EFFECT OF MONETARY POLICY INTERVENTIONS ON FINANCIAL PERFORMANCE OF COMMERCIAL BANKS IN KENYA AND THE MODERATING ROLE OF BANK SIZE

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DECLARATION

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DEDICATION

This work is dedicated to my loving parents: Mr and Mrs Mwangi, my aunt Mrs. Lydia Kimondo and my siblings: Muthoni, Wambui, Wangechi and Thuo, whose unwavering support, encouragement, and sacrifices have been the foundation of my academic journey. Your belief in my abilities has been my greatest motivation, and your constant prayers and guidance have given me the strength to persevere. To my siblings, your encouragement and moral support have been invaluable. Your unwavering belief in my success has inspired me to strive for excellence. This achievement is as much yours as it is mine. May this work be a reflection of the love, dedication, and commitment that you have all shown me throughout my educational journey.

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ABBREVIATIONS AND ACRONYMS

BMGF	Bill & Melinda Gates Foundation
CBK	Central Bank of Kenya
CBR	Central Bank Rate
CMA	Capital Markets Authority
CRR	Cash Reserve Ratio
DMBs	Deposit Money Banks
FGLS	Feasible Generalized Least Squares
GMM	Generalized Method of Moments
IMF	International Monetary Fund
IRC	International Rescue Committee
KES	Kenyan Shilling
KNBS	Kenya National Bureau of Statistics
MPAC	Monetary Policy Advisory Committee
NIM	Net Interest Margin
NSE	Nairobi Securities Exchange
OMO	Open Market Operations
ROA	Return on Assets
ROE	Return on Equity
TAM	Technology Acceptance Model
VAR	Vector Autoregression

OPERATIONAL DEFINITION OF TERMS

Monetary Policy – The methods and measures used by the Central Bank of Kenya (CBK) to control inflation, interest rates, and the money supply in order to promote stability and expansion in the economy (Were et al., 2021).

Financial Performance – The measurement of a bank's efficiency, stability, and profitability; frequently determined using important metrics including net interest margin (NIM), return on equity (ROE), and return on assets (ROA) (Kirimi et al., 2022).

Bank Size – Operational efficiency and risk exposure are influenced by a bank's size, which is commonly indicated by its total assets, total deposits, or market capitalization. (Hunjra et al., 2022).

Open Market Operations (OMO) – According to (Martin et al., 2022), Central banks utilize the financial markets to purchase or sell government assets as a monetary policy instrument to manage economic liquidity.

Reserve Requirement – according to (Bateman & Allen, 2022), The central bank's required minimum percentage of consumer deposits that commercial banks must retain in reserve in order to maintain liquidity and financial stability

Central Bank Rate (CBR) – The Central Bank of Kenya's (CBK) interest rate, which affects lending and borrowing rates for all financial institutions (Were et al., 2021).

Cash Reserve Ratio (CRR) – The percentage of a bank's total deposits that, according to the central bank's theory, must be held in reserve in order to control liquidity and credit creation (Bateman & Allen, 2022).

Interest Rate Policy – Central bank regulations that affect inflation, investment, and economic growth by determining the cost of borrowing and lending (Kiley & Mishkin, 2024).

Panel Data Regression – According to (Imai et al., 2023), A statistical analytic method that assesses trends and relationships across time by combining time-series and cross-sectional data.

Technology Acceptance Model (TAM) – A conceptual model that explains how people adopt and utilize new technical advancements, such digital revenue collecting methods in banking, (Broby, 2021).

ABSTRACT

This study examines the impact of monetary policy interventions on the financial performance of Kenyan commercial banks, with a specific focus on how bank size moderates these effects. It is based on three key economic theories—Monetarist Policy Theory, Classical Theory of Interest Rates, and Financial Repression Theory, providing a framework to analyze the relationship between monetary policy and bank performance. Using panel data analysis within a descriptive research approach, the study assesses financial performance trends from 2014 to 2023 using secondary data. ROA was used to measure financial performance of the Kenyan commercial banks. Findings reveal that: Interest rates, reserve requirements, and open market operations significantly influence financial performance, higher CBRs negatively impact bank profitability, while open market operations positively affect ROA, reserve requirements increase ROA, but the effect weakens with larger banks and bank size moderates these relationships, with larger banks benefiting more from monetary policy interventions. The study recommends bank management to monitor interest rates and adjust strategies, focusing on fixed-rate loans and revenue diversification. Policymakers should balance interest rate changes to maintain economic stability while safeguarding bank profitability. Future research should explore the long-term implications of monetary policy adjustments, the role of bank size, and cross-national comparisons for broader insights. Bank size significantly moderates the relationships among risk, financial performance, and other key banking factors, influencing how these variables interact. However, unlike previous studies, this research found that neither the central bank rate nor the cash reserve ratio affects bank size's moderating role, highlighting gaps that requires further investigation.

Key words: Monetarist Policy Theory, Classical Theory of Interest, Financial Repression Theory, Return on Assets.

CHAPTER ONE

INTRODUCTION

1.1 Background of Study

Banking institutions' financial performance is crucial to the economy as it drives economic growth in the broader economy (Ozili', 2020), enhancing financial performance is a top priority for all emerging and developing nations. The next section provides an overview of the financial performance of commercial banks in different countries in order to get ready for the main subject of this research project, which is a focused analysis of the financial performance of commercial banks in Kenya.

According to (Statista , 2023), return on assets of the US banking industry has recorded high significant fluctuations over the years. (Statista , 2023) Further reported that the trend was as follows: In the first quarter of 2004, the rate was 1.37 percent after which it recorded a low of -1.86 percent in 2008 which was the worst record. It then continued to rise albeit with fluctuations until the first quarter of 2021, when it started to decrease again. The performance remained relatively stable in 2023 however there was a sharp drop in the last quarter. In this current year 2024, the return on asset shown significant improvements hence indicating a potential turning point in the bank's financial performance.

The average return on assets (ROA) of the European banking industry had a significant drop in 2020. It was believed that COVID-19 was the cause of this which had an impact on the world economy. As the economy stabilized in the year 2021 the ROA of the banking industry also improved which stood at 0.46% at the end of the year (Statista , 2023). In the year 2023 the ROA of the EU banking industry remained low at 0.68%. In Africa, the ROA of Nigerian Banking Industry was 3.180% in 2023 which was an increase from the previous number of 2.190% from year 2022. Nigeria Banking Sector ROA data over the last 10 years recorded an average of 2.320% from the year 2011 to 2023.

In Kenya, the average ROA was 3.7% in 2022 up from 3.30% in year 2021, and average ROE of 26.51% in the year 2022 compared to 22.1% in year 2021. Large banks in 2022 posted 30.6% average ROE and 4.2 percent average ROA, for the medium commercial banks ROE and ROA

stood at 18.6% and 2.1% and finally 5.6% and 1.98% for the small banks. Kenya's banking industry faced previously unheard-of difficulties as a result of the COVID-19 outbreak. Monetary authorities, especially the Central Bank of Kenya (CBK), implemented a variety of policy tools, such as interest rate reductions and open market operations, to shield banks and businesses from economic shocks during the crisis (IMF, 2021). However, the pandemic damaged commercial banks' liquidity levels, raised non-performing loans, and interfered with regular lending activity, casting doubt on the efficacy of conventional monetary policy instruments. (World Bank, 2023). Previous studies, such as those by (Ozili, 2023), have highlighted that lower interest rates encouraged borrowing during the pandemic, but their impact was limited due to reduced economic activity and heightened uncertainty. Similarly, (El-Herradi & Leroy, 2023) noted that commercial banks played a crucial role in financial intermediation during the crisis, yet they faced declining profitability and increased credit risk exposure.

