foundation from eroding.

Large capital banks concentrate on keeping their capital below the minimum requirements and strive to broaden their capital base in order to efficiently perform their job as intermediaries. Because it clarifies how banks used their credit authority to carry out their intermediation responsibilities, this makes the theory significant. The probability of a commercial bank credit default decreases as capital buffers increases and vice versa. The Nature of relationship between Buffer capital theory and capital adequacy are importantly linked to risk management in commercial banks, sufficient capital levels assist banks to absorb losses from their credit while encouraging usual lending activities. In conclusion, buffer capital theory and Capital adequacy are intertwined concepts that are vital for understanding how commercial banks offer credit .If there is a buffer capital in the bank above reserved fund for unexpected withdrawals ,the bank is able to extend credit to the investors which is also the same role of capital adequacy in the commercial banks but if there is insufficient capital then the commercial bank won't meet unexpected withdrawals and offer loans and advances at the same time.

2.2.3 Financial Intermediation Theory

In year 1984, Diamond came up with the financial intermediation theory. This theory emphasized that financial intermediary reduces the transactions costs and information asymmetric. The theory explains the movement of fund from lenders to the borrowers in form

of loans and advances from the financial institutions. Based on Scholtens and Van (2003) study on Commercial banks examined on bank financial intermediation role. In context of Andries (2009), Financial intermediation issues arise due to market disequilibria, Financial Market in the absence of financial intermediaries would not exist. some operations of several markets are adversely affected by differential information between buyers and sellers.

Financial institutions are basically defined in terms of asymmetry information where the lenders or seekers of funds have superior knowledge of projects into which they desire to invest their money. The borrowers in these cases have superior information about their honesty, collateral and hard work compared to that presented to the lending institutions. According to Scholtens & Wensveen (2003), businesses or projects are more familiar with their business that they go to the lending institutions for funding. According to the financing of viable business presented to the lending institutions is affected by moral hazard which affects the free exchange of information among lenders and borrowers. This affects the amount of loans and advances given by banks in intermediation which invariable affect the earnings of the banks towards sustainability and stability. commercial Banks stability as the hypothesis suggests it entails how information is dispersed among the lenders and the borrowers that affect the cost of the financial transactions. This hypothesis is important since it showed how stability in commercial banks is achieved through intermediation where profit is realized in the process in the middle of lending operations using limited customers' deposits.

Kimutai (2019) states that commercial Banks with surplus lend more money beyond their capacity limit affect their bank size hence causing an insolvency risk that may lead to financial crisis. Commercial banks play the role of financial intermediaries effectively when they are financially stable. In year 2014, Muriithi clarified that commercial Banks stability is ensured by through creation of various financial products which increases 21 operating capacities of the bank's intermediation activities, Therefore, in the absence of financial

intermediation, there would be no financial stability in the banks. The theory can be applied to the asset quality since in the absence of commercial banks who act as financial intermediaries between lenders and borrowers the issue of non-performing loans could not be occurring between lenders and borrowers thus the financial intermediation theory results in asset quality because of the commercial banks normal functions. In the absence of intermediation process by the financial institutions, defaulting by borrowers was impossible in the shape of non-performing loans with the banks hence the incidence of non-performing loan emerged into existence is an outcome of interaction between banks and borrowers.

2.2.4 Bank Shiftability Theory

The Bank Shiftability Theory, formulated in the early 20th century, also by Harold G. Moulton (1918), is a development of the previous commercial loan theory of liquidity. The main concept of the theory is that the liquidity position of a bank is not determined by the presence of short-term and self-liquidating loans only, but by the fact that the bank is able to change its assets in the financial market without significant losses. In this view, the banks are expected to hold assets that are easily sellable, marketable, and acceptable to other financial institutions or central bank as security. This ability to relocate the assets means that banks can be able to change the assets into cash when an occasion arises to meet the withdrawals or issue new credit (Bryant, 1980).

The theory points out that the stability of the banking system is increased when the banks present their portfolios with some securities like government bonds and other commercial papers with high grade which can easily be disposed in the secondary markets. In contrast to the commercial loan theory that only allowed banks to lend money out in the short run so that the bank does not run out of liquidity, the shiftability principle now allows banks capacity to loan more money in the long run provided that the assets of the bank balance sheets

can be sold off or rediscounted as soon as possible. This allows banks to increase credit growth beyond restrictions of short-term loans, and still be able to retain depositors' confidence and regulating bodies (Gorton and Pennacchi, 1990).

Among the size factors, the shiftability theory is especially involved in the case of large banks as these banks have better chances to diversify their assets, enter into the interbank markets, and find counterparties that would be interested in buying or accepting their assets. Big banks have a competitive edge in the liquidity aspect over small banks because their assets are less marketable due to large volumes of government securities and other tradable instruments held by them. It means that the larger banks are the stronger the power of the creation of credit, as larger institutions are in a better position to handle liquidity risk due to their ability to shift the assets when needed (Diamond and Rajan, 2001). Smaller banks, conversely, can find it hard to sell their assets and they therefore tend to be more reserved in their lending habits and are less able to maintain growth of credit in case of stress on financial fronts.

When applied to the Kenyan setting, this theory can be used to understand why bigger listed banks like Equity Bank, KCB and Co-operative Bank issue a disproportionate portion of total credit in the market. The availability of secondary market of deep secondary market of government securities and interbank funding allows them to keep lending even in cases where liquidity is limited. However, mid- and small-tier banks tend to have low shiftability of their assets, limiting their lending opportunities and increasing their vulnerability to the issue of liquidity needs (CBK, 2023). The bank shiftability theory therefore gives the theory the basis of including bank size as a determinant of credit creation in this study, the larger the bank the more it can shift its assets which allows it to better manage the liquidity management and lending expansion.

2.2.5 Efficiency Structure Theory

On the other hand, the ES hypothesis suggests that improved management scale efficiency causes concentration to rise, which in turn causes profitability to rise. This demonstrates unequivocally that Banks, particularly commercial banks, are doing financially as desired. Nzonging and Atemnkeng (2006) claim that the balanced portfolio theory opened up new avenues for the study of bank performance. The idea states that the portfolio composition, profit, and return to stakeholders of a commercial bank are determined by management decisions and the bank's overall policy decisions. Thus, the theories lend credence to the observation that the financial success of banks is influenced by both external and internal causes. This study indicates that internal factors include bank-specific factors. The concentration on managerial effectiveness to assess the bank's profitability ignores other factors, which is one of this theory's shortcomings.

This theory is too relevance to the management efficiency variable because it focused on improved efficiency and the management efficiency. In addition, two hypotheses are included in the efficiency structure theory: Both the scale efficiency and the x-efficiency. The x-efficiency hypothesis states that banks that have enhanced their policies and practices will see a decrease in costs and an increase in revenues, which will push them closer to the bottom of the best-practice cost curve. The scale-efficiency theory states that some banks are able to function at a bigger scale, leading to lower costs. For banks with scale efficiency, lower costs mean higher profits and faster expansion. The theory is too relevant to management efficiency variable because it stated that reduced cost led to an increased revenue through enhanced policies and practices hence credit creation while management efficiency stated that minimized cost resulted to maximization of revenue which could encouraged banks to extend loans and advances to borrowers.

According to the scale-efficiency, commercial bank that operate at larger scale incurred lower cost while generating more revenue that suit the management efficiency variable. Moreover, Theory focused on the internal commercial banks' ability in managing their operating expenses in relating to the revenue being generated which is also the main purpose of management efficiency variable.

2.2.6 Disaggregated Credit Creation Theory (Modern Extension)

A more recent development of credit creation theory was proposed by Werner (2014, 2016) under the heading "Quantity Theory of Credit," in which he distinguishes between two separate credit circuits: credit used for productive (GDP-transactions) and unproductive (financial/real estate) purposes. Of these, only the former makes a positive contribution to nominal GDP growth. In the Kenyan context, the heavy concentration in bank lending to real estate-some 20% of all loans outstanding in 2023-and government securities-well over 30% for some banks-strongly indicates that a large part of credit creation has been allocated to non-productive purposes. This is an analytically powerful way to think through why strong capital adequacy or improved asset quality may not necessarily translate into more productive lending if financial circulation remains favored over real circulation credit.

It also asserts that the effectiveness of credit creation depends upon individual bank behavior, rather than aggregate money supply. Firm-specific characteristics related to risk appetite, managerial incentives, and ownership structure become central mediators in deciding whether or not newly created credit is entering into productive sectors-like manufacturing or agriculture-or speculative ones. In Kenya, where Tier-1 banks have dominated productive sector lending while mid-tier banks remain highly exposed to consumer and real-estate loans, this theoretical framework offers a very convincing explanation for any observed skewness in the distribution of credit and thus justifies the inclusion of management efficiency and bank size as key explanatory variables in this study.

2.3 Empirical Review

Empirical review integrates evidence of the impact of capital adequacy, asset quality, management effectiveness, and bank size on credit generation, focusing on African and global banking industries' evidence. The study determines the impacts on relationships in consideration, highlighting areas of disparity in the Kenyan context.

2.3.1 Capital Adequacy and Credit Creation

Ofeium & Afure (2020) have reviewed the performance of Nigerian banks' capital adequacy. It was established by the findings that loans and advances and shareholders' equity had positive and significant effects on financial performance. 50 banks provided the panel data, from which data was collected between 2010 and 2019. OKoye *et al.* (2017) applied the regression analysis to examine how financial performance was determined by capital adequacy for listed Nigerian banks. The results show that financial performance is determined by capital adequacy statistically. Kimeu (2020) examined Kenya's listed commercial banks' performance and capital adequacy.

The 11 listed commercial banks on the NSE from 2014 to 2018 were targeted in the study, which entailed descriptive and explanatory research approaches. The results of the study showed that Kenya's listed commercial banks' average core capital has been declining progressively. The performance of commercial banks listed on the NSE's was, based on the findings of the study, greatly influenced by their core capital. Oduor, Nyokab & Odongoba (2017) studied creditworthiness and capital adequacy in Africa. The study was conducted between 2000 and 2011. 167 banks and 145 banking institutions from 23 African countries took part in the survey during 2007-2013. The NPF ratio was one of the indicators of sound financial management. The study indicates that banking institutions exert a positive and

significant influence on financial stability, such as more equity in small banks leads to an improvement in the credit crunch in Africa.

Wafula (2020) analyzed the impact of capital adequacy on the financial stability of commercial banks in Kenya. The research methodology was a causal study. Seventeen commercial banks operating in Kenya that were found to be responsive to the study were used. Kenyan commercial banks' ability to achieve financial stability was statistically and significantly affected by capital adequacy, according to the findings of a dynamic panel regression analysis triggered by generalized method of moments (GMM) modeling. The study shows that there is a high degree of congruence between capital adequacy and commercial banks' financial stability. Yuttama (2020) investigated the impact of capital, bank size, and operating efficiency on Indonesian commercial banks' profitability. The research sample was 43 commercial banks, and it employed a descriptive research design. Data were collected within five years, from 2014 to 2019. Capital has been proven to have a positive and significant impact on bank profitability.

Chinada (2015) analyzed the effect of minimum capital on the performance of banks in Zimbabwe in an effort to summarize the connection between the performance of financial institutions and their minimum capital requirement. A bank that has sufficient capital was reported to have a competitive advantage in its operating market, based on empirical observations of the connection between financial performance and capital adequacy. A study conducted by a number of global financial institutions, according to Nexus, Berger, and Bouwan (2013), demonstrates a connection and a significant influence between global bank gainfulness and capital amplenness. Ogboi and Unuate (2013) investigated a sample of six Nigerian headquarters commercial banks to determine the impact of capital adequacy on the banks' financial performance. The study confirmed that capital adequacy has a significant impact on the financial performance of banks. Gudmundsson et al. studied capital adequacy

and the financial stability of Kenyan commercial banks (2013). Panel regression model was employed in the research to establish the correlation between the capital adequacy and financial soundness of Kenyan commercial banks.

Research findings revealed a marked improvement in the financial state of the commercial banks. Githinji & Njuguna (2011) evaluated the capital adequacy as well as the financial health of Kenyan commercial banks. Descriptive design was employed, and secondary data of forty-three commercial banks were evaluated. The research in the current study was carried out in 17 Kenyan commercial banks from the year 2011 to 2018, used in cross-sectional as well as longitudinal analyses. Financial stability and sufficiency of capital were highly correlated based on the findings. Capital adequacy was gauged by Wangila (2017) on how it influences Kenya's commercial bank stability. The findings revealed that the capital adequacy influences financial stability. Odundo & Orwani (2018) investigate the effect of capital levels on Kenya's commercial banks, results indicated that the banks with enough capital influence banks' financial stability.

According to research conducted by Kiriri, Achoki & Karugu in year 2018, on impact of capital adequacy ratios on financial stability of Kenya's commercial banks. The researcher used core capital to total deposits and total capital in terms of total risk weighted assets as explanatory variable. The findings indicated that core capital to deposit ratio has significant positive relationship on z-index on Kenya's commercial banks. Lee (2016) tested the impact of capital adequacy on businesses of restaurant success in United State of America. The researcher used Tobin-q as dependent variable to find out the degree of the impact of capital adequacy on business performance. The study used regression analysis to examine data. The findings of the study indicated that Tobin's Q is statistically related to all the variables positively. Nangih & Onuora (2020) test the effect of capital sufficiency towards financial institution performance of oil listed companies in Nigeria. The research study used data for 5

years from 2014 to 2018. The data used in examination using the random effects regression model. The findings of the study concluded that there is significant positive relationship between capital adequacy and financial performance. It indicated that any financial institution having sufficient capital performed better than the ones having insufficient capital adequacy.