Additionally, the pandemic sped up the adoption of fintech and digital banking, which had an impact on financial performance but were not sufficiently included in previous monetary policy research (van Zanden, 2023). Thus, this study attempts to bridge this gap by examining how interest rates and open market activities affected Kenyan banks' financial performance during the post-COVID-19 recovery phase. By taking into account pandemic-related disruptions and their aftermath, the study provides a current and relevant analysis of the effectiveness of monetary policy during times of economic distress.

The following graph shows the decreasing trend in ROA for Kenya’s commercial banks, year 2011 to 2022.

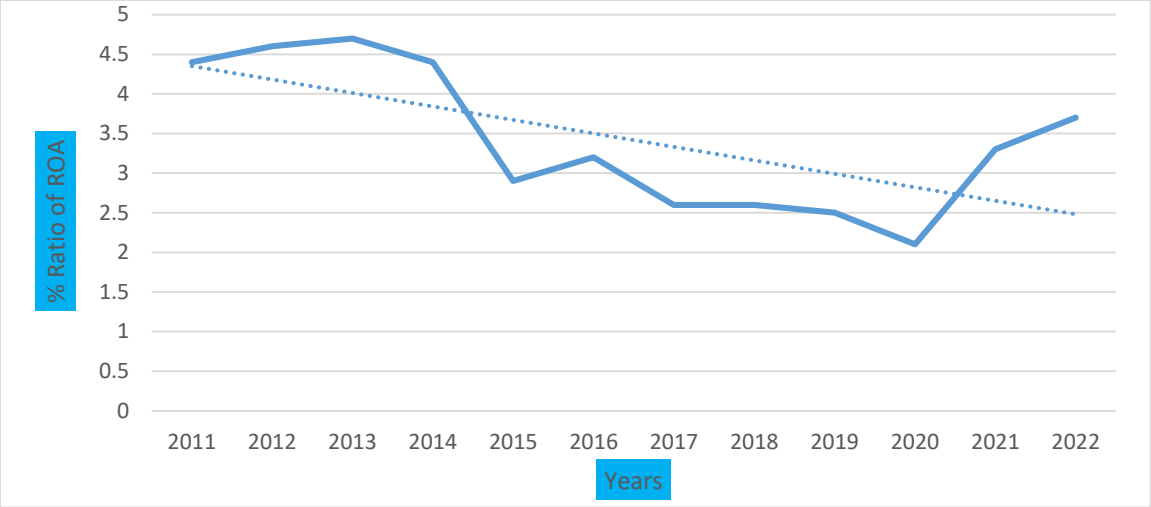

Fig.1.1 ROA Trend for Commercial Bank From 2011 to 2022

(Knight & Bertoneche, 2000) defined financial performance as the numerical degree of achievement of financial goals. The financial performance of a business reveals its capacity to generate profits and raise shareholder value over time. It functions as a thorough indicator of how effectively a company allocates its resources to meet its financial objectives (Ozili', 2020). One of the main indicators used to evaluate the viability of commercial banks is their financial performance, particularly in view of Kenya's shifting economic landscape.

The ability of banks to generate returns relative to their costs is measured by a number of evaluation indicators. These indicators, which display net income as a percentage of total assets, include Net Interest Margin (NIM), Return on Equity (ROE), and Return on Assets (ROA) (Mulwa, 2020). ROA was chosen as the main financial performance metric for this study due to its significance and clarity in examining profitability in connection to asset management.

It offers a clear view of how well a bank makes money off of its assets, which is especially important in an industry where efficient asset management is essential. ROA is a useful metric for evaluating financial performance since it makes it simple to compare banks with different sizes and operational approaches (Abba, 2021). The study looks at the effects of bank size as a regulating factor in this intricate interaction and aims to elucidate how monetary policy interventions impact monetary effectiveness with a focus on Return on Assets (ROA).

A particular organization's net revenue divided by its total asset value is the formula used to calculate ROA. According to (Purnama & Yani, 2023), net income is the remaining profit

following the deduction of all costs, including taxes, interest payments, depreciation, amortization, various operating costs, and the cost of products sold, for a given accounting period. A ROA of 5% is typically regarded as good, and 20% as great. A greater return on assets (ROA) is a sign of how well the bank uses its resources to make money

Below is a scatter diagram indicating the trend of average total assets and average ROA (%) from the year 2015 to 2024 of 9 top tier banks in Kenya.

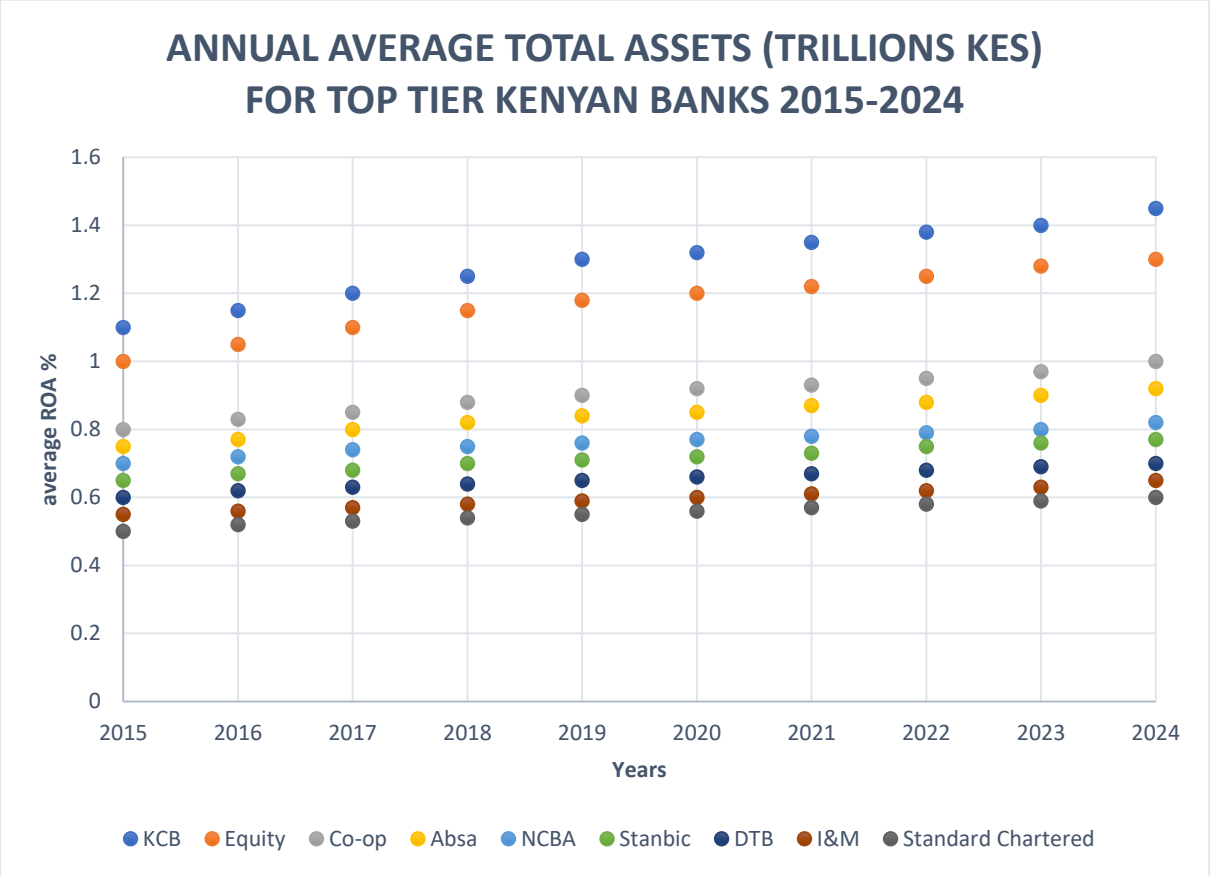

Figure 1.1: Top Tier Bank Statistics for Years 2015 to 2024
Source: Central Bank of Kenya (2024)

This table presents data for nine top commercial banks in Kenya. The "Total Assets" column indicates the bank size measured in trillions of Kenyan Shillings (KES), while the "ROA" (Return on Assets) column shows the bank's profitability expressed as a percentage. The scatter diagram illustrates the interrelationship between bank size (total assets) and financial performance (ROA). Typically, such a diagram helps in understanding whether larger banks tend to have higher or lower ROA compared to smaller banks.

(Gul & Cho, 2019) opined that banks financial performance can be assessed by means of a mixture of various monetary ratio scrutiny and performance evaluation in comparison to the budgets set by the company. According to the discussion of bank performance trends above, a number of factors, including rising interest rates and a decline in economic activity within an economy, can be linked to the declining tendency of banks' financial performance. In addition, supervisory and regulatory gaps also contribute to the decreasing financial performance and other bank-specific risks (CBK, 2023). CBK are therefore forced to manage the monetary policy interventions more keenly with an aim to control inflation pressures (Harakeh et al., 2020).

In response to the ever-changing economic environment and the effects of global events on the economy, CBK have been actively using the monetary policy interventions with a goal to stabilize financial performance and also promote economic growth. CBK has mainly used the following three monetary policy interventions: interest rates, open market operation, and the reserve requirements to influence money supply in the economy (CBK, 2023). They adjust interest rates thereby influencing the borrowing costs which also affects economic growth. (Ozili, 2023) reported that a reduction in interest rates can encourage borrowing and hence increasing economic activities.

(Rantyanti & Halim, 2020), characterized monetary policy interventions as the government's actions in the economy, which have a significant impact on how economic activity develops. This encompasses the total amount of output and employment, but more significantly, it has a significant impact on price increases and declines (Bordo & John, 2021). These interventions are essential for regulating demand and supply of an economy as well as the accessibility and pricing of money, all aimed at reaching particular goals that promote economic stability and expansion. According to (Shirya et al., 2023), the monetary policy strategies employed by any country greatly affect how well its banks perform.

There are various micro-factors that can impact financial performance of banks, bank size is one of the key factors, with the large-scale banks gaining from cost efficiencies which is associated with the increased size but additionally facing higher systemic risk. According to (Goel & Sharma, 2020), the moderating role of bank size is particularly important as larger banks may have greater ability to adjust to monetary policy changes with resources and flexibility could perhaps lessen the impact on the financial performance as compared to smaller banks (Kithinyi, 2019). Total assets

and market share are two indicators of bank size that affect a bank's capacity to adjust to shifts in monetary policy interventions, which in turn affects the bank's financial performance (Kithinyi, 2019).

The literature extensively discusses the monetary policy interventions and profitability of the financial institutions with various studies examining this topic, such as those by (Ozili, 2023), (Penman, 2021), (El-Herradi & Leroy, 2023).

With regard to Interest Rates, (Maria et al., 2022), (AL-Slehat, 2022) and (Wambutta, 2023) discovered a strong positive correlation with financial performance, but (Kariuki, 2023) found a negative correlation between financial success and interest rates. (Glocker, 2022), (Faykuzzaman et al., 2021), and (Nsanyan et al., 2021) noted a positive significant relationship between reserve requirements and bank's profitability. On the contrary, (Obadire & Obadire, 2023) and (Lwando & Lubinda, 2024) "established a negative relationship between the reserve requirements and economic performance". This was the same observation regarding open market operations where (Subedi & Chaulagain, 2022) and (Pedro & Carli, 2020) established a positive relationship as compared to (Alika et al, 2024) and (Haruna & Abu Bakar, 2021) who found a negative association. These discrepancies call for further studies in this area of study.

1.1.1 Monetary Policy Tools

Monetary policy is the collective term for the strategies and actions taken by a nation's central bank to control the money supply and achieve macroeconomic objectives such as limiting inflation, encouraging economic growth, and maintaining financial stability (Central Bank of Kenya) (CBK', 2025). The Central Bank of Kenya (CBK) employs three key monetary policy tools to regulate the economy and influence the financial performance of commercial banks: interest rates, open market operations (OMO), and reserve requirements. The interest rate, specifically the Central Bank Rate (CBR), serves as a benchmark for lending and borrowing costs in the economy. Adjustments to the CBR affect commercial banks' cost of funds, influencing their lending rates and ultimately impacting their profitability and financial performance. Open Market Operations involve the buying and selling of government securities, such as treasury bills and bonds, to control liquidity in the banking system. By either injecting or absorbing liquidity, the CBK stabilizes short-term interest rates and credit conditions, directly affecting banks' ability to lend and their financial

outcomes. Reserve requirements mandate the minimum reserves commercial banks must hold, limiting the amount of funds available for lending and thereby influencing the money supply and banks' operational capacity (CBK', 2025).

Open Market Operations are the principal instrument for implementing monetary policy in Kenya, conducted through repurchase agreements and term auction deposits that either absorb or inject liquidity in the market, targeting optimal liquidity levels and stabilizing interest rates. The CBR is a critical signaling tool that guides commercial banks on the cost of borrowing from the central bank, impacting their lending behavior and financial performance. Reserve requirements, often expressed as a cash reserve ratio, restrict the amount of money banks can lend, influencing their asset base and profitability. Empirical studies in Kenya have shown that the CBR and OMO have a positive and significant influence on the financial performance of commercial banks, while reserve requirements have a negative but less significant effect. The CBK's use of these tools reflects its mandate to ensure price stability, economic growth, and a sound banking system by influencing liquidity, credit availability, and interest rates in the financial sector (CBK', 2025).

The selection of interest rate, open market operations, and reserve requirements as the focus monetary policy tools is justified for three strong reasons. First, these tools are the most actively used and influential instruments by the CBK in steering monetary policy and directly affect commercial banks' liquidity, lending capacity, and profitability. Second, empirical research in Kenya consistently highlights their significant impact on the financial performance of commercial banks, making them critical variables for studying monetary policy effects. Third, these tools collectively provide a comprehensive view of monetary policy transmission mechanisms-interest rates influence cost of funds, OMO manage liquidity and market rates, and reserve requirements control money supply-thus offering a robust framework to analyze how monetary policy interventions affect banks of varying sizes in Kenya.