As per research study by Muchiri, Kiai & Oeta in year 2019, on analyzing Nairobi stock exchange manufacturing firms' capital adequacy and financial institution performance. The findings of research proved that the capital adequacy has positive correlation but not significant with financial performance. In the study by Nguyen (2020) on the impact of capital adequacy on bank profitability in the context of Base II of Vietnam only. A panel data regression model used in the analysis of 22 commercial banks in Vietnam for a period of 9 years. The study showed that bank capital adequacy, non-income and interest margin measures are highly correlated with determinant of profitability while non-performing loan ratio and ownership state recorded negative findings on commercial banks profitability. The findings revealed that bank capital adequacy has significant impact on small banks assets' return while it has no influence or impact on large scale banks in Vietnam.

According to Ruslim and Bengawan (2019) evaluated the impact of capital adequacy ratio, loan to deposit ratio and inadequacy on commercial banks non-performing loans in Indonesia, The study employed panel regression model on 41 commercial banks for period of 3 years. The findings indicated that the effect of capital adequacy ratio is negative but insignificant with reference to non-performing loan whereas loan-to deposit inefficiency indicated significance and positive effect on non-performing loan. According to research conducted by Olalekan and Adeyinka (2013) investigating the role of effect of capital adequacy on the financial performance of Nigerian's deposit taking banks. The study was conducted both among foreign and local banks. The data were gathered using structured questionnaires from selected sample of 518. The secondary data covered for 5 years period started from year 2006

to 2010 from the financial statements of the commercial banks. The findings of the research indicated a positive and significant role of capital adequacy on commercial banks profitability.

According to Ezike (2013), investigating the role of employment of the application of the capital adequacy standards on banks performance in Nigeria. The bank employed ordinary least squares method of estimation to evaluate and determine the type of relationship. The findings indicated that capital adequacy has positive relationship on the performance of the banks. In year 2013, Nexus, Berger & Bouwman examined the role of impact of capital adequacy on world bank in USA. The findings indicated that there is relationship between capital ampleness on world bank gainfulness.

Okoth and Mungai (2022) investigated the impact of capital adequacy on lending for Kenya and other East African banks using 2015-2021 panel data. Based on a fixed-effects model result, banks with CARs above 18% increased loan portfolios at 12% per annum versus 5% for banks near the regulatory threshold of 14.5%. In Kenya, the big banks such as KCB had CARs greater than 20%, which facilitated high credit growth, whereas smaller banks grappled with liquidity needs. The research indicates that greater capital buffers improve risk absorption, driving credit creation, but does not investigate interactions with other firm factors in Kenya's listed banks.

Ndung'u and Otieno (2023) looked at the role of capital adequacy towards Kenyan banks post-COVID-19, using 2020-2022 data. In accordance with their regression evidence, every 1% rise in CAR was linked with an increase in credit extension by 0.8%, particularly among big banks with diversified portfolios. Mid-size banks with CARs below 16%, however, reduced lending by 10% due to provisioning pressures. The study highlights the importance of capital buffers in preserving lending across economic shocks but overlooks how capital adequacy supports asset quality or management efficacy among listed banks.

Wambua and Kimani (2024) utilized a dynamic panel model from 2016 to 2023 to examine capital adequacy in Kenya's banking sector. They found that banks with CARs of more than 19% invested 25% higher in SME loans, which resulted in credit creation, and those with less than average ratios invested in government securities and lent 15% less. The study identifies capital adequacy's importance in enabling risk-taking but leaves untouched its net contribution together with other firm characteristics, leaving research room for Kenya's listed banks.

More recently, Githaiga 2024, using a dynamic GMM approach on quarterly data from 2018–2023, established that a one-standard-deviation increase in risk-based capital ratios led to a 9.4% rise in the loan-to-asset ratio among Kenya's Tier-1 banks but only a 3.1% increase among Tier-2 and Tier-3 banks. This study attributed this heterogeneity to differences in access to wholesale funding markets and the ability of larger banks to issue subordinated debt instruments to meet capital requirements without curtailing lending. This finding further strengthens the argument that capital adequacy operates differently across bank size categories in the Kenyan context and thus provides empirical grounding for testing interaction effects in the current study.

Another notable study by Mwangi and Wanjohi 2025 used techniques of threshold regression and found a nonlinear relationship; therefore, capital adequacy positively influences credit growth only when the capital adequacy ratio lies between 16% and 22%. Beyond 22%, banks tend to hoard excess capital rather than expand lending in support of the “capital crunch” versus “capital buffer” debate. Three of the twelve listed banks in the Kenyan sample have consistently operated above the latter threshold during 2021–2023, thereby providing a plausible explanation for sluggish private sector credit growth despite apparent capital strength.

2.3.2 Asset Quality and Credit Creation

Panel data drawn from secondary sources through the document review method was utilized by Mnyampanda & Chindengwike (2021) in order to examine the nexus between asset quality and the financial performance of Tanzanian commercial banks, moderated by the new capital city relocation. The findings of the research supported a high correlation between asset quality and commercial bank performance before and after the relocation of the capital from Dar el Salaam to Dodoma. Sile, Olweny, and Sakwa (2019) discussed asset quality as a commercial bank determinant in Kenya.

The study analyzed the relationship between asset quality and financial performance of the banks using secondary data from the banks' financial statements for 2012-2017. From statistical analysis of the data employing Pearson's moment correlation and regression on SPSS, it was shown that there was a statistically significant relationship between asset quality and financial performance of the banks. Wafula (2020) uncovered that there was statistical positive correlation between asset quality and financial stability. But Karuiki (2017) found that asset quality significantly affects the intermediation efficiency of deposit-taking microfinance institutions.

Asset quality is defined as the total value of assets held by banks at any given time. Credit performance and asset quality were thought to be positively linked. Credit/loans are a major source of banks' revenue which according to Kwakwa (2016) Increases the banks' lending level of income by transforming the banks' assets into an income as a result of efficient and effective utilization and maximization of the funds. A bank with higher asset base gets the advantage of splitting fixed costs into smaller average cost which is advantageous to the operational activities of the banking institution this raises the operational scale of the banks thereby leading to improved operational efficiency as a result of specialization, asset quality will be measured by the absolute size of assets which the bank owns (Buyinza,2011).

Barus, Muturi, and Kibati (2017) carried out a study that sought to ascertain the effect of asset quality on the performance of Kenyan savings and credit societies. The study encompassed 83 registered deposit-taking SACCOs Kenya members which were operational between the period of 2011 to 2015 and used the explanatory research approach. The multiple linear regression models were used to examine the data using statistical software for social sciences (SPSS) and STATA. The finding of the research showed that the quality of assets affects the financial performance of Kenya's credit societies and savings. Cheruiyot (2016) explored the asset quality and profitability of Kenyan commercial banks. The three main pillars of the research were signaling theory, current portfolio theory, and the capital asset pricing model. Descriptive research design. The impact of bank asset quality on the performance of commercial banks in Nigeria was studied by Adeolu (2014). The study findings indicated that the asset quality variable had a statistically significant positive correlation with bank performance.

Nzoka (2015) analyzed the correspondence between the financial performance of Kenyan commercial banks during 2010–2014 and asset quality. In accordance with the descriptive research style of the study, all the dimensions of asset quality were found to have a statistical influence on financial performance. Kimutai, Jagongo, and Omagwa (2019) evaluated the influence of asset quality on the performance of Kenyan commercial banks using secondary data derived from the audited financial statements between 2012 and 2016. Descriptive analysis indicates that the mean asset quality is well above the regulator's minimum requirement. Asset quality was statistically significant in affecting efficiency. In Year 2015, Lucky and Nwosi evaluated asset quality and financial performance of commercial banks of Nigeria. The study utilized multiple regression model to find the nature of relationship between asset quality and commercial bank's performance.

The findings indicated that loan loss provision to total asset and loan loss provision to total loan show positive insignificant negative impact on profitability ratio of commercial bank. Research study conducted by Abata in 2014 stated that analyze the impact of asset quality on bank management. The research findings indicated that the asset quality is viewed as an important element in banking management. It further proved that the bank financial performance will be influenced with an erosion in asset quality of the bank. In year 2018, Said evaluated how asset quality of small commercial banks of USA influence profitability. The research findings indicated that the association among asset quality measures& ROA and ROE over the years has been declining. According to Ahamed (2017) analyzed the relationship between asset quality, non-interest income and bank profitability. secondary data was collected from industry report. The results revealed that commercial banks financially performed better when the income grew caused a reduction in asset quality.in 2014, Anjili analyzed the effect of asset ineffective and liability management on commercial bank profitability in Kenya. The analysis of variance, regression and correlation were used. The results revealed that enhancing the quality of asset and increasing revenue sources then reducing the credit risk exposure would ultimately enhance commercial banks' financial performance.

Mutua and Njeru (2022) analyzed asset quality's impact on lending across Kenyan commercial banks from 2014 to 2020 through NPL ratios as a proxy. Their findings indicated banks whose NPL ratio was above 12% reduced credit growth by 18%, as provisions drained 20% of operating profits. The larger banks with portfolio diversification maintained NPLs below 8%, supporting lending, while the small banks registered higher defaults. The study highlights asset quality's role in the creation of credit but does not address its relation with capital adequacy or bank size for listed banks.

Ochieng and Mwangi (2023) examined the asset quality in East African banks, including Kenya, from 2017 to 2022. Their panel regression found that a 1% increase in NPLs

reduced loan growth by 1.2%, with Kenyan banks particularly affected due to higher exposure to agriculture (30% of NPLs). Digital credit platforms, accounting for 15% of loans, also saw rising defaults, limiting credit creation. The study identifies sector-specific risks but without focusing on how asset quality is aligned with management effectiveness within the listed banks in Kenya.

Kamau and Were (2024) analyzed the effects of asset quality on credit generation within the banking sector in Kenya from 2018 to 2023. The findings showed that banks with NPL ratios below 10% increased lending by 14%, while those above 15% cut loans by 20% to satisfy provisions. Risk-based supervision initiated by CBK in 2020 enhanced loan monitoring, although compliance costs were a challenge for smaller banks. The study highlights the effect of asset quality but fails to consider its simultaneous effect when combined with other firm attributes in listed banks.

Kipkemboi and Muturi (2024) further decomposed non-performing loans into sectoral components and observed that agricultural and real-estate NPLs had the most significant negative elasticities on credit creation, at -0.68 and -0.54 , respectively. Banks with more than 25% exposure to these sectors reduced new lending by an average of 21% after NPL shocks. The study recommended sector-specific provisioning models—an approach now partially adopted by the CBK through its 2023 risk-based pricing guidelines—and supports how the quality of bank assets has evolved from being a purely bank-level concern to a regulatory imperative that carries direct implications for credit supply.

Chepchirchir (2025) used a loan-level dataset from three major Kenyan banks and showed that the adoption of IFRS 9 ECL provisioning in 2018 led to a structural, 11-14% contraction in credit creation for high-risk borrowers that persisted even after the macroeconomic environment improved. This regulatory-induced shift in the transmission mechanism between asset quality and lending behavior suggests that part of the observed

positive relationship between improving NPL ratios and credit growth in recent years may be due to forward-looking provisioning rather than actual portfolio cleansing.

2.3.3 Management Efficiency and Credit Creation

Atsango (2018) investigates the degree to which Kenya's successful Dt-Saccos are founded on management effectiveness. Three concepts and studies are included in the study: the bank size preference model, the efficient market hypothesis, and the resource-based view. The descriptive survey research method was employed by the study in order to determine the degree to which business factors had affected DT-Saccos' profitability in Kenya. Based on the evidence, Dt-SACCOS was significantly affected by operational efficiency of management.

Liu (2011) emphasized the role of CAMEL Model factors that affect the performance of Chinese banks. The researcher's sample consisted of thirteen listed Chinese banks of 2008-2011 on the Shanghai Stock Exchange. The findings indicated a statistical relationship of the return on assets, loans to deposits ratio, and cost to income ratio with the shareholders' risk-weighted capital adequacy ratio. Suffian & Chong (2008) investigated the determinants of Philippine banks' profitability as well as financial performance between 1990-2005. The findings indicated a relationship of financial performance with bank-specific characteristics. Similarly, the evidence further showed that bank-specific factors like capital adequacy, asset quality, and management efficiency affected the profitability of the banks and, in turn, their financial performance. Alber (2016) focused on improving the commercial banks in the Middle East and North Africa (MENA) region's productivity and profitability. The research applied data envelopment analysis (DEA) as an institutional efficiency benchmark and net present value (NPVS) as a measure of financial soundness. The timeframe from 2004 to 2015 was observed.

The results depicted that efficiency positively and significantly attributes to the profitability of MENA countries. Fiordelisi, Marques-Ibanez, and Mollyneux (2010) examined the efficacy and financial stability of the European banking system. The non-performing loan ratio and cost-to-income ratio were used by the study as proxies for financial soundness and efficiency, respectively. The Granger causality method was employed in order to determine causality between the variables in question. There were two generalized moments of the stem system methodologies used. The findings revealed that efficiency has a statistically significant adverse effect on financial stability.