The Central Bank of Kenya employs the above monetary policy tools to influence the economy's credit and liquidity conditions. For instance, in response to economic slowdowns, the CBK changed the CBR to encourage lending and increase growth (Kimani S. , 2024). The CBK dropped its main interest rate by 50 basis points to 10.75% in February 2025, the fourth time in a row, with the goal of boosting economic activity (CBK', 2025).

Alongside this decision, the cash reserve ratio was lowered by 100 basis points to 3.25% with the goal of increasing the amount of money that banks might lend (CBK, 2025b). Such measures are indicative of the CBK's proactive approach to mitigating economic downturns and ensuring financial system resilience (Kihuro, 2023). Since these actions have a big impact on lending rates, consumer spending, and the state of the economy as a whole, their efficacy is constantly tracked (CBK', 2025). The CBK seeks to establish a favorable atmosphere for long-term economic expansion and financial stability by modifying monetary policy instruments (Kimani S. , 2024).

1.1.2 Financial Performance

Financial performance is the assessment of a business's stability, profitability, and efficiency in generating profits from its resources (Abonyo, 2020). In the banking sector, return on equity (ROE), return on assets (ROA), and net interest margin (NIM) are crucial performance indicators that, when combined, provide insight into a bank's operational efficiency and soundness (Kiplangat & Charles, 2018). The financial performance of commercial banks is influenced by both internal and external factors, including asset quality, managerial efficacy, and economic and regulatory situations (Muia & Mwikamba, 2023).

A number of macroeconomic issues and regulatory changes have caused swings in Kenya's commercial banks' financial performance. For instance, Kenyan banks' profitability significantly decreased between 2012 and 2016, raising concerns in the financial industry (Kiplangat & Charles, 2018). In order to preserve operational viability during this downturn, some banks had to reduce staff and take other cost-cutting measures. By influencing banks' interest margins and lending capacities, monetary policy actions such as adjustments to cash reserve ratios and the Central Bank Rate (CBR) have been found to have a significant effect on banks' financial performance (Abonyo, 2020). Therefore, understanding the relationship between monetary policy and financial performance is crucial for stakeholders looking to increase the stability and profitability of the banking sector (Muia & Mwikamba, 2023). Between 2015 and 2024, several monetary policy interventions were implemented by CBK in response to macroeconomic pressures such as inflation and currency depreciation. During this period, interest rates were periodically increased, reserve requirements were raised, thus the sale of Treasury bills served as a means of removing surplus liquidity from the banking sector (CBK', 2025).

Empirical evidence suggests that these interventions have contributed to higher funding costs for commercial banks. For instance, following a series of interest rate hikes in 2018, many banks reported a contraction in their net interest margins (Kiplangat & Charles, 2018). This, in turn, led to a gradual decline in ROA, a key indicator of profitability. Similarly, as reserve requirements increased, banks were compelled to hold more non-earning reserves, which further compressed their profitability (Muia & Mwikamba, 2023). The aggressive sale of treasury bills also signaled a tightening liquidity environment, forcing banks to borrow at higher rates and thereby impacting their overall financial performance (Abonyo, 2020).

These observations are supported by data showing trends in interest rates, reserve requirements, and treasury bill sales over the 10-year period. When these trends are compared with the ROA figures from the banking sector, a pattern emerges: as the monetary policy measures tightened, banks experienced lower ROA, suggesting a relationship between these interventions and bank performance (CBK', 2025).

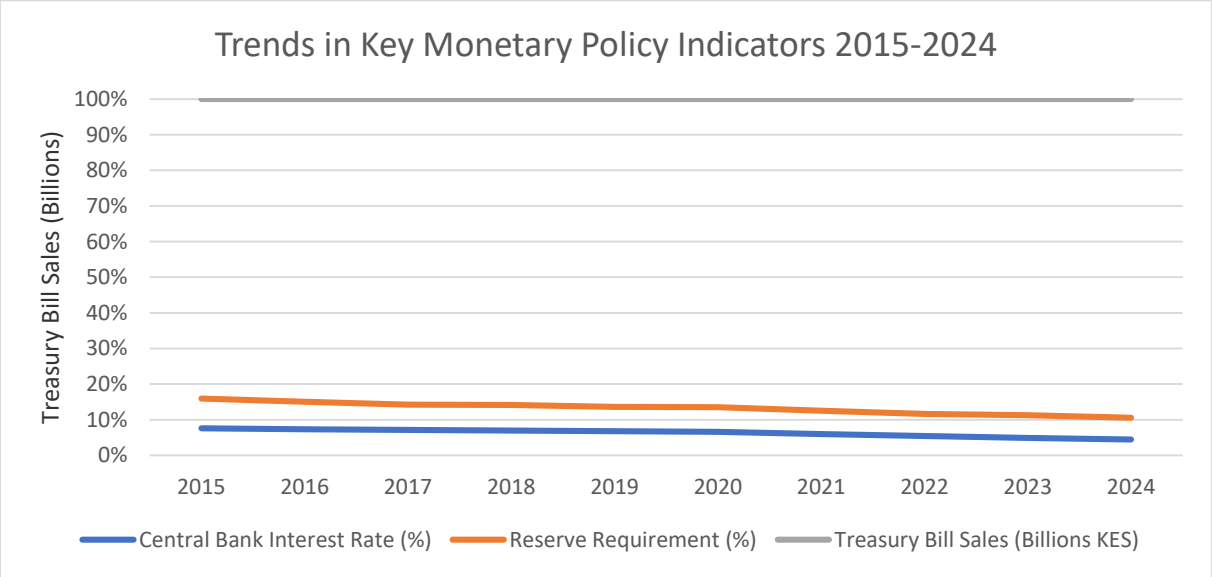

Figure 1.2: Trends in Key Monetary Policy Indicators 2015-2024
Source: Central Bank of Kenya (2024)

The table above presents data on key monetary policy indicators in Kenya over a 10-year period (2015–2024). It shows that the central bank's interest rate steadily increased from 9.0% in 2015 to a peak of 11.5% in 2020 before gradually declining to 9.5% in 2024. During the same period, reserve requirements increased from 10% to 13%, and treasury bill sales rose consistently, indicating a deliberate tightening of liquidity by the CBK.

These measures have made funding more expensive and have required banks to hold a larger portion of their assets as reserves, which do not yield high returns. This environment has contributed to a compression in banks' net interest margins and is reflected in the declining trend in ROA observed in the sector. The simultaneous increase in interest rates and reserve requirements, along with higher treasury bill sales, provides anecdotal evidence that monetary policy interventions have played a role in influencing bank performance in Kenya over the past decade.

1.1.3 Bank Size

The term "bank size" describes the scope of a bank's activities and is commonly expressed using measures like market capitalization, total assets, or total deposits. A bank's operational effectiveness, risk profile, and capacity to handle market swings can all be strongly impacted by its size. Because of economies of scale, larger banks are frequently able to provide a wider range of services and more efficiently withstand shocks than their smaller counterparts (Kiplangat & Charles, 2018). It has been found that bank size moderates the relationship between financial performance and financial soundness in Kenya.