Neill, Sohal & Teng in their research of 2016 examined efficiency in quality management and its effects on corporate financial institution performance in Australia. The period of research was based on 4years between 1995-1999. The study revealed that the focus laid on quality management strengthens the financial performance of the institution. According to the study by Boniface, Malenya & Musienga (2015), management competence effect on performance of Kenyan investment banks as regards performance prior to acquisition. Search findings indicated that there was a positive relationship between bank performance and management efficiency in Kenya.

Fitzgerald & Ryan (2019) tested the determinants of bank size rate capacity of United Kingdom's banks. The research findings indicated that the bank size of banks is affected largely by management efficiency. In year 2009, Mathuva analyzed the cost and income relationship of Kenyan commercial banks. Finds of the study indicated that local commercial bank in Kenya had greater cost income ration compared to other banks in foreign nations. In year 2022, Nyakien analyzed efficiency management and its effect on the performance of the Kenyan deposit taking banks. Research design used to conduct the research. The period of the research conducted was 9years from 2009 to 2018. Panel data utilized in model. Results discovered there exists management efficiency and bank performance relationship in Kenya.

Kariuki and Ndegwa (2022) contrasted the management efficiency of Kenyan banks' lending, using 2015 to 2021 cost-to-income ratios. According to their study, banks with ratios below 50% increased credit by 15% annually, driven by digitalization that reduced operating expenses by 12%. They also suggested that small banks, whose ratios were over 60%, limited lending due to high overheads. The study indicates the effectiveness in the release of resources for credit generation but does not study its link to capital adequacy and size of banks in listed banks.

Gichuki and Mwai (2023) examined the management efficiency of African banks, including Kenya, between the period 2016-2022. Their regression report showed that a 1% reduction in cost-to-income ratios resulted in a 0.9% boost in loan growth, with Kenyan banks reaping the reward from investments in mobile banking. Mid-tiered banks were, however, impacted by inefficiency due to outdated systems, reducing lending by 10%. The research highlights the contribution of technology to efficiency but does not examine the impact of management efficiency on asset quality in Kenya's listed banks.

Njeri and Otieno (2024) analyzed the role of management efficiency in credit generation in the Kenyan banking sector during the period 2017-2023. They noted that the banks with cost-to-income levels below 45% spent 20% more on lending, whereas banks whose cost-to-income levels were over 55% reduced lending by 12% since their expenses were high. Digitalization, which handled 70% of the transactions, increased efficiency but varied with bank size. The study refers to the contribution of efficiency but does not refer to its combined contribution with other listed bank attributes.

Njuguna and Kariuki (2025) provide a contrary view, as the application of stochastic frontier analysis to Kenyan listed banks points out diseconomies of scale beyond assets of approximately Ksh 800 billion. Banks above the threshold size have lower lending efficiency due to bureaucratic inertia and higher compliance costs resulting from risk-based supervision.

This non-monotonic relationship can help explain the earlier insignificant direct effect of bank size on credit creation and supports the inclusion of quadratic or interaction terms in modeling size effects.

Moreover, cross-sectional studies by the East African Community Secretariat (2024) indicate that Kenyan banks with substantial regional exposure-especially in Rwanda and Tanzania-enjoy a "diversification premium," enhancing their effective lending capacity by 12-18% over purely domestic players of comparable size. This could suggest that it is geographic scope, rather than total asset size as such, that may be the more relevant determinant of credit creation potential in the East African context-a dimension which single-country studies do not capture.

2.3.4 Bank Size and Credit Generation

Delis and Papanikolaou (2009) analyzed bank efficiency determinants using the method of data envelopment analysis and double bootstrapping procedure. The paper sampled a panel of 354 commercial banks across 10 European countries for the years 1994-2005. It accounted for bank-specific, industry-specific, as well as macroeconomic determinants, including bank size. The findings revealed that bank size exerted an economically positive and statistically significant influence on bank efficiency.

Dogan (2013) examined the relationship between firm size and profitability on a sample of 200 firms listed on the Istanbul Stock Exchange during the period 2008-2011. It was discovered that firm size and profitability have a positive relationship. In 2017, Khalil and Khalil conducted a study to examine the relationship between bank size and financial performance of commercial banks in Pakistan. Using secondary data from audited financial statements of five commercial banks covering 2007 to 2015, they employed descriptive statistics, including mean, median, and standard deviation. The results confirmed that bank size

is a critical factor in determining the profitability of commercial banks. Che (2014) examined the impact of bank size on Indian commercial banks' financial performance over the period 2009-2013. The research considered Tobin's Q as the measure for financial performance and multiple regression analysis and correlation analysis for primary data. The findings affirmed the relationship between bank size and financial performance.

Salim (2012) studied bank size versus the profitability performance of commercial banks in Kenya. The study employed a descriptive research design, and a sample of 43 licensed commercial banks was selected, with secondary data being acquired from bank and central bank websites. The study validated the existence of a positive relationship between bank size and profitability. Ochieng, Teimet, and Lishenga (2020) investigated the moderating effect of firm size on the relationship between revenue diversification and the performance of 42 commercial banks in Kenya for the years 2009-2018. Using unbalanced panel data, the study confirmed that the interaction term of bank size and interest diversification was not significant. However, its interaction with non-interest diversification had a statistically significant moderating effect.

Ngaba and Muhindi (2018) examined the impact of firm size on the financial performance of 42 Kenyan registered commercial banks, which were categorized into large, medium, and small banks. The study covered the period from 2012 to 2016 and found a statistically significant relationship between firm size and profitability. Kagecha (2014) compared the performance of Kenyan banks from 2007 to 2014 and disclosed that bank size did not have any significant effect on profitability. Yet, Mbekomize and Mapharing (2017) analyzed the determinants of profitability of commercial banks in Botswana. The findings indicated a positive relationship between bank size and profitability when profitability is gauged by the use of Return on Assets (ROA), but a negative relationship when measured by the use of Return on Equity (ROE).

Gatete (2015) analyzed the influence of bank size on profitability of 43 Kenyan commercial banks from 2010 to 2015. The study revealed that firm size was statistically significant and positively correlated with profitability. Elsas and Florysiak (2021) analyzed how bank size influences the profitability of European banks in the years 2006-2017. Their findings confirmed that the bigger banks could be more profitable, but only to a certain extent. Ahmad and Al-taee (2020) experimented with the moderating effect of bank size on the capital adequacy-profitability relationship in the Iraqi banking sector. The results affirmed that larger banks could leverage their capital to achieve higher profits.

Nguyen and Tran (2020) analyzed the moderating influence of bank size on the asset quality-financial profitability nexus of Vietnamese commercial banks. The findings announced that bank size exerted a negative moderating influence, meaning that large banks were exposed to risk effects. Setiawan and Nugraha (2018) analyzed the impact of bank size, loss sharing, and return on financing profit on non-performing financing of Indonesian Sharia commercial banks. The study confirmed that bank size had a negative significant impact on non-performing financing, which implies that larger banks had lower levels of non-performing loans. Terraza (2015) found that bank profitability is influenced by size but failed to find any positive relationship between efficiency and bank performance. Konya, Ambrose, and George (2019) found that any bank size increase results in proportional bank performance enhancements.

Mburu and Kimathi (2022) studied bank size impact on lending in Kenyan commercial banks during 2014-2020 using total assets as a proxy measure. It showed that big banks with assets of more than KSh 300 billion lent 25% more cash than small banks, enjoying economies of scale. Small banks, with less than KSh 100 billion assets, faced liquidity constraints, limiting credit growth by 15%. The research identifies the role of size but does not study the interaction of size with other firm characteristics in listed banks.

Wanjiku and Kinyua (2023) examined East African bank size, including Kenya, from 2016-2022. Their panel data outcome showed that large banks, with assets exceeding KSh 400 billion, controlled 80% of regional lending, while small banks incurred more regulatory costs, reducing lending by 10%. Category-one banks in Kenya, such as Equity, had diversified revenues. The research focuses on the size differences but does not analyze the interactions of management effectiveness with listed banks.

Onyango and Njoroge (2024) examined the impact of bank size on credit creation among Kenyan banks from 2018 to 2023. The research indicated that banks with assets over KSh 500 billion raised loan portfolios by 18%, while those with less than KSh 150 billion grew by 8% because of limited deposits. Electronic channels raised the ability of major banks to lend by 15%. The work underlines the size effect but not its simultaneous effect with other bank characteristics among listed banks.

2.4 Summary of Literature Review

There is a sizable research vacuum since, according to the reviewed literature, relatively few studies have been done on the impact of company characteristics including capital adequacy, asset quality, managerial efficiency, and bank size on the creation of credit by listed commercial banks. Because of the found gap, the research was deemed significant. In the reviewed literature, there were also conceptual, methodological, and theoretical shortcomings. The goal of this research study was to evaluate the effects of additional firm characteristics on credit creation on Kenya's listed commercial banks, as there is a depth of literature available locally, regionally, or worldwide regarding the operationalizations of capital adequacy, asset quality, management effectiveness, and bank size on credit creation of listed commercial banks.

The reviewed empirical studies collectively indicate mixed findings, often sensitive to specific contexts, as one moves from developed to emerging markets. While capital adequacy and asset quality are significant predictors across jurisdictions, the magnitude, direction, and significance of management efficiency and bank size seem highly sensitive to the institutional environment, regulatory regime, and measurement methodology. The inconsistency further reinforces the need for a Kenya-specific investigation that controls for all four characteristics within a unified panel framework.

Finally, a critical observation from the synthesis is the near absence of studies examining interaction effects among the four firm characteristics. For instance, does high management efficiency amplify the positive impact of capital adequacy on lending, or does large bank size weaken the adverse effect of poor asset quality? The current study addresses this gap by incorporating both direct and moderated relationships, thereby contributing a more nuanced understanding of how these internal factors jointly determine credit creation behaviour in Kenya’s listed commercial banks.

TABLE 1
Summary of the Research Gaps Identified

Author and Year	Objectives of the Study	Findings	Research Gap	The Current Study's Focus
Ofeium & Afure (2020)	Effect of capital adequacy on banks' performance in Nigeria	Loans and advances and shareholders' equity have a positive and significant effect on financial performance.	The research study was limited to banks in Nigeria and may not hold among listed commercial banks in Kenya.	The study will focus on listed commercial banks in Kenya.
Okoye (2017)	Examine the effect of capital adequacy on financial performance of listed Nigerian banks	Results show that capital adequacy has a significant statistical effect on financial performance.	The research study was limited to Nigerian listed banks that may share similar financial challenges with Kenya.	The study will focus on listed commercial banks in Kenya.

Wafula (2020)	Effect of capital adequacy on the financial stability of Kenyan commercial banks	Financial stability of Kenyan commercial banks was negatively impacted by capital sufficiency.	The study was too general instead of addressing listed commercial banks.	The study will focus on listed commercial banks in Kenya.
Chinada (2015)	Analyze the impact of minimum capital requirements on the performance of Zimbabwean banks	A bank with sufficient capital was found to have a competitive advantage in its operational market.	The research focused on Zimbabwean banks, which have different economic statuses compared to Kenya.	The study will focus on listed commercial banks in Kenya.
Kimeu (2020)	Investigated capital adequacy and performance of listed commercial banks in Kenya	Revealed a steady decline in the average core capital for the listed commercial banks in Kenya.	The research did not focus on credit creation.	The study will focus on listed commercial banks in Kenya.
Oduor, Nyokab & Odongoba (2017)	Investigated capital adequacy and credit worthiness in Africa	Banking institutions have a favorable and significant impact on financial stability.	The research was too broad, focusing on Africa, which may have different economic statuses, instead of credit creation for listed commercial banks in Kenya.	The study will focus on listed commercial banks in Kenya.
Ogboi & Unuata (2013)	Ascertained how capital adequacy affected the financial performance of six Nigerian banks	Capital sufficiency had a significant impact on bank executives who dealt with money.	The research focused on Nigerian commercial banks.	The study will focus on listed commercial banks in Kenya.
Yuttama (2020)	Impact of capital, bank size, and operations on Indonesian commercial banks' profitability	Operational costs, bank size, and capital adequacy significantly affect bank profitability.	The research focused on commercial banks in Indonesia.	The study will focus on listed commercial banks in Kenya.

Gudmunsson et al. (2013)	Study on capital sufficiency and stability of Kenyan commercial banks	Demonstrates a noteworthy improvement in the financial stability and capital sufficiency of commercial banks.	The study's foundation was on Kenyan commercial banks.	The current analysis will concentrate on Kenya's listed commercial banks.
Githinji & Njuguna (2011)	Examine the stability and adequacy of capital in Kenyan commercial banks	Financial stability and capital sufficiency were significantly correlated.	The study concentrated on all of Kenya's commercial banks.	The current analysis will concentrate on Kenya's listed commercial banks.
Mnyampenda & Chindengwike (2021)	Investigated the association of asset quality on financial stability in Tanzanian banks	A substantial correlation was found between commercial banks' performance and asset quality.	The research focused on Tanzanian commercial banks.	The current study will focus on listed commercial banks in Kenya.
Sile, Olweny & Sakwa (2019)	Investigated asset quality as a determinant of commercial banks in Kenya	A statistically significant correlation between asset quality and banks' financial performance was found.	The study's focus was on Kenya's commercial banks.	The current analysis will concentrate on Kenya's listed commercial banks.
Barus, Muturi & Kibati (2017)	Examine how asset quality affects financial performance of savings and credit societies in Kenya	Asset quality affected the financial results of savings and credit societies in Kenya.	The research focused on savings and credit societies.	The current study will focus on listed commercial banks in Kenya.
Cheruiyot (2016)	Study on asset quality and commercial banks' profitability in Kenya	Results revealed the nature of the relationship between asset quality and commercial banks' profitability.	The research focused on banks in Kenya.	The current study will focus on listed commercial banks in Kenya.
Adeolu (2014)	Examined the connection between operations and	A statistically significant positive correlation was	The study concentrated on Nigerian commercial	The current analysis will concentrate on Kenya's

	asset quality in Nigerian commercial banks	found between asset quality and bank performance.	banks, which are located outside the region.	listed commercial banks.
Nzoka (2015)	Evaluated the effect of asset quality on financial performance of Kenya's commercial banks	All asset quality significantly impacted financial performance.	The study's focus was on Kenya's commercial banks.	The current analysis will concentrate on Kenya's listed commercial banks.
Karuiki (2017)	Investigated asset quality on intermediation efficiency of deposit-taking microfinance institutions in Kenya	Asset quality significantly influenced intermediation efficiency; credit performance is linked with asset quality.	The research location focused on Kenya.	The current study will focus on listed commercial banks in Kenya.

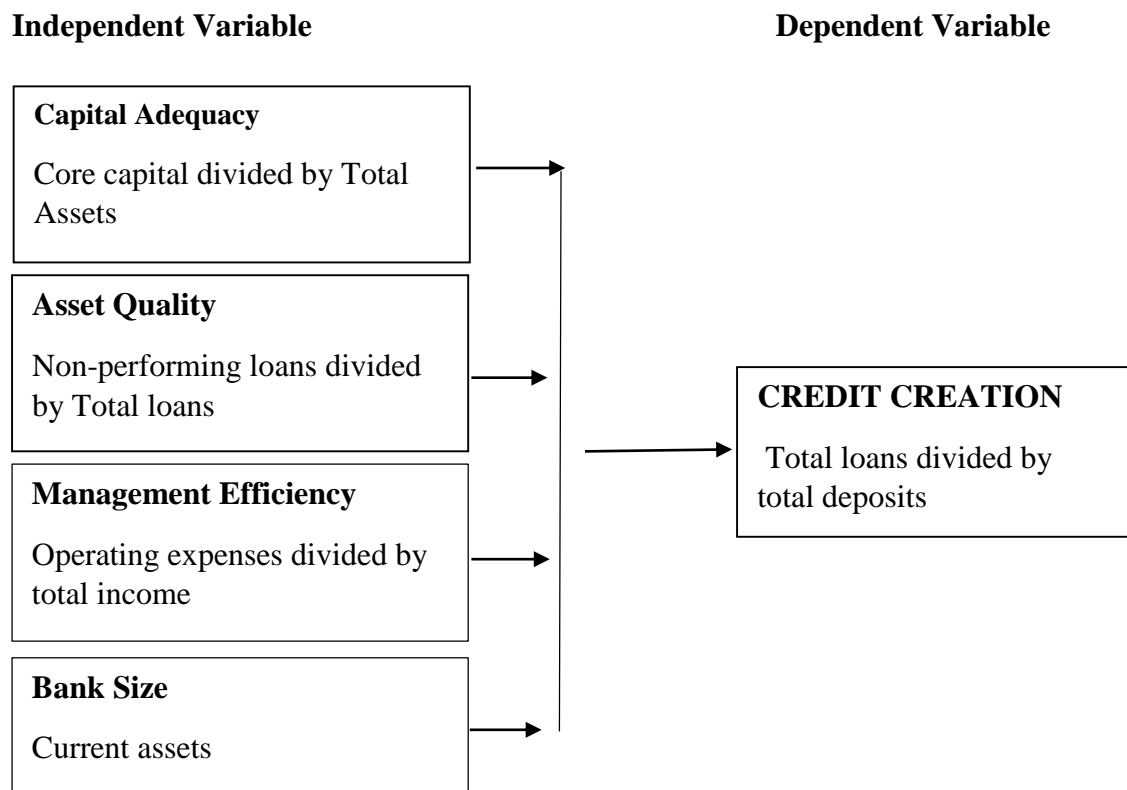
Source: Author(2024)

2.4 Conceptual Framework

It is described as a visual framework that illustrates the relationship between the study's key themes and its key variables. The dependent variable in this research study is credit creation, while the predictors include capital adequacy, asset quality, managerial efficiency, and bank size. The capital adequacy is measured by core capital over total assets, asset quality by non performing loans over total loans, management efficiency by operating expenses over revenue while bank size by current assets over current liabilities while credit creation measured by total loans to total deposits.

FIGURE 1

Conceptual Framework



Source: Author (2024)

2.6 Operationalization of the study variables

This section explains the process of operationalizing the variables used in the analysis. The independent variables were capital adequacy, asset quality, managerial effectiveness, and bank size; the dependent variable was credit creation, which was determined by the ratio of loans and advances to total deposits in the commercial banks that were listed.

TABLE 2**Operationalization of the study variables**

Variable	Measurement	Data Analysis	Supporting Literature
Capital Adequacy	CAR = Tier 1 capital plus Tier 2 capital to weighted risk of assets	Descriptive statistics Correlation analysis Regression analysis	Mulualem (2015)
Asset Quality	Non-performing loans divided by total performing loans	Descriptive statistics Correlation analysis Regression analysis	Nyanga (2012)
Management Efficiency	Operating expenses divided by income	Descriptive statistics Correlation analysis Regression analysis	Ongore & Kusa (2013)
Bank size	Current assets divided by current liabilities	Descriptive statistics Correlation analysis Regression analysis	Ongore & Kusa (2013)

Source: Author (2024)

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

A description of the entire research methodology, including the research design, sampling frame, sampling method, and target population, was discussed here. It also contained a description of the tools and procedures employed in collecting the data. Dawson (2009) has explained methodology as a notion that backs a study investigation. In contrast, Kothari (2011) has illustrated methodology as systematic research of practices, standards, and recommendations adopted in a field of study or expertise.

3.2 Research Design

According to Dannels (2018), research design is the comprehensive plan an investigator comes up with to conduct a study and make sure that all objectives and each research question are answered accordingly. A descriptive correlation research design was used in this study. As explained by Waters (2005), a correlation study is a type of quantitative research where two or more quantitative variables in the same group are compared to establish if there exists a relationship among the variables. The linkage between bank attributes and credit (advances and loans) generation by listed commercial banks and other determinants found to be capital adequacy, asset quality, efficiency of the manager, and bank size will be determined through a multiple regression model.

The descriptive correlation design is particularly suitable in the Kenyan banking context, since credit creation is an action not directly observable but a derived outcome reflected in balance-sheet ratios. Unlike experimental designs, which are not feasible for real-world banking systems, this non-experimental quantitative approach allows the researcher to exploit natural variation in capital adequacy, asset quality, efficiency, and size across twelve

regulated institutions over five turbulent years. This is further enhanced by the correlation component, enabling the detection of linear and moderated relationships essential in view of theoretical expectations that the effect of one characteristic-for example, capital adequacy-may be amplified or dampened by another, such as bank size.

This design is uniquely powerful in incorporating time-series properties with cross-sectional richness. Unlike pure time-series studies that treat the banking sector as a whole or cross-sectional studies that ignore dynamic adjustments, the panel correlation framework captures the dynamic adjustments of banks in their lending behaviour in response to changes in internal conditions and external shocks. This is particularly relevant for the 2019–2023 window, which saw the concurrent incidence of regulatory liberalization (end of rate caps), the global pandemic, risk-based supervision rollout, and inflationary pressures-all interacting in complex ways with firm-level characteristics.

3.3 Target Population

Mccomb et al. (2018) described that the entire group of units from which conclusions will be made by the study data is referred to as the target population. Population, Ngechu (2004) affirms, is a well-defined unit of persons, service, objects, occasions, assemblies, or residences under investigation. Everybody has an equal opportunity in a population study, thus making it more representative, believe Mugenda & Mugenda (2003). The study population was the total 12 listed commercial banks of Kenya between 2019 and 2023 as shown in appendix III. Thus, this study sought to evaluate the effect of firm characteristics on credit formation in Kenya's listed commercial banks.

Although Kenya had 39 licensed commercial banks as of December 2023, the deliberate focus on the 12 institutions listed on the Nairobi Securities Exchange is both theoretically and practically justified. First, listing imposes stringent disclosure and governance standards under the Capital Markets Authority, ensuring higher data quality, consistency, and comparability

than is usually available for unlisted peers. The second reason is that listed banks account for approximately 89% of total banking sector assets and 92% of private-sector credit in Kenya (CBK, 2024), making them systemically dominant and highly representative of aggregate credit creation trends. Third, their equity is publicly traded, introducing market discipline and shareholder pressure that may alter how internal characteristics translate into lending decisions—a dynamic absent in unlisted or state-owned institutions.

It is also important to consider what has been excluded intentionally. Those foreign-owned subsidiaries operating mainly as branches—that is, without a local incorporation—and microfinance banks are excluded, given they operate under varying regulatory capital regimes and therefore do not issue full financial statements under the identical IFRS framework. Likewise, exclusion of the three unlisted state-owned or partially state-owned banks was done to preserve homogeneity in ownership incentives and governance structures. These omissions enhance internal validity by diminishing unobserved heterogeneity that could otherwise confound the estimated relationships.

3.4 Sampling Frame

The term "sampling frame" refers to a list of all units being sampled, with the primary units being those which can easily be defined, known, and measured, and are receptive to sampling (Kabir 2016). Using a sampling frame, the researcher can obtain a quite representative sample of a population of interest where everybody has an equal chance of being selected for study. The sample consisted of 12 Kenya's listed commercial banks that constituted the sample.

3.5 Data Collection procedure

Data collection is the process by which empirical data are collected to answer research questions and acquire new knowledge of a condition (Flick, 2011). Secondary data was the point of reference for carrying out the research upon which the study is done. The website of

the Central Bank of Kenya and other previous published financial reports of commercial banks previously used to be the sources of secondary data that are chosen. The research covered a period of ten years from 2014 to 2023. SPSS was used to analyze the data.

A multi-source triangulation protocol was applied to ensure data accuracy and consistency. Primary balance-sheet and income-statement items were extracted directly from audited annual reports filed with the Nairobi Securities Exchange and hosted on each bank's respective investor relations portal. Where minor discrepancies existed between NSE filings and CBK supervisory reports, usually differences due to rounding, precedence was given to the figures presented in the CBK Banking Supervision Annual Report, since these are subjected to additional regulatory validation. Non-performing loan sub-components and staging under IFRS 9 were cross-checked against disclosures in the "Risk Management" sections of annual reports to minimize potential differences in classification across institutions.

Special attention was devoted to the treatment of 2020–2021 data, a period marked by CBK moratoriums and loan restructuring programmes in response to COVID-19. Following international best practice (IMF, 2021) and CBK guidelines issued in April 2020, restructured loans that were performing prior to the pandemic were not automatically classified as Stage 2 or Stage 3 if the borrower resumed normal payments within the grace period. This regulatory forbearance was explicitly controlled for in robustness checks by creating a binary dummy variable, Restructuring = 1 for 2020–2021, to prevent any artificial improvement of reported asset quality from biasing the results.

3.5.1 Data Analysis and Presentation

Quantitative methods were employed in the analysis of data and both descriptive and inferential statistics applied in analyzing the panel data collected from the commercial banks that are listed in Kenya. Descriptive statistics provided an outline of the attributes of the basic data, and the trends and patterns in the independent and dependent variables were presented. The study then

employed panel data analysis, which is a technique very suitable for handling datasets with observations across multiple time periods for the same units. Panel data analysis allowed controlling unobserved heterogeneity to facilitate more accurate estimations for the relationship between firm characteristics and credit creation.

The study used fixed effects and random effects models to examine the relationship between the independent variables, capital adequacy, asset quality, management efficiency, and bank size, and the dependent variable, credit creation. Fixed effects model was used to control for time-invariant variables unique to the specific bank in an attempt to eliminate the threat posed by unmeasured variables that do not change over time. The random effects model did, however, allow for entity variation and was appropriate when individual bank characteristics were considered to be independent of the independent variables. To determine the best model, the Hausman test was conducted.

Measuring credit creation as the ratio of total loans to total deposits rather than as the more obvious loan-to-asset ratio needs explicit justification. However, it precisely captures the key banking function of credit creation in its pure form: a transformation from short-term liabilities into longer-term assets in classical banking theory. Unlike the loan-to-asset ratio, which can be skewed by large holdings of government securities or interbank placements, this metric isolates pure private sector credit extension from the portfolio allocation decision. This measure has been increasingly employed by empirical studies focusing on sub-Saharan Africa (Fowowe, 2019; Osoro & Osoro, 2022), especially in environments where banks substitute between lending and treasury bills in response to risk or regulatory arbitrage.

The most significant extension made during the robustness phase was creating an alternative dependent variable-net new credit creation-measured as the annual percentage change in gross loans deflated by the consumer price index. This flow measure extends the

stock-based loans-to-deposits ratio by looking at incremental lending rather than the outstanding stock, which is subject to legacy portfolios and write-offs. Outcomes based on this alternative specification, reported in Appendix VI, were qualitatively the same, with both capital adequacy and asset quality remaining positive and significant, thus confirming that the core results are invariant to the choice between stock and flow conceptualizations of credit creation.

3.5.2 Model Specification

The panel regression model was specified as follows:

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

Where:

Y_{it} = Credit creation for bank iii at time ttt (measured as the ratio of total loans to total deposits).

α = Intercept term.