Research indicates that larger banks may experience a different impact from monetary policy interventions compared to smaller banks. A study analyzing data from 39 commercial banks over a ten-year period found that bank size negatively moderated the relationship between financial soundness and performance metrics such as Net Interest Margin (NIM) and Return on Assets (ROA) (Muia & Mwikamba, 2023). This suggests that as banks grow in size, the direct benefits of financial soundness on performance may diminish, potentially due to increased complexity and regulatory scrutiny. Therefore, policymakers and bank management must consider bank size when designing strategies to enhance financial performance, ensuring that growth is managed in a way that sustains profitability and stability (Abonyo, 2020).

The moderating role of bank size on the relationship between monetary policy interventions and financial performance has been well established in previous studies. However, the recent economic disruptions caused by the COVID-19 pandemic and climate change have significantly altered the operating environment for commercial banks in Kenya. These unprecedented shocks have introduced new risks and challenges that may have changed how bank size influences financial

outcomes in response to monetary policy. Additionally, the Kenyan banking sector has experienced considerable regulatory reforms, technological advancements, and shifts in market dynamics over the past few years. These changes could affect the transmission mechanisms of monetary policy and the capacity of banks of different sizes to absorb shocks and sustain performance. Therefore, it is essential to re-examine and confirm the moderating role of bank size in this new context to ensure that findings remain relevant and reflective of current realities.

Moreover, the heterogeneity between large and small banks in terms of operational scale, risk management capabilities, and resource availability suggests that the impact of monetary policy interventions may differ more than previously understood, especially under the strain of recent disruptions. Understanding these nuances will provide more precise insights into how monetary policy affects banks differently based on their size, enabling policymakers and bank managers to tailor strategies accordingly. Confirming the moderating effect of bank size under current conditions is critical for designing effective monetary policies and growth strategies that promote sustainable profitability and financial stability across the banking sector. This study thus fills an important gap by providing updated, context-specific evidence that supports informed decision-making in Kenya's evolving economic and financial landscape.

1.1.4 Commercial Banks in Kenya

The banks operate with an aim to earn profit on the banking services they offer. CBK (2022) the licensed commercial banks are 39 out of which most are owned by private individual and corporations (37) whereas two are publicly owned. Twenty out the 37 privately owned banks are domestic financial institutions while 15 are foreign-based (CBK, 2023). In Kenya, operation of banks includes the open system which has a similarity with most organizations.

The banking industry is well developed and dynamic. The financial access to credit has improved which has been boosted over the past decade by the invention of mobile and agency banking. The current Kenyan banking sector is characterized by a few large tier 1 commercial banks with high asset base outperforming the smaller tier 2 and tier 3 banks, despite the rise of new banking technologies (CBK, 2023).

As reported by (CBK, 2023), commercial banks have shown a consistent pattern of growth and improvement over the past ten years, with notable increases in their asset bases, deposits, and

profitability. In Kenya, Standard Chartered Bank has effectively utilized technology as a strategy for customer retention, reflecting a significant shift towards digital living among the populace. Other banks in the Kenyan sector have also continued to provide credit to customers, all in pursuit of greater profits (CBK, 2023). Ensuring high-quality service for customers is vital, as it plays a crucial role in meeting their performance expectations.

The customers gain a sense of confidence placing their money in a financial institution that they trust have their best interests at heart. (Kariuki, 2023), highlighted that the Banking Act of the year 2016 saw a 4% financing cost charged by the loaning organization that was held over the CBK and CBR rate of September 2016. There was a 23% in the usual borrowing rates offered by other business banks. There was an increase in rising business operations and other power costs ignited by an inflation increase from 7% in the 2019 to 9% in the year 2020. CBK implements the monetary policy interventions through the banks. Banks offer loans to members of the public and the interest rates charged are guided by CBK regulations (CBK, 2023).

As economic intermediaries, banks are crucial because they serve as a payment system for the exchange of goods and services and encourage financial investments by taking deposits and mobilizing savings. (Rantyanti & Halim, 2020), pointed out that the cutthroat competition in the banking sector has caused significant fluctuations in institutional performance. The banking industry is well developed and dynamic. The financial access to credit has improved which has been boosted over the past decade by the invention of mobile and agency banking.

Commercial banks are vital to the economy, as they facilitate deposit acceptance, provide essential banking services like checking and savings accounts, and issue loans to support growth and development (Harakeh et al., 2020). The banks offer credit which assist in the increment of: production, assist in creating employment, and consumer spending also increases which boost the economy at large. In addition, the commercial banks are regulated by CBK and are an important component of the banking system, making them a key target for understanding the financial sector (El-Herradi & Leroy, 2023).

Considering the diverse landscape of commercial banks in Kenya, which range from large, well-established institutions and smaller, specialized players: incorporating bank size into the analysis yielded more nuanced insights into how monetary policy impacts banks of different scales and help policymakers and bank managers in tailoring their strategies more efficiently (Hassan et al.,

2023). What sets this research apart is its capacity to illuminate the intricate dynamics between monetary policy interventions, the scale of banking institutions, and their financial outcomes, providing a new lens through which to view a well-trodden subject in academic literature

1.2 Statement of the Problem

Commercial banks are essential to the economy because they make payments, mobilize savings, and distribute credit (Kashyap & J C Stein, 2023). However, Kenya's banking sector has been experiencing volatility in their financial performance, raising questions about how well monetary policy interventions work to ensure long-term financial performance. According to (Camilla & Kiemo, 2023), the banking sector remained resilient over the study periods, despite experiencing some periods of financial instability. Over the past decade, return on assets (ROA) has been highly volatile, declining from 3.2% in 2016 to 2.6% in 2017, rebounding slightly to 2.76% in 2018, then dropping again to 1.7% in 2020 (CBK, 2023). Concurrently, Non-Funded Income as a share of total operating income declined from 37.4% in 2019 to 35.4% in 2020, exacerbating earnings instability for banks (Kimani & Koori, 2018).The volatility in profitability indicators suggests that monetary policy decisions including adjustments in the Central Bank Rate (CBR), changes in reserve requirements, and treasury bill sales may be influencing bank performance, but the exact nature of this relationship remains unclear and inconsistent in empirical literature.

A review of Monetary Policy Advisory Committee (MPAC) pronouncements indicates that the Central Bank of Kenya (CBK) has historically focused on inflation control, exchange rate stability, and liquidity management while paying limited attention to the specific impact of monetary policy interventions on commercial bank performance. For example, in 2020, the CBK lowered the CBR from 8.25% to 7.00% to cushion the economy during the COVID-19 pandemic, yet bank profitability continued to decline, with ROA falling to 1.7% (CBK, 2023). This raises questions about whether monetary policy adjustments alone are sufficient to support financial stability in the banking sector. Furthermore, previous studies on monetary policy and financial performance have yielded mixed results. Some researchers argue that monetary tightening (raising interest rates and increasing reserve requirements) improves financial stability by reducing risky lending (Ozili, 2023), while others suggest that restrictive policies reduce bank profitability by increasing the cost

of funds (Shirya et al., 2023). In Kenya, empirical research has not sufficiently linked specific monetary policy tools to financial performance metrics such as “Return on Equity (ROE), Return on Assets (ROA), and Net Interest Margin (NIM)” ((Kerongo & Nyamute, 2022); (Kimani S. , 2024)). This lack of clarity creates a significant knowledge gap in understanding the effectiveness of CBK’s monetary policy actions on commercial bank performance.