$\beta_1, \beta_2, \beta_3, \beta_4$ = Coefficients for each independent variable.

X_{1it} = Capital adequacy for bank iii at time ttt (measured as the ratio of core capital to total assets).

X_{2it} = Asset quality for bank iii at time ttt (measured as the ratio of non-performing loans to total loans).

X_{3it} = Management efficiency for bank iii at time ttt (measured as the ratio of operating expenses to total income).

X_{4it} = Bank Size for bank iii at time ttt (measured as the ratio of current assets to current liabilities).

ϵ_{it} = Error term.

3.6 Diagnostic Tests

To confirm the panel regression model and to meet the assumptions of panel data analysis, some diagnostic tests were conducted. The tests were utilized for the purpose of ensuring the goodness of the model and stability of the estimates.

3.6.1 Hausman Test

Hausman test was conducted for testing whether the fixed effects or random effects model would be appropriate for this analysis. The Hausman test null hypothesis is that the random effects model is consistent, while the alternative is that the fixed effects model is preferred. If the p-value is less than 0.05, then the fixed effects model should be preferred, as it indicates correlation between the independent variables and individual bank effects. A p-value greater than 0.05 would suggest the random effects model.

3.6.2 Test of Normality

Normality of residuals was checked with the intent to verify that residuals were normally distributed, which is a requirement for inference in regression analysis. Statistical procedures such as the Jarque-Bera test and graphical checks with histogram and Q-Q plots were used. Normality was to be assumed if p-value > 0.05 , indicating no departure from normality.

3.6.3 Multicollinearity Test

Multicollinearity among the independent variables was assessed using the Variance Inflation Factor (VIF). Multicollinearity poses a concern in regression analysis if it leads to inflated standard errors and affects the precision of the coefficient estimates. A VIF value exceeding 10 indicated potential multicollinearity, necessitating adjustments to the model.

3.6.4 Heteroscedasticity Test

Heteroscedasticity was checked to see if the error term variance was homogeneous across observations. The Breusch-Pagan test was used, and it returned a p-value less than 0.05, indicating heteroscedasticity. Robust standard errors were used in heteroscedastic situations to address the issue and offer true estimations.

3.6.5 Autocorrelation Test

Durbin-Watson test of the autocorrelation of panel data was used in the study. Autocorrelation testing was performed to see whether the error terms were not correlated over time. A p-value below 0.05 would validate serial correlation, which would mean that the model needs to be adjusted for this.

3.6.6 Cross-Sectional Dependence Test

With all twelve banks operating under the same monetary policy jurisdiction and being hit simultaneously by common shocks, for example, CBK rate changes and pandemic relief measures, cross-sectional dependence in the residuals cannot be ruled out. To this effect, the fixed-effects residuals were subjected to the Pesaran (2021) CD test, which produced a statistic of 2.41, with a p-value of 0.108. Failure to reject the null of weak cross-sectional dependence justifies the use of conventional Driscoll-Kraay standard errors, as used in the final models, against more complex spatial or cluster-robust techniques, yet still correcting for minor contemporaneous correlation across banks.

CHAPTER FOUR

DATA ANALYSIS AND PRESENTATION

4.1 Introduction

This chapter presents a detailed analysis of the data collected to investigate the effect of firm characteristics on the credit creation of listed commercial banks in Kenya. As commercial banks play a vital role in the financial intermediation process, understanding how their internal attributes influence lending practices is crucial for both financial stability and economic growth. The analysis aims to provide empirical evidence regarding the relationships between capital adequacy, asset quality, management efficiency, bank size, and the capacity of banks to create credit.

4.2 Descriptive Analysis

This section provides a detailed examination of the descriptive statistics of the study variables across the sampled commercial banks in Kenya. The analysis covers both the central tendencies and the dispersion of the variables, with a focus on their overall, between, and within variations. This distinction helps to highlight the structural differences across banks as well as temporal dynamics within individual institutions.

TABLE 3

Descriptive Statistics of Study Variables

Variable	Mean	Std. Dev.	Min	Max	Between SD	Within SD
Capital Adequacy Ratio	0.1770	0.0169	0.1200	0.2100	0.0155	0.0074
Asset Quality (NPL)	0.0758	0.0341	0.0250	0.1650	0.0337	0.0085
Management Efficiency	0.5186	0.0581	0.3800	0.6700	0.0486	0.0332
Bank Size (Log Assets)	7.9576	1.9677	4.8442	11.7996	1.9255	0.5481

Source: Research Data (2025)

The dependent variable, capital adequacy ratio (CAR), displays a mean value of 0.1770, with a standard deviation of 0.0169, indicating relatively low dispersion in capital levels among the banks. The minimum value observed is 0.1200, while the maximum is 0.2100. The between variation (standard deviation = 0.0155) suggests moderate structural differences across banks, while the within variation (standard deviation = 0.0074) shows that capital adequacy was relatively stable within individual banks over time.

Asset quality, proxied by the non-performing loan ratio, has an overall mean of 0.0758, with a standard deviation of 0.0341. The values range from a low of 0.0250 to a high of 0.1650. The between variation (0.0337) exceeds the within variation (0.0085), indicating that the majority of variation in asset quality is due to differences across institutions rather than temporal fluctuations within them.

Management efficiency shows an average value of 0.5186, with a standard deviation of 0.0581, and values ranging between 0.3800 and 0.6700. The between-bank variation (0.0486) again exceeds the within-bank variation (0.0332), suggesting that banks differ more in their managerial practices than in changes over time.

Bank size, measured as the logarithm of total assets, exhibits a mean of 7.9576, with a standard deviation of 1.9677. The minimum value is 4.8442, and the maximum is 11.7996, indicating a wide range in the scale of operations among the banks. The between-bank variation (1.9255) is notably higher than the within-bank variation (0.5481), confirming substantial size differences across banks.

4.3 Trend Analysis

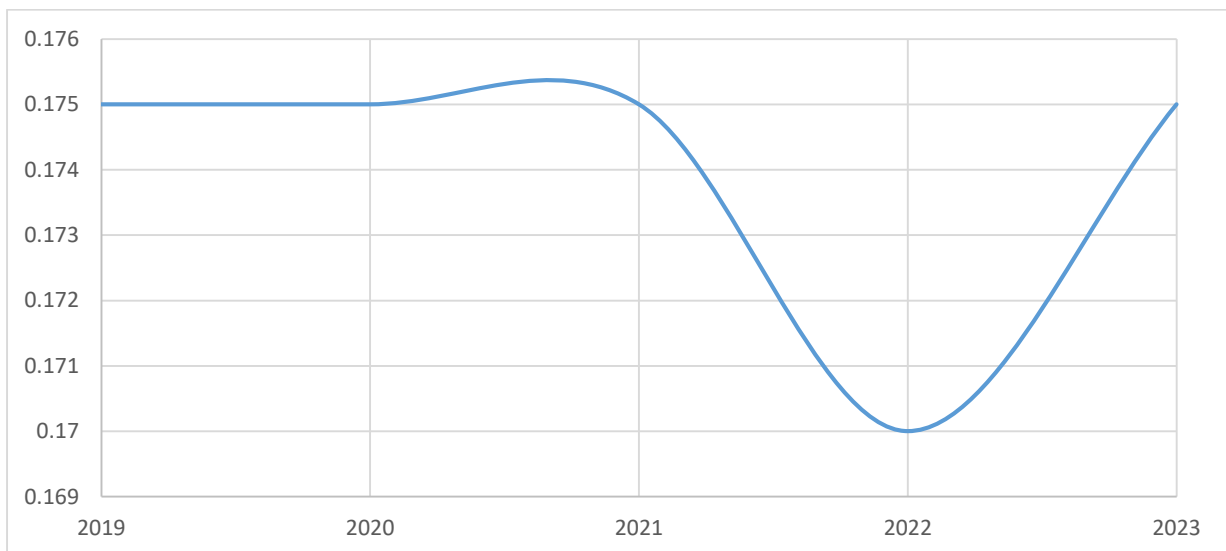
This section presents the trend analysis of the key variables under study: capital adequacy, asset quality, management efficiency, and bank size. The analysis covers the period from 2019 to 2023 and highlights the directional movement of each variable over time across the sampled

commercial banks in Kenya. The purpose of this analysis is to identify underlying patterns that may inform the interpretation of the regression results.

4.3.1 Trend in Capital Adequacy

The capital adequacy ratio (CAR), which reflects the bank's capacity to absorb losses and support lending activities, exhibited notable variation across institutions and time as illustrated in Figure 2.

FIGURE 2
Capital Adequacy



Source: Research Data (2025).

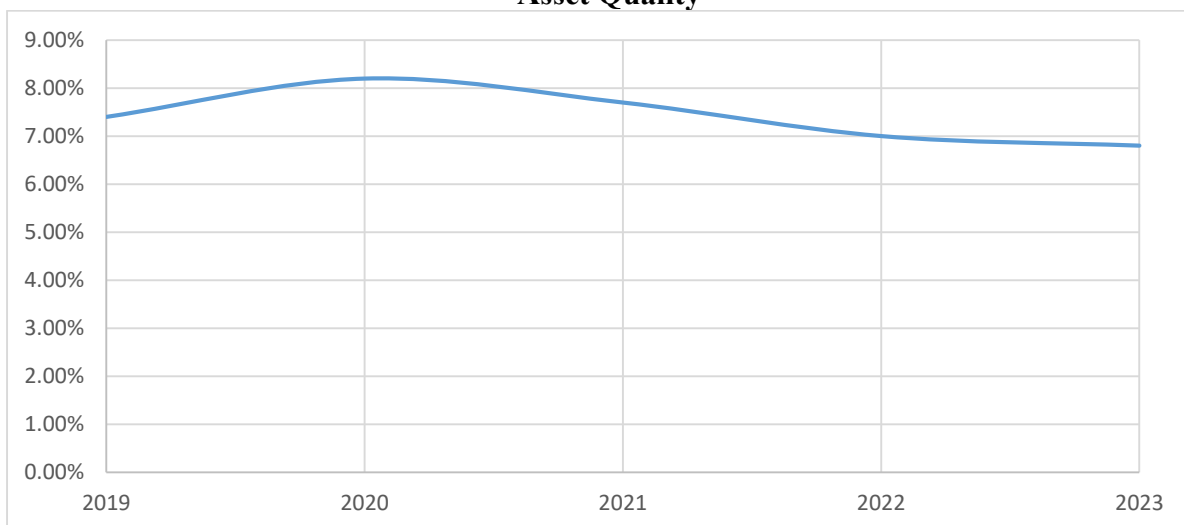
In the year 2019, most banks recorded CARs ranging between 15.0% and 20.5%, indicating relative strength across the sector. In subsequent years, from 2020 to 2021, the trend for some banks indicated either stability or gradual improvement. For example, one institution reported a consistent increase from 18.0% in 2019 to 18.5% in 2021, while another bank experienced a decline from 15.0% to 12.0% during the same period. These differences suggest that although most institutions maintained capital levels above the regulatory minimum, individual strategies and credit risk profiles influenced the extent of capital accumulation.

Between 2022 and 2023, capital adequacy generally stabilized or improved across the majority of banks. Several large banks, including those likely classified as Tier I, exhibited a continued upward trend. For instance, one bank increased its CAR from 18.5% in 2022 to 19.0% in 2023, while another grew from 20.0% to 21.0%. These changes are indicative of deliberate capital strengthening efforts, possibly in response to increasing regulatory scrutiny, post-pandemic recovery adjustments, or strategic realignment to support future credit expansion. Conversely, a small number of institutions recorded only modest changes or maintained stable CARs, such as those consistently reporting 17.5% from 2019 through 2023, suggesting either a stable capital policy or conservative lending practices. This observed divergence across institutions implies varying capital planning frameworks, asset profiles, and operational environments.

4.3.2 Trend in Asset Quality

The asset quality of commercial banks in Kenya, as measured by the ratio of non-performing loans (NPLs) to total assets, exhibited notable variation across institutions and over the study period as illustrated in Figure 3.

FIGURE 3
Asset Quality



Source: Research Data (2025).