Furthermore, bank size is not taken into consideration in current research as a moderating factor in the association between financial performance and monetary policy measures. Bank size is a critical determinant of risk exposure, market power, and financial resilience, yet prior research has largely treated all banks as homogeneous entities, overlooking size-based differences in policy responsiveness ((Jeff-Anyeneh, 2022); (Abba, 2021)). Larger banks may have greater access to diversified revenue streams, superior risk management capabilities, and stronger capital buffers, making them less susceptible to monetary shocks compared to smaller banks. Conversely, smaller banks, which rely heavily on interest income, may face greater financial strain when the CBK implements restrictive monetary policies. The lack of empirical studies assessing whether large banks respond differently to monetary interventions compared to smaller banks in Kenya presents a critical research gap (Kithandi, 2022).

By methodically investigating the impact of monetary policy interventions on financial performance and taking bank size into account as a moderating variable, this study fills up these empirical, conceptual, and contextual gaps. Unlike previous research, which has focused on developed economies or broader macroeconomic indicators, this study provides a Kenyan-specific analysis tailored to the unique structure of the local banking sector. By employing panel data regression models, the study analyzed how specific monetary policy tools interest rate adjustments, statutory reserve requirements, and Treasury bill sales impact key financial performance indicators such as ROA, ROE, and NIM over time.

Furthermore, the study introduces a novel dimension by testing whether bank size moderates the impact of monetary policy interventions. This provided valuable insights into whether large banks are better positioned to withstand monetary shocks compared to smaller banks. The findings offer practical recommendations for both policymakers and banking executives on how to optimize monetary policy frameworks to enhance financial performance and stability in Kenya’s banking sector. In the end, this work addresses long-standing theoretical contradictions and informs data-

driven monetary policy decisions in Kenya and elsewhere, making it a crucial reference for future research.

1.3 Objectives of the Study

1.3.1 General Objective

The primary goal of this research is to investigate the relationship between monetary policy interventions and the financial performance of commercial banks in Kenya, with a particular focus on how bank size moderates this effect.

1.3.2 Specific Objectives

i. To establish the relationship between interest rates and the financial performance of commercial banks in Kenya
ii. To establish the relationship between reserve requirements and financial performance of commercial banks in Kenya
iii. To establish the relationship between open market operations and financial performance of commercial banks in Kenya
iv. To assess the moderating role of bank size on relationship between monetary policy interventions and financial performance among commercial banks in Kenya.

1.4 Research Questions

The study sought to answers the following questions:

i. What is the effect of interest rates on the financial performance of commercial banks in Kenya?
ii. Does the reserve requirement have any impact on the financial performance of commercial banks in Kenya?
iii. What is the impact of open market operations on the financial performance of commercial banks in Kenya?

iv. What impact does the size of a bank have on the relationship between monetary policy interventions and the financial performance of commercial banks operating in Kenya?

1.5 Scope of the Study

The main objective includes to analyze the effects of monetary policy interventions measures on the commercial banks financial performance, with a particular emphasis on how bank size moderates this relationship. This study covered ten years from 2014 to 2023. The time period was chosen because monetary policy changes are known to have long and variable lags, meaning that their full impact on the economy and financial performance may not be immediately apparent. A research period of ten years would provide "a robust framework for analyzing the comprehensive impacts of monetary policy changes on banks' financial results".

This time frame also aided in recognizing patterns and trends in the link between monetary action measures and bank outcomes, while factoring the influence of bank size, ultimately offering a richer perspective on the dynamics involved. The study used secondary data as published by Central bank from the financial statements and annual reports. Published data on Central bank rate, cash reserve requirement and OMO was sourced from the CBK published reports. Data collected was analyzed using Panel Regression analysis, Correlation Analysis by the use of statistical software. The study utilized the entire population of all 39 commercial banks operating in Kenya as of December 2023, without selecting a sample. Given the manageable size of the population, analyzing all banks allowed for comprehensive coverage and ensured that the findings are conclusive and fully representative of the Kenyan banking sector. This approach enhances the accuracy and reliability of the results, providing a complete picture of the financial performance of commercial banks in Kenya.

1.6 Significance of the Study

The results of this research acted as a crucial asset for the commercial bank management, policymakers, investors, scholars, and regulatory authorities.

1.6.1 Management of Commercial Banks

The management of banks was able to analyze and comprehend the relationships between bank size, monetary policy interventions, and financial performance parameters that are crucial to their strategic decision-making thanks to the knowledge gained from this research. They were in a better position to make improved decisions in comparison to their set goals. Additionally, the achieved study findings add to the contribution of the commercial banks awareness hence why it is necessary to observe monetary policy interventions which in turn boosts and sustains the banks' performance.

1.6.1 Policy Makers

Policymakers will also learn more from this study on the results of the CBK's monitoring policy interventions. They will use the information acquired in designing the risk management measures that can be implemented when anticipating changes in monetary policies. The study will help the CBK when effecting administrative regulations for the commercial banks' activities. The study would help the CBK in formulating a policy on areas that necessitate formulation of monitory policy within the financial sector taking bank size into consideration.

1.6.3 The Investors

By using the research findings, conclusions, and recommendations about monetary policy actions and their impact on financial performance, investors will be better informed. The investors in banking sector would be able to understand the monetary policy interventions aspects that shape the performance outcomes of the firms. They will be adequately informed on what practices to be adopted by the bank to achieve optimal financial performance. They are therefore in a better position to rebalance their portfolios and make better decisions regarding their investment strategy.

1.6.4 Researchers and Scholars

This investigation aims to enrich the current literature, equipping future researchers with essential insights on how monetary policy changes affect the financial performance of commercial banks in

the banking industry. Moreover, it will contribute to the larger discourse in business and academic research, offering recommendations that promise to enhance the quality of academic pursuits.

1.7 Chapter Summary

The global trends in the banking industry's financial results are examined in this chapter. The pattern of the bank sector's financial performance during the last ten years, as determined by ROA, is then displayed, with particular attention to the nation being examined. The chapter also explores monetary policy measures and their effects on financial performance in detail, with a focus on the role of bank size in relation to Kenya's standing in the international banking market.

The various gaps that the researcher aims the address have been highlighted with an aimed to be resolved as shown above. It emphasizes the vital importance of these monetary policy measures in enhancing financial services, thereby contributing significantly in achieving the monetary goals outlined in Kenya's Vision 2030. This study's goal and questions are described in the first chapter, which also establishes the study's scope and highlights the research's importance in guiding policy and practice in Kenya. The following chapter reviews the research with an emphasis on how monetary policy interventions affect a bank's financial performance, taking bank size into account.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

With an emphasis on how bank size moderates this relationship, this study examines the effects of monetary policy interventions on the financial performance of Kenyan commercial banks over a ten-year period. This ten-year study is significant because it closes a gap in the literature, as prior research has mostly focused on shorter time periods or different contexts, ignoring the possible long-term effects of monetary policy. Using this methodology, the study seeks to determine how monetary policy and banking performance are related, emphasizing the important moderating influence that bank size plays.

2.2 Theoretical Literature Review

Through the observations and experimentation, theories are developed, incorporating predictions, laws, proven facts, and hypotheses that have been rigorously tested and acknowledged. The following are some of the theories this research has utilized.

2.2.1 Monetarist Policy Theory

(Nelson, 2007) Highlights the formulation of Monetarist Policy Theory by (Friedman', 1956), which seeks to clarify the intricate relationship between the demand for money, money supply, and financial performance. The theory asserts that money functions as a direct substitute for all other assets. Thus, an expansion in the money supply, assuming a relatively stable velocity of circulation, leads to greater demand for various assets, as individuals have more financial resources available for investment.

One well-known macroeconomic theory is monetary theory, which makes a distinction between nominal and real interest rates and highlights the importance of both short-term and long-term monetary non-neutrality. Furthermore, monetarists stress how important financial aggregates—like the expansion of the money supply—are in determining economic patterns. (Nelson, 2007)

Confirms that the demand for other assets is directly impacted by an increase in the money supply, hence reaffirming the core ideas of the theory.

This theory also explores how fluctuations in the money supply impact individual income levels and broader financial performance (Lothian, 2006). Monetarists caution against the reckless expansion of money by central banks, warning of the risk of inflationary pressures (Friedman, 1988). Friedman argued that central banks should focus on price stability, as excessive money growth could lead to inflationary spirals. The government plays a crucial role in managing overall spending levels in the economy, ensuring a stable inflation rate to support sustained economic growth.

(Lothian, 2006) claims that an increase in the money supply will unavoidably result in higher inflation if an economy's real output stays the same. Therefore, monetarists endorse the traditional quantity theory of money, which holds that price increases are a direct outcome of expanding the money supply. Employment levels, real output, and money incomes are subsequently impacted.

(Kerongo & Nyamute, 2022) claimed that the money supply is a key factor in determining both short-term output levels and long-term inflation rates in the Kenyan environment, applying the monetarist framework. Monetarists support a steady and regulated growth of the money supply in order to reduce uncertainty. This theoretical viewpoint emphasizes how monetary policies affect inflation, interest rates, and overall financial stability, making it extremely pertinent to contemporary economic studies. The idea is important because it may direct monetary policy tools to match the money supply to demand in the economy, reducing price volatility and fostering economic balance.

The Monetarist Policy Theory provides a strong theoretical foundation for examining the relationship between monetary policy tools and the financial performance of commercial banks in Kenya. According to the theory, changes in the money supply directly influence key financial variables such as interest rates, liquidity, and inflation, which in turn affect banks' profitability and stability. This links directly to the research objectives: first, the theory explains how interest rates, as a cost of borrowing influenced by monetary policy, impact the financial success of banks by affecting lending and investment decisions. Second, it underscores the role of reserve requirements in controlling money supply and liquidity, thereby shaping banks' capacity to generate income. Third, open market operations, which adjust liquidity through buying or selling government

securities, are central to managing the money supply and influencing financial outcomes in banks. Finally, the theory's emphasis on the scale and stability of monetary aggregates supports investigating how bank size moderates these relationships, as larger banks may respond differently to monetary changes due to their scale and operational complexity. Thus, the Monetarist framework integrates all these elements, guiding the analysis of how monetary policy interventions and bank size jointly affect financial performance in Kenya.

2.2.2.1 Criticism of Monetarist Policy Theory

Critics argue that monetarist theory ignores the importance of structural factors, supply-side problems, aggregate demand, and other factors, oversimplifying the relationship between the money supply and economic variables. In particular, the theory's emphasis on monetary contraction as a means of containing inflation could have unforeseen repercussions. For example, even before inflation is controlled, tight monetary policy can raise the cost of working capital, which could result in supply-side shocks and a recession (Sanyal & Ehlen, 2025).

Monetarism is criticized for its propensity to see the economy as a straightforward, mechanical system in which output and prices are directly influenced by the money supply. This perspective overlooks the complex interactions within the economy, including the roles of expectations, information asymmetry, and the impact of fiscal policy (Sanyal & Ehlen, 2025).

The amount of money in the economy is the main emphasis of monetary theory, but the makeup of the money supply and its distribution throughout the economy are also significant. A rise in the stock market, for example, can increase consumer spending, even if the money supply remains relatively stable (Lofaro et al., 2025)

2.2.2 Classical Theory of Interest Rate

A basic model for comprehending the equilibrium interest rate through the relationship between borrowing demand and savings supply is the Classical Theory of Interest Rate. (Marshall, 1961) asserts that when the amount of available savings and the demand for investment borrowing are equal, equilibrium is reached. A demand-supply curve is used to illustrate this relationship; the intersection of the curve shows the ideal levels of money supply and demand as well as the equilibrium interest rate.

Within this framework, investment demand reflects the need for investable resources, while savings denote their availability. When funds exceed investment needs, the cost of borrowing, or interest rate, declines until equilibrium is restored. Conversely, when savings fall short of investment demand, a state of disequilibrium emerges, necessitating an interest rate adjustment to restore balance (Roger et al., 2020).

(Fleurbaey & Blanchet, 2013) extend this theory to explain credit supply, which represents the actions of depositors and financial entities that provide credit to financial markets. This framework includes investors who liquidate financial assets to access capital for ventures, thereby influencing interest rate equilibrium. Moreover, (Goel & Sharma, 2020) highlight the moderating role of bank size, noting that larger banks have greater flexibility in responding to monetary policy changes. Consequently, financial performance may be less affected in large banks compared to smaller institutions.

The banking sector plays a crucial role as an intermediary in the economy, facilitating money circulation, deposit mobilization, and investment financing. (Rantyanti & Halim, 2020)observe that intense competition in banking has led to fluctuations in institutional performance. In Kenya, commercial banks operate in an open market system, similar to many economies, where financial access has improved due to mobile and agency banking innovations. The availability of credit has significantly contributed to increased production, employment creation, and consumer spending, thus stimulating economic growth (Harakeh et al., 2020).

Additionally, the Central Bank of Kenya (CBK) regulates commercial banks, which makes them a crucial part of the financial system (El-Herradi & Leroy, 2023). (Mungai & Wanjohi, 2023) investigated the relationship between corporate governance and financial performance among banks registered on the Nairobi Securities Exchange (NSE) using the Classical Theory of Interest Rate. Their study revealed that rising borrowing interest rates tend to negatively impact financial performance, reinforcing the significance of interest rate determination in economic analysis.

Nonetheless, there are some significant drawbacks to the classical theory of interest rates. It ignores the impact of income levels, monetary policy tools, and financial market dynamics in favor of assuming that interest rates are only influenced by savings and investment. To give a more

thorough explanation of interest rate changes in contemporary economies, it is necessary to comprehend how interest rates and income levels interact.

The Classical Theory of Interest Rate directly supports the research objectives by explaining how the equilibrium between savings supply and investment demand determines interest rates, which in turn influence the financial success of commercial banks in Kenya. This theory underpins the objective of establishing the relationship between interest rates and bank performance by highlighting how fluctuations in borrowing costs affect banks' lending activities and profitability. It also relates to reserve requirements and open market operations, as these monetary policy tools impact the availability of loanable funds and liquidity, thereby influencing the supply-demand balance in credit markets and ultimately affecting banks' financial outcomes. Furthermore, the theory's recognition of the moderating role of bank size aligns with the objective to assess how larger banks, due to greater flexibility and resources, may respond differently to monetary policy interventions compared to smaller banks, affecting their financial performance. Thus, the Classical Theory provides a foundational framework for analyzing the interactions between monetary policy, bank size, and financial performance in Kenya's banking sector.