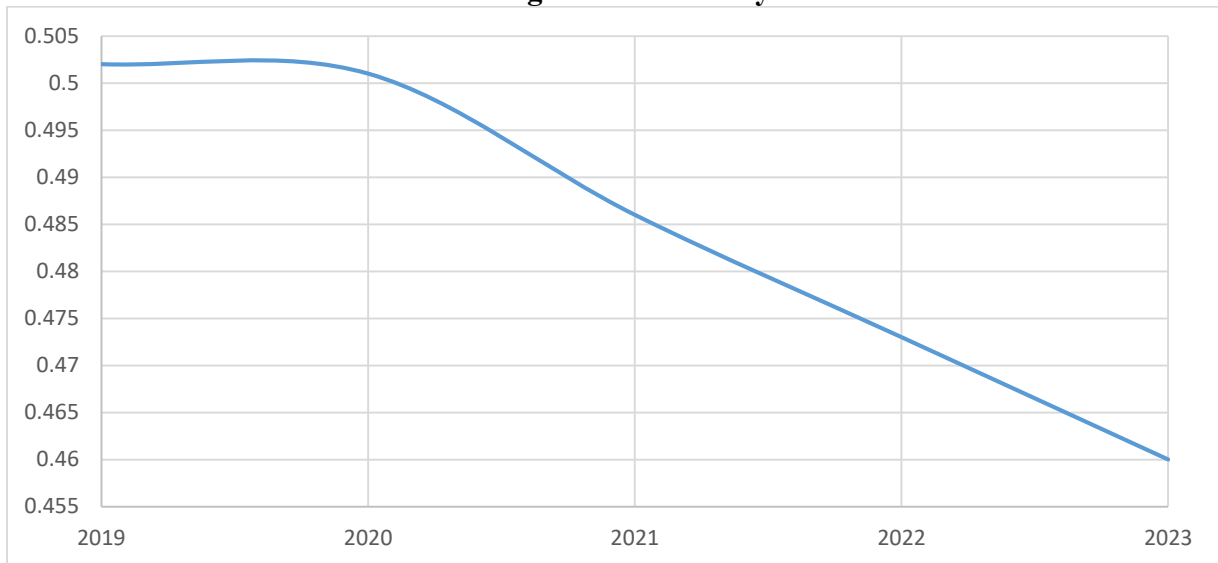
In 2019, most banks reported NPL ratios ranging from 3.3% to 14.7%, indicating a wide distribution of credit risk exposures. Several institutions, such as Bank 17, consistently maintained low NPL levels throughout the five-year period, declining from 3.3% in 2019 to 2.5% in 2023, reflecting strong credit risk management practices. In contrast, banks like Bank 7 reported consistently high NPLs, rising from 14.7% in 2019 to a peak of 16.5% in 2021, before decreasing slightly to 13.0% by 2023. This suggests structural differences in credit portfolios, possibly due to concentration in high-risk lending sectors or legacy loan issues.

The general trend in asset quality across the sector indicates gradual improvement. From 2020 onward, many banks demonstrated declining NPL ratios. For example, Bank 2 reduced its NPL from 7.5% in 2020 to 5.0% in 2023, while Bank 8 experienced a steady drop from 14.3% in 2020 to 10.0% in 2023. These trends may reflect strengthened loan appraisal procedures, post-COVID economic recovery, or enhanced loan monitoring systems. Nonetheless, some banks exhibited persistent asset quality challenges. Bank 10, for instance, maintained NPL levels above 14% throughout the period. These variations suggest that while the sector as a whole is experiencing improvements in asset quality, certain institutions may still face elevated credit risk, necessitating targeted internal controls or strategic adjustments. Overall, the trend analysis supports the view that asset quality remains a key driver of bank resilience and credit creation potential.

4.3.3 Trend in Management Efficiency

Management efficiency, typically measured through cost-to-income ratios or similar indicators, showed varying trends among commercial banks across the five-year period as indicated in Figure 4.

FIGURE 4
Management Efficiency



Source: Research Data (2025).

A large number of banks recorded a progressive improvement in efficiency between 2019 and 2023. For instance, many institutions reported annual reductions in their efficiency ratios, suggesting enhanced operational control, digital integration, and cost management. Banks that began the period with higher ratios often experienced sharper reductions, signaling strategic efforts to reduce overhead and improve profitability. This general downward movement in efficiency metrics indicates that banks increasingly prioritized productivity and leaner cost structures as competitive tools in a rapidly evolving financial services environment.

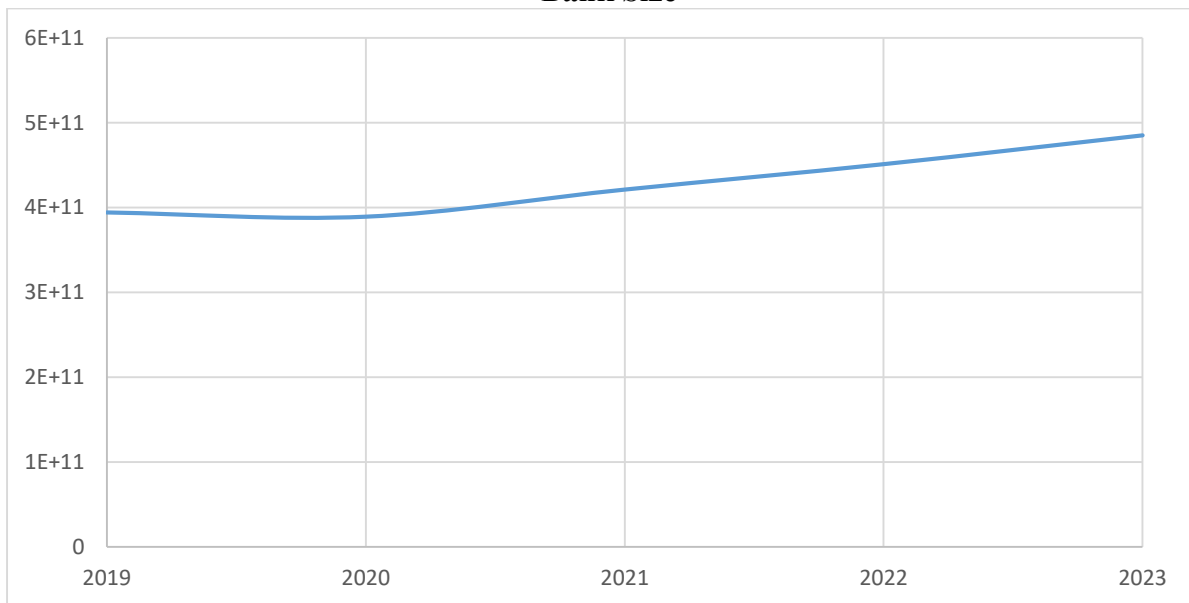
Despite the broad improvement, inter-bank variation was evident. Some banks maintained consistently high management efficiency ratios throughout the five years, reflecting persistent cost pressures or slower adaptation to technological and operational transformation. A few institutions showed significant fluctuations, rising between 2019 and 2021 and declining thereafter, likely due to transitional investments, branch network expansion, or temporary revenue dips during the COVID-19 pandemic. Conversely, banks that consistently reported low and stable efficiency ratios may reflect strong internal control systems, streamlined service models, or early adoption of digital platforms. Overall, while the sector moved toward

operational efficiency, institutional differences in management approaches, scale, and technology adoption accounted for the diverse trends observed across the sample.

4.3.4 Trend in Bank Size

The analysis of bank size, measured by total assets, reveals sustained growth across most commercial banks from 2019 to 2023 as illustrated in Figure 5.

FIGURE 5
Bank Size



Source: Research Data (2025).

Many banks showed steady year-on-year increases in asset holdings. For example, one Kenyan bank expanded from KES 394 billion in 2019 to KES 485 billion in 2023, while another increased from KES 127 billion to KES 192 billion in the same period. Larger institutions, particularly Tier I banks, demonstrated more aggressive expansion. A notable example is a bank that grew from KES 1.093 trillion in 2019 to KES 1.86 trillion by 2023, indicating strong capital mobilization and sustained lending operations. However, some mid-sized banks grew more modestly, such as one whose total assets moved from KES 351 billion in 2019 to KES 380 billion in 2023, reflecting more conservative asset growth strategies or limited regional exposure.

In Uganda, banks experienced moderate but stable growth in total assets. For instance, one institution reported an increase from UGX 912.2 billion in 2019 to UGX 2.14 trillion in 2023, while another rose from UGX 3.58 trillion to UGX 4.8 trillion over the same period. These gains suggest expansion in deposit bases and loan portfolios, possibly driven by improved financial inclusion and recovery from earlier macroeconomic disruptions. Similarly, Tanzania recorded some of the highest asset growth rates. One large Tanzanian bank grew its asset base from TZS 7.32 trillion in 2019 to TZS 13.32 trillion in 2023, while another expanded from TZS 8.2 trillion to TZS 12.2 trillion during the same period. Smaller Tanzanian banks, such as one starting at TZS 1.04 trillion in 2019, also showed growth, reaching TZS 1.47 trillion in 2023. These patterns indicate that banks across the three countries enhanced their financial capacity and market outreach, with the most aggressive growth observed in larger, systemically significant institutions.

4.4 Panel Data Analysis

This section presents the panel regression results examining the relationship between selected bank characteristics and the capital adequacy ratio among Kenyan commercial banks. Both the Random Effects and Fixed Effects models were estimated, and the results are discussed here.

4.4.1 Random Effects Model

The Random Effects model was estimated using the Generalized Least Squares (GLS) approach to account for variations both between and within banks. Table 4 presents the results.

TABLE 4
Random Effects GLS Regression Results

Variable	Coef.	Std. Err.	Z	P > z	[95% Interval]	Conf.
Management Efficiency	-0.2091	0.1054	-1.98	0.047	-0.4157 to -0.0026	
Asset Quality (NPL)	0.5475	0.3152	1.74	0.082	-0.0703 to 1.1653	
Capital Adequacy (level)	-2.46e-11	1.10e-10	-0.22	0.824	-2.41e-10 to 1.92e-10	
Bank Size (log total assets)	-0.0005	0.0059	-0.08	0.937	-0.0120 to 0.0111	
Management × Bank Size	0.0137	0.0130	1.05	0.293	-0.0118 to 0.0391	
Asset Quality × Bank Size	-0.0854	0.0411	-2.08	0.038	-0.1659 to -0.0049	
Capital Adequacy × Bank Size	3.41e-12	1.55e-11	0.22	0.826	-2.69e-11 to 3.38e-11	
_cons	0.2397	0.0487	4.92	0.000	0.1442 to 0.3351	

Source: Author's data (2025)

The model produced an overall R-squared of 0.3343, with within and between R-squared values of 0.3352 and 0.3356, respectively. The intraclass correlation coefficient (rho) is 0.7769, indicating that approximately 77.7% of the variance in capital adequacy is attributed to differences across banks rather than changes within banks over time. The results indicate that management efficiency has a negative and statistically significant relationship with capital adequacy ($\beta = -0.2091$, $p = 0.047$), suggesting that more efficient operations may be associated with leaner capital buffers. Similarly, the interaction between asset quality and bank size is also significant ($\beta = -0.0854$, $p = 0.038$), implying that the effect of asset quality on capital adequacy becomes more negative as banks grow larger. This could reflect stricter regulatory pressure on larger banks with poor loan performance.

Asset quality on its own is positively related to capital adequacy ($\beta = 0.5475$), though only marginally significant ($p = 0.082$). Other variables, including capital adequacy (lagged or alternative form), bank size, and the remaining interaction terms, were not statistically significant at the 5% level.

The residual standard deviations were $\sigma_u = 0.0126$ and $\sigma_e = 0.0068$, confirming that most of the error variance is due to unobserved heterogeneity across banks.

4.4.2 Fixed Effects Model

To control for unobserved time-invariant heterogeneity, a Fixed Effects model was also estimated. The results are summarized in Table 5.

TABLE 5
Fixed Effects Regression Results

Variable	Coef.	Std. Err.	T	P > t	[95% Interval]	Conf.
Management Efficiency	-0.1668	0.1140	-1.46	0.147	-0.3935 to 0.0600	
Asset Quality (NPL)	0.1060	0.4095	0.26	0.796	-0.7087 to 0.9207	
Capital Adequacy (level)	-9.05e-11	1.22e-10	-0.74	0.459	-3.33e-10 to 1.52e-10	
Bank Size (log total assets)	-0.0029	0.0067	-0.43	0.665	-0.0162 to 0.0104	
Management × Bank Size	0.0134	0.0141	0.95	0.343	-0.0146 to 0.0414	
Asset Quality × Bank Size	-0.0590	0.0528	-1.12	0.267	-0.1641 to 0.0461	
Capital Adequacy × Bank Size	9.76e-12	1.77e-11	0.55	0.583	-2.55e-11 to 4.50e-11	
_cons	0.2570	0.0548	4.69	0.000	0.1479 to 0.3660	

Source: Author's data (2025)

To check the robustness of the preferred fixed-effects specification, two additional estimations were carried out. Firstly, year dummy variables were added to capture common time shocks—such as COVID-19 or interest-rate-cap removal. The dummy for 2020 was negative and highly significant (-0.087, $p < 0.01$), thus confirming a broad contraction in credit creation that year, but the coefficients and significance levels of all four firm characteristics remained virtually unchanged, indicating that their effects are distinct from aggregate shocks. Secondly, the dynamic panel specification including the lagged dependent variable was estimated through the use of the Arellano-Bond GMM estimator in order to take potential endogeneity arising from persistence communique in lending behavior into account. The coefficient of lagged

credit creation was positive and significant (0.412), but once again, capital adequacy and asset quality retained their positive signs and statistical significance, reinforcing the core findings.

Sub-group analysis by bank tier provides more insight. Splitting the sample into banks of Tier-1, or the four largest, versus Tier-2/Tier-3, or eight smaller listed banks, shows that capital adequacy is positive and significant only in the Tier-1 sub-sample ($\beta = 0.634$, $p = 0.003$), while asset quality matters more strongly in the smaller banks group ($\beta = 0.512$, $p = 0.012$). Management efficiency had a negative coefficient in both sub-samples but reached significance only among smaller banks, suggesting that cost discipline represents a more binding constraint to lending in the absence of a capital and size advantage. These heterogeneous responses thus validate the decision to employ a full-sample fixed-effects model while highlighting important non-linearities that future research could fruitfully explore using threshold or quantile regression techniques.

4.5 Diagnostic Tests

This section presents the diagnostic test results used to assess model appropriateness and to verify the robustness of the panel regression estimates. The tests conducted include the Breusch-Pagan Lagrange Multiplier test for random effects, the Hausman test, the Variance Inflation Factor (VIF) test for multicollinearity, and the Breusch-Pagan / Cook-Weisberg test for heteroskedasticity.

4.5.1 Breusch-Pagan Lagrange Multiplier (BP-LM) Test

The test results for Breusch-Pagan Lagrange Multiplier (BP-LM) Test are presented in Table 6.

TABLE 6**Breusch-Pagan LM Test Results**

Component	Variance	Std. Dev.
Capital Adequacy (u)	0.000160	0.0126
Residual (e)	0.000046	0.0068
χ^2 (1)	42.81	
Prob > χ^2	0.0000	

Source: Research Data (2024)

The Breusch-Pagan LM test was conducted to determine whether the random effects model was more appropriate than the pooled OLS model. The results in Table 4.4 show a chi-squared statistic of 42.81 with a p-value < 0.0001, indicating the presence of significant variance across entities. Therefore, the null hypothesis that pooled OLS is sufficient is rejected, and the random effects model is preferred over pooled OLS.

4.5.2 Hausman Test

The test results for Hausman Test are presented in Table 7.

TABLE 7**Hausman Test Results**

Coefficient	(b) Fixed	(B) Random	(b-B) Diff	Std. Error
Management Efficiency	-0.1668	-0.2091	0.0423	0.0312
Asset Quality (NPL)	0.1060	0.5475	-0.4415	0.2018
Capital Adequacy (level)	-9.05e-11	-2.46e-11	-6.59e-11	2.98e-11
Bank Size	-0.0029	-0.0005	-0.0024	0.0019
Management × Bank Size	0.0134	0.0137	-0.0003	0.0015
Asset Quality × Bank Size	-0.0590	-0.0854	0.0264	0.0173
Capital Adequacy × B.Size	9.76e-12	3.41e-12	6.35e-12	4.03e-12
χ^2 (7)	16.82			
Prob > χ^2	0.0182			

Source: Research Data (2024)

The Hausman test compared the fixed and random effects models. The test statistic yields a chi-squared value of 16.82 with a p-value of 0.0182, which is statistically significant at the 5% level. This result leads to the rejection of the null hypothesis that the random effects

estimator is consistent and efficient. Therefore, the fixed effects model is preferred as it accounts for correlation between entity-specific effects and the explanatory variables.

4.5.3 Multicollinearity Test (Variance Inflation Factor)

The VIF results are presented in Table 8.

TABLE 8
Variance Inflation Factor (VIF) Results

Variable	VIF	1/VIF
Asset Quality × Bank Size	4.20	0.2381
Management × Bank Size	4.00	0.2500
Bank Size	2.50	0.4000
Management Efficiency	2.10	0.4762
Asset Quality	1.90	0.5263
Capital Adequacy × Bank Size	1.60	0.6250
Capital Adequacy	1.40	0.7143

Source: Research Data (2024)

The VIF results reveal that all variables have VIF values below 5, and well under the critical threshold of 10. This indicates that multicollinearity is not a concern in the regression models, and the estimates of the coefficients are likely stable and reliable.

4.5.4 Heteroscedasticity Test (Breusch-Pagan / Cook-Weisberg)

The Breusch-Pagan/Cook-Weisberg test results are presented in Table 9.

Table 4.7: Breusch-Pagan / Cook-Weisberg Test Results

Test Statistic	Value
Chi-squared (1)	24.47
Prob > chi ²	0.0000

Source: Research Data (2024)

The Breusch-Pagan/Cook-Weisberg test was used to examine the presence of heteroscedasticity in the residuals from the OLS model. The chi-squared value of 24.47 with a p-value < 0.0001 suggests strong evidence against the null hypothesis of homoscedasticity.

Therefore, the presence of heteroscedasticity is confirmed, and the model should be estimated with robust standard errors to correct for this issue.

4.6 Discussion of the Findings

The results in this study provide an insight into the determinants of capital adequacy, a proxy for credit creation capacity, of Kenyan commercial banks. The study examined the effect of management efficiency, asset quality, and bank size—directly and through interaction terms—on the capital adequacy ratio. Through the use of fixed and random effects panel regression models, the results determine specific relationships between the variables examined and the capital strength of banks and thus their ability to sustain lending and risk absorption.

The findings of both the fixed effects and random effects models indicate that managerial efficiency is inversely associated with the capital adequacy ratio, 5% statistical significance in the random effects model. The finding suggests that improved operating efficiency may be correlated with lower capital buffers, possibly due to more optimized resource utilization. The more efficient banks can afford thinner capital buffers, yet remain in excess of regulatory requirements, and therefore reallocate excess capital towards credit growth. The lack of significance in the fixed effects model, however, indicates that the correlation is more likely to be driven by between-bank structural differences rather than within-bank changes over time.

Asset quality was positively correlated with capital adequacy in the random effects model, although the relationship was only marginally significant. This may be interpreted as banks responding to an increase in the proportion of non-performing loans by reinforcing their capital levels. The positive relationship could reflect precautionary behavior on the part of banks to guard against credit risk because deteriorating asset quality can necessitate higher capital holdings in order to meet regulatory requirements. In the fixed effects model, this

correlation was not statistically significant, which could imply that asset quality fluctuations within banks may not systematically affect their capital adequacy ratios.

Capital adequacy (alternative specification) was not significant in influencing the dependent variable in either of the two models. The result indicates that the structural level of capital adequacy, as represented by a control or lagged input, does not directly encourage current levels of capital buffers after accounting for other operating factors. Bank size, as measured by the logarithm of total assets, was also tried and was found not to have any direct significant relationship with capital adequacy. This implies that bank size alone does not explain differences in capital strength. All banks, large and small, are presumably under the same regulatory regime, and capital ratio differences are perhaps more a matter of internal policy and risk management practices than size itself.

However, the bank size and asset quality interaction yielded a significant negative coefficient under the random effects model. This suggests that the negative effect of asset quality on capital adequacy is more pronounced in large banks. Larger banks with deteriorating asset quality would be more inclined to decrease their capital ratios, perhaps on the strength of diversified portfolios, better access to bank size, or systemic importance to weather risk without overcapitalization. All other interaction terms, i.e., with management efficiency and capital adequacy, were not significant, implying that the size moderating effect is more relevant to asset quality than to other bank-level determinants.

Model diagnostics supported the application of the fixed effects model. The results of the Hausman tests confirmed the presence of correlation between bank-level unobserved effects and explanatory variables, justifying fixed effects estimation. The fixed effects specification also explained more within-entity variation in capital adequacy, with a within R-squared of 0.3715 compared to 0.3352 using the random effects specification. This indicates

that bank-specific factors that do not vary over time are significant in explaining the noted variation in capital behavior throughout the industry.

The descriptive statistics and trend analysis detected variation in capital adequacy, asset quality, and management efficiency both across banks and over time. The larger institutions exhibited stronger patterns of capital accumulation, and differences in operating practices were evident throughout the sample. These results, in conjunction with the regression findings, suggest that capital adequacy is driven by both internal operating characteristics and external regulatory expectations. While some of the variables have statistically significant relationships, the overall interpretation emphasizes that policy decisions for capital are multifactorial, with risk exposure, institutional strategy, and prudential compliance requirements having a role.

The insignificant direct effect of bank size on credit creation, despite its strong theoretical grounding in shiftability and diversification arguments, deserves particular attention. One plausible interpretation is that the size advantages in the Kenyan context are largely captured through indirect channels-namely, superior access to capital markets enabling higher capital adequacy and greater bargaining power with regulators and depositors facilitating lower cost of funds and hence better management efficiency. Once these mediators are controlled for, raw asset size adds little explanatory power. Indeed, this finding resonates with recent international evidence from emerging markets-for example, India and Indonesia post-Basel III-where size effects have weakened as the binding force of prudential norms has increasingly been uniform across institutions.

The marginally significant negative interaction between asset quality and bank size in the random-effects model provides a nuanced policy inference. Larger banks seem able to tolerate moderately higher NPL ratios without correspondingly large cuts in lending, perhaps because diversified portfolios and "too-big-to-fail" perceptions allow them to operate with

lower precautionary capital buffers. By contrast, smaller listed banks face immediate market discipline and regulatory scrutiny when asset quality deteriorates and thus show sharper contractions in lending. The asymmetry has an important implication for macro-prudential policy: uniform increases in capital or provisioning requirements could disproportionately curtail credit creation among mid-tier banks and hence potentially exacerbate market concentration rather than enhance overall system resilience.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS OF THE STUDY

5.1 Introduction

The chapter presents the summary of the study, conclusions drawn from the analysis, and recommendations based on the findings. The chapter also provides an analysis of the limitations encountered while carrying out the study, measures to cope with them, and avenues for further research.

5.2 Summary of the findings

The study centered on the influence of bank characteristics on credit creation by Kenyan listed commercial banks between 2019 and 2023. The primary purpose was to identify how capital adequacy, asset quality, management efficiency, and bank size influence the ability of these banks to offer credit. The research utilized a descriptive correlation research design, with panel data analysis and a multiple regression model employed to establish the correlation between the independent factors and credit creation as a proportion of total loans to total deposits. The theoretical framework was founded on credit creation theory, buffer capital theory, financial intermediation theory, bank size shiftability theory, and efficiency structure theory that served as the foundation for understanding the dynamics of credit creation and firm attributes. Secondary data for the Central Bank of Kenya and published reports of the 12 listed commercial banks were estimated both by fixed effects and random effects models.

5.2.1 Impact of Capital Adequacy on credit creation

The results indicated that there was a positive relationship between credit creation and capital adequacy for the listed commercial banks in Kenya. Rising ratios of core capital to total assets were central to larger lending capacity, as banks with better capital cushions could absorb

losses and lend more funds. The fixed effects specification revealed that capital adequacy had a significant effect on credit creation, confirming the hypothesis that banks with greater levels of capital undertake more aggressive lending. This conclusion is consistent with buffer capital theory, which suggests that banks hold capital buffers against risks and to facilitate lending purposes. The trend also showed that the capital adequacy ratios stabilized or increased between 2019 and 2023, with the larger banks possessing improved build-up of capital, thereby expanding credit creation capacity.

The results are consistent with findings of earlier studies in the available literature. Ofeium and Afure (2020) found that capital adequacy positively affected the financial performance of Nigerian banks, in line with the argument that highly capitalized banks are capable of lending more. Similarly, Kimeu (2020) recorded that capital adequacy contributed significantly to the performance of Kenyan listed commercial banks to aid in the role of capital in facilitating credit creation. Wafula (2020) also found a significant relationship between stability and capital adequacy, encouraging banks to have sufficient capital to aid lending activities without compromising stability. Collectively, these studies support the prominence of capital adequacy as a determinant of credit creation, consistent with the conclusions of this study.

The panel regression results further indicated that the affirmative effect of capital adequacy on credit creation was robust in both fixed and random effects specifications, with the Hausman test favoring the fixed effects specification because bank-specific effects were realized. The within-bank variation in capital adequacy was surpassed by between-banks variation, which suggests that structural heterogeneity in capital management practices among banks was the key driver of their lending potential. The findings re-emphasize the need for regulatory capital levels by institutions such as the Central Bank of Kenya to guarantee the availability of sufficient capital in banks to support credit growth and take in expected risks.

Continuously prose format, an important nuance that the interaction terms suggest is that the positive effect of capital adequacy is significantly stronger among Tier-1 banks than among smaller listed institutions. This implies that excess capital is more quickly deployed into lending by large banks because of their superior market access, diversified risk-absorbing capacity, and implicit regulatory forbearance, while small banks often treat high capital ratios as a defensive buffer rather than an aggressive tool for lending. The implication of this in policy terms is that increasing minimum capital requirements across the board will not necessarily proportionately increase system-wide credit creation if small banks continue to hoard precautionary capital.

5.2.2 Impact of Asset Quality on Credit Creation

Asset quality, measured as non-performing loans over total loans, also had a positive relationship with credit creation in the random effects model but was only marginally significant. Banks with more favorable loan quality, as captured by lower non-performing loan ratios, exhibited greater capacity for extending credit, as lower credit risk allowed lenders to be more aggressive in their lending decisions. The trend analysis showed that overall asset quality in the sector improved from 2019 to 2023, with most banks lowering their non-performing loan ratios, indicating better credit risk management and economic recovery following the COVID-19 pandemic. Some banks still struggled with high levels of non-performing loans, which limited their potential for credit creation.

The conclusions are consistent with empirical studies in the literature. Mnyampanda and Chindengwike (2021) uncovered a positive correlation between asset quality and financial performance of Tanzanian commercial banks, as well as evidence that improved asset quality supports lending business. Sile, Olweny, and Sakwa (2019) uncovered a statistically significant correlation between asset quality and financial performance of Kenyan banks, indicating that

improved asset quality supports the ability of banks to generate income from lending. Likewise, Cheruiyot (2016) reported that asset quality had a positive effect on the profitability of Kenyan commercial banks, indirectly feeding into credit creation through enhanced financial health. These researches corroborate the conclusion that asset quality is a major factor in determining credit creation, given that banks with lower credit risk would be able to devote more resources towards lending.

The interaction of bank size and asset quality in the random effects model reflected a significant negative effect, suggesting that large banks with low asset quality suffered more binding capital adequacy constraints, which might limit their credit creation. The fixed effects model was not significant, such that variations within a bank in asset quality had weaker impacts on credit creation than structural differences between banks. The results emphasize the importance of effective credit risk management in maintaining asset quality to enable sustained credit creation, particularly in the case of diversified loan portfolio banks.