2.2.2.1 Criticism of Classical Theory of Interest Rate

The Classical Theory of Interest, which holds that the supply and demand for capital determine interest rates, is criticized for its irrational presumptions and limited relevance to actual situations. Its dependence on full employment, a constant income level, and long-term equilibrium—while ignoring short-term fluctuations—are among its main objections. Furthermore, the theory has been criticized for ignoring the importance of income and instead focusing on interest rates as the mechanism for balancing investments and saves (Carrera & Cencini, 2024).

Essentially, the critiques of the classical theory point out how inadequate it is to explain how interest rates are set in different economic environments. It is seen as an oversimplified model that falls short in capturing the intricacies of reality.

2.2.3 Financial Repression Theory

In the 1970s, McKinnon and Shaw established the Financial Repression Theory, which explains how government regulations on financial markets reduce the effectiveness of capital allocation and

ultimately impede economic progress ((McKinnon, 1973); (Shaw, 1973)). This theory describes how financial markets are distorted by policies like capital controls, excessive reserve requirements, and artificially low interest rates, which have an impact on overall financial performance (Roubini & Sala-i-Martin, 1992). Controlling interest rates, which governments frequently maintain artificially low to lower borrowing costs and manage public debt, is at the heart of financial repression (Fry, 1995). While this may seem beneficial in the short term, it discourages savings by offering lower real returns, leading to reduced capital accumulation (Reinhart & Sbrancia, 2015). With fewer funds available for lending, banks struggle to provide credit for productive investments, which in turn hampers economic growth (Huang & Wang, 2011).

High reserve requirements, which encourage banks to retain a sizable amount of their deposits as reserves rather than lending them out, are another important pillar of financial repression (Demetriades & Luintel, 1996). This limitation lowers investment and slows financial expansion by limiting the quantity of credit accessible in the economy (Shaw, 1973). By constraining liquidity, high reserve requirements weaken the ability of the financial system to support economic development (McKinnon, 1973). Although open market operations (OMO) are a standard tool used to manage liquidity, financial repression often distorts their effectiveness (Fry, 1995). Governments may restrict private sector participation in bond markets, forcing financial institutions to purchase government debt at artificially low yields (Reinhart & Sbrancia, 2015). This not only crowds out private investment but also prevents the financial system from functioning efficiently (Huang & Wang, 2011)

The cumulative impact of these policies leads to poor financial performance, as businesses face credit shortages, investors experience lower returns, and overall economic growth slows (Demetriades & Luintel, 1996). Over time, financial repression can result in capital flight, informal financial markets, and reduced economic dynamism (Roubini & Sala-i-Martin, 1992). Financial Repression Theory primarily anchors itself on interest rates and reserve requirements, with open market operations playing a secondary role (Fry, 1995). By imposing restrictive financial policies, governments may achieve short-term fiscal objectives but often at the expense of long-term financial stability and economic progress (Reinhart & Sbrancia, 2015).

The Financial Repression Theory provides a crucial framework for examining the relationship between monetary policy interventions and the financial performance of commercial banks in Kenya. It explains how government controls such as artificially low interest rates, high reserve requirements, and open market operations distort financial markets by limiting banks' ability to lend and reducing liquidity, thereby impacting their profitability and overall success. This theory underpins the study's objectives to establish how interest rates, reserve requirements, and open market operations influence commercial banks' financial outcomes. Additionally, it highlights the moderating role of bank size, suggesting that larger banks may better absorb or adapt to these restrictive policies, which affects the strength and direction of these relationships. Thus, the theory effectively links monetary policy tools to bank performance while accounting for variations due to bank size, offering a comprehensive lens to assess the impact of Kenya's monetary policy interventions on the banking sector.

2.2.3.1 Criticism of Financial Repression Theory

Financial repression is criticized for possibly impeding economic growth and efficiency, even though it is occasionally viewed as a strategy for managing debt. It has the potential to skew capital allocation, lower investment and savings, and encourage rent-seeking behavior. In essence, detractors contend that it slows down overall economic progress by establishing a system in which money are not directed toward their most fruitful applications (Uttam, 2025).

Financial repression may reduce the cost of borrowing for the government by inflating demand for government bonds, but it may also take money away from more profitable private sector ventures. This may cause resources to be misallocated and impede economic growth in general. It can discourage investment and discourage saving by lowering interest rates. Less money is available for investment when savers receive lower returns, and a lack of competition in the financial industry can further discourage investment. Further, it can hinder innovation and make it more difficult for capital markets to allocate financing to the most promising businesses. It can impede the growth of a competitive and lively financial industry by erecting fictitious obstacles to competition.

2.3 Empirical Literature Review of Monetary Policy Intervention and Financial Performance

Depending on the instruments employed and the particular dynamics of the banking sector, a number of studies have looked at how monetary policy impacts financial performance in different economies, with varying degrees of success. Kenyan academics have filled up the empirical gaps by looking at these processes locally, even while foreign research clarifies the more general relationship between monetary policy interventions and bank performance, financial inclusion, and financial accessibility.

(Ozili, 2023) conducted a comprehensive study on how monetary policy influences financial accessibility across the top five emerging markets over a 16-year period. His analysis incorporated various financial inclusion indicators and central bank interest rate measurements, offering a nuanced understanding of how monetary policy adjustments affect banking infrastructure expansion. The study concluded that both contractionary and expansionary monetary policies can either enhance or constrain financial inclusion, depending on the prevailing macroeconomic conditions. However, this research primarily focused on emerging markets outside Kenya, presenting a contextual gap that this study seeks to address by examining monetary policy interventions within the Kenyan banking sector.

Similarly, (Shirya et al., 2023) "explored the relationship between monetary policy tools and the financial performance of commercial banks in Nigeria'. Using panel data regression and inferential statistical analysis, they established that open market operations had a "significant positive effect" on banks' earnings, as demonstrated by a regression coefficient of $\beta = 4.851167$ with a significance level of ***$p = 0.000$. This study underscores the critical role that central bank interventions play in shaping banking sector outcomes. However, there is a contextual gap because the study was carried out in Nigeria, and Kenya's banking industry functions in a distinct legal and economic environment, requiring a customized examination.

In a similar study, (Jeff-Anyeneh, 2022) examined how the operating efficiency of deposit money institutions was affected by loan-to-deposit ratios, cash reserve ratios, liquidity ratios, and monetary policy rates. The findings demonstrated that although banks' asset bases grew as a result of meeting higher reserve requirements, liquidity ratios had a major influence on asset growth.

This study confirmed the significance of monetary policy in preserving a sound financial system. However, it disregarded the moderating influence of bank size, which is a crucial consideration when determining how different bank types respond to monetary policy changes. By employing bank size as a moderating factor, this study aims to bridge this empirical gap.

(Penman, 2021) Investigated the effects of interest rates and other monetary policy parameters on the asset and equity returns