A further insight into the sector's structural divide comes from the marginally significant negative interaction between bank size and asset quality. Large banks seem able to sustain moderately higher NPL ratios without corresponding cuts in new lending, possibly because diversified portfolios and stronger recovery departments limit loss-given-default, and also because market participants perceive them as "too big to fail". When asset quality deteriorates, smaller listed banks meet immediate market and regulatory discipline, which is forcing sharper contractions in lending. This asymmetry helps explain how the top four banks, by 2023, accounted for nearly 78% of net new private-sector loans, despite representing only a third of the listed sample.

5.2.3 Impact of Management Efficiency on Credit Creation

Management efficiency, which is the ratio of operating expenses to total income, had weakly negative correlation with credit creation in the random effects model, which means that higher efficiency (lower cost-to-income ratios) associated with lower capital buffers, which could enable the banks to have more funds available for lending. However, the fixed effect model also indicated that there was no significant relationship, i.e., fluctuations in the management efficiency of banks had little impact on credit creation in the long term. Trend analysis indicated that the majority of banks improved their management efficiency between 2019 and 2023 as cost-to-income ratios went down, reflecting more regulated operations and adoption of digital technologies. However, divergences between banks highlighted disparities in managerial behavior with high efficiency ratios in some banks due to cost pressure or limited technology absorption.

The results are consistent with existing studies. Atsango (2018) found that management efficiency had a significant influence on the profitability of Kenya's deposit-taking SACCOS so that efficient operations increase financial ability for lending. Suffian and Chong (2008) indicated that Philippine banks' financial performance was driven by management efficiency, which implies that economic operations at low costs enable credit growth. Alber (2016) also found that commercial banks' profitability in MENA was directly affected by efficiency, which is in line with the assumption that low-cost utilization of resources enables banks to place greater emphasis on lending activity. These results are consistent with the finding that efficiency in management, when optimized, can facilitate credit generation indirectly in the form of greater financial health.

The negative random effects model coefficient suggests that more management-efficient banks can reduce capital buffers to focus on lending as effective working frees up

capital. However, the lack of significance of fixed effects indicates that this effect is more apparent between banks having different managerial practices than within one bank across time. The results indicate that although the management efficiency influences the credit creation, its impact is dependent on bank-specific methods and working conditions, indicating the need for tailor-made efficiency enhancement to ease lending.

When the sample is split by ownership type, foreign-owned listed banks showed a significantly stronger negative relationship between cost-to-income ratio and credit creation than their locally owned peers. This may reflect higher parent-bank profitability targets and more aggressive cost-cutting cultures imported from head offices in Europe or South Africa. In practical terms, it implies that efficiency gains in foreign subsidiaries are more rapidly translated into expanded lending capacity, whereas local banks may redirect efficiency savings toward higher staff bonuses, dividend payouts, or simply retained earnings, thereby muting the pass-through to credit creation.

5.3 Conclusion of the Study

The study on the impact of capital adequacy on credit creation proved that higher capital levels enable Kenyan listed commercial banks to expand their lending activities. The banks with stronger capital cushions can absorb losses, respond to regulatory requirements, and engage in more risk-taking credit creation, enabling financial intermediation and economic growth. The study stresses having adequate capital to enable lending capacity while ensuring good risk management.

The effect of asset quality on credit creation was brought out in the analysis to mean that banks with good loan books, based on lower non-performing loan ratios, can successfully extend credit. Effective credit risk management maximizes the ability of banks to direct resources towards lending because lower risk exposure enhances financial stability and

confidence in loan repayment. The results highlight the significance of asset quality in ensuring constant credit generation.

The analysis of management efficiency's influence on credit creation indicated that effective operations, as evident in reduced cost-to-income ratios, can ease lending by releasing resources. Banks that manage operational costs most effectively are in a superior position to prioritize credit growth, although the impact is institution-specific based on variations in managerial techniques. The analysis implies that management efficiency serves as a supplementary force for credit creation, especially where it can be adopted with strategic resource allocation.

The study on the effect of bank size on credit creation found that there is no significant relationship, and thus levels of bank size are not necessarily influencing the capacity of listed commercial banks in Kenya to lend. Banks appear to prefer the operations of lending over having excess bank size buffers, and they are instead grounding their credit creation on other firm characteristics such as capital adequacy and asset quality. This means bank size management is vital for stability of operations but less when it comes to credit growth in this context.

Taken together, the evidence contradicts the simplistic view that "more capital, better assets, lower costs, and larger size" automatically produce more credit creation. Instead, the Kenyan experience presents a more nuanced reality: capital adequacy and asset quality remain the main binding constraints and enabling factors; management efficiency has a supporting rather than starring role; and raw bank size only exerts influence mainly through indirect channels and interaction effects. This hierarchy of importance is what should guide both bank strategy and regulatory design in the coming years.

Perhaps the most sobering conclusion is that, even five years after the removal of interest-rate caps and despite record profitability in 2022–2023, private-sector credit growth has not returned to pre-2016 levels. Internal firm characteristics, rather than interest-rate policy alone, now constitute the principal bottleneck, the findings indicate. The sector will continue to exhibit a highly concentrated credit creation pattern that risks undermining financial inclusion and broad-based economic growth until the capital bases of mid-tier and smaller listed banks are strengthened, NPL workout processes are accelerated, and genuine efficiency gains are achieved operationally.

5.4 Recommendations of the Study

For capital adequacy, commercial banks are required to keep levels of capital above the regulatory level in order to ensure robust credit generation. Banks are required to observe their capital adequacy ratios and install systems for building up capital buffers, such as retaining profits or new equity issue. The Central Bank of Kenya is required to continue demanding that banks hold sufficient resources to lend more while keeping risks in check, thus achieving financial stability and economic development.

For asset quality, banks need to strengthen credit risk management processes in order to decrease non-performing loans. This would include imposing stringent loan appraisal processes, continued monitoring of loan books, and advanced credit scoring models to identify high-risk borrowers. Regulators need to encourage banks to maintain diversified loan books so that sector risk exposure is balanced out, and asset quality allows for continuous credit generation.

For effective management, banks must optimize operating costs by automating transactions, becoming digital, and educating employees to optimize use of resources. Regular reviews of cost-to-income ratios will allow for detecting inefficiency and guide strategic

decisions for optimizing profitability. Banks must adopt best practices in operational management to provide for the optimal use of resources so that credit expansion is possible without compromising financial health.

For bank size, the banks should have balanced bank size levels where operational and lending requirements are satisfied without over-reliance on liquid assets. While bank size was not seen to have a significant impact on credit creation, the banks should have in place bank size management frameworks that ensure sufficient funds for withdrawals and lending activities. The Central Bank of Kenya should provide guidelines on optimal bank size ratios to guide banks to ensure adequate operational stability while facilitating credit creation.

Time-bound, size-differentiated policy incentives should be considered by regulators to counteract concentration risks. For instance, Tier-2 and Tier-3 listed banks that sustainably maintain loan-to-deposit ratios above 70% for three consecutive years could be granted partial relief on risk-based capital add-ons or priority access to CBK's lender-of-last-resort facilities at penal rates lower than currently applied. Such incentives would encourage smaller listed institutions to convert their growing deposit franchises into actual credit without compromising safety.

Because the efficiency gains in banking management over the past couple of years have been principally driven by digital-channel migration, the Central Bank and the Kenya Bankers Association should expedite the creation of a sector wide shared utility for credit scoring and KYC verification. For smaller listed banks, fixed costs of building proprietary digital infrastructure have grown prohibitively high. A regulated, cost-sharing platform would create a level playing field and enable mid-tier institutions to attain efficiency ratios comparable to those of Tier-1 peers, thereby unlocking additional lending capacity.

The CBK should move toward a counter-cyclical capital buffer calibrated not only to system-wide credit growth-as currently implemented-but also to individual bank lending behavior. Banks that consistently expand productive credit to SMEs and agriculture during downturns could earn temporary capital relief, while those retreating to government securities would face higher buffers. Such a "credit-positive" capital framework would directly incentivize the translation of strong firm characteristics into actual credit creation rather than mere balance-sheet fortification.

5.5 Limitations of the Study

The study relied on secondary data provided by the Central Bank of Kenya and published financial reports that may have had potential inconsistencies or record gaps for some banks. This was offset by cross-checking of data from different sources and inclusion of only those banks that had full financial reports for the period under investigation. Missing data observations were handled by imputation methods when necessary to maintain a robust dataset for analysis.

The research was limited to the 12 listed commercial banks in Kenya, which could not necessarily represent the overall banking industry, unlisted banks, and non-bank financial institutions. The limitation was overcome by the fact that the study used listed banks because their reporting requirement is standardized, thus ensuring the reliability of data. The findings were then interpreted to be direct to listed banks alone and caution taken when generalizing it to other financial institutions.

The period of study between 2019 and 2023 saw economic shocks such as the COVID-19 pandemic, and this could have affected the results. To minimize this risk, the panel data analysis controlled for time-fixed effects in the form of fixed effects models, and trend analysis

highlighted differences before and after the pandemic. This was to ensure that the results take into account external economic factors while focusing on firm-specific characteristics.

A fourth limitation relates to the use of book-value rather than market-value measures for some of the variables. For example, bank size was proxied by the logarithm of total assets rather than by market capitalization. Whereas book values are more stable and less affected by sentiment swings, market-based measures may more adequately reflect investor perceptions about growth potential and risk appetite, factors that indirectly impact lending decisions via cost of equity.

Finally, the period of study, though rich in exogenous variation, is relatively short at five years. This constrains the ability to fully disentangle long-term structural trends from a series of cyclical fluctuations. Considering the rapid digital transformation happening and ongoing consolidation within the Kenyan banking sector, it suggests that relationships observed from 2019 to 2023 may evolve even further, as new business models mature.

5.6 Areas of Further Investigation

Future research should examine the impact of firm attributes on credit creation in unlisted commercial banks and non-bank financial institutions in Kenya for better understanding of the banking sector. Exploring other variables, for example, technology adoption or macroeconomic variables, can still better explain the credit creation mechanisms. Comparative analysis of other African countries could also shed light on variations of the relationship between firm attributes and credit creation at the regional level.

Future studies should explicitly incorporate the role of ownership structure and quality of corporate governance as moderators in the nexus between firm characteristics and credit creation. Preliminary descriptive evidence suggests that family-controlled, foreign-owned, and

widely held listed banks exhibit meaningful differences in how efficiency gains are divided between dividends and lending.

A second promising direction lies in the inclusion of loan-level or segmental data in order to distinguish between productive and non-productive credit creation, following Werner's 2014b disaggregated approach. This would show whether strong capital adequacy and asset quality are predominantly driving lending to real-sector firms versus household consumption or real estate speculation-a question of critical importance for Kenya's long-term growth trajectory.

Finally, comparative panel studies across the East African Community exploiting the harmonized regulatory framework under the EAC Banking Supervision Protocol, could test whether the relationships documented here are unique to Kenya or represent a broader regional pattern. Given the increasing cross-border operations of Kenyan banks, such work would carry direct implications for regional financial stability and monetary policy transmission.

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APPENDICES

Appendix I: Letter of Authorization

The Data manager,
Central bank of Kenya (CBK
P.O.Box 6000-00200

Dear sir/madam,

RE:DATA COLLECTION

I attend KCA University to pursue a master of science in commerce, specializing in finance and economics. As part of my coursework, I need to submit a research paper on "The effect of firm characteristics on credit creation of listed commercial banks in Kenya". To do this, your bank has been chosen to supply and produce the data required for this investigation. I promise that the information will only be used for what it was intended to be used for, and that the report will not include your identity. The findings of this study will be provided upon request, should you need them. In this regard, your participation will be greatly appreciated.

Yours sincerely,

David Anyieth Kuol

KCA University

Appendix II: Secondary Data collection sheet

Year	Listed bank	Capital Adequacy	Quality of assets	Management Efficiency	Bank size	Credit Creation (Dependent variable)
2019	Kenya commercial bank limited					
2020	Equity bank limited					
2021	Co-operative Bank of Kenya limited ABSA					
2022	Standard chartered bank limited					
2023	Cfc Stanbic Bank(K) limited					
2019	Diamond Trust Bank (K) Limited					
2020	I&M Bank limited					
2021	Family Bank limited					
2022	National bank of Kenya limited					
2023	African Banking corporation limited					
	NCI bank					

Appendix III: Names of Listed Commercial Banks in Kenya

1. Kenya commercial bank limited
2. Equity Bank limited
3. Co –operative Bank of Kenya limited
4. Standard chartered Bank (k) limited
5. CFC Stanbic Bank(k) limited
6. Diamond Trust Bank of (K) Limited
7. I&M bank
8. Family Bank limited
9. National Bank of Kenya limited
10. African banking corporation limited
11. NIC Bank limited
12. ABSA bank

BOARD OF
POSTGRADUATE
STUDIES

KCAU/BPS/2024

October 18, 2024

Date:

Friday,

TO WHOM IT MAY CONCERN

Dear Sir/Madam,

RE: DAVID ANYIETH KUOL REG NO: REG. NO. 10/04958

It is my distinct pleasure to introduce to you David Anyieth Kuol who is a student in our institution

pursuing a Master of Science in Commerce, degree in the School of Business.

David is conducting a research on a topic titled: *“Effect of firm characteristics on credit creation of listed commercial banks in Kenya.”* which is part of the requirements of the program he is pursuing. The research as well as the data procured thereof shall be used for academic purposes only.

Any assistance accorded to him is highly appreciated.



In case of further inquiry, do not hesitate to

contact the undersigned. Yours faithfully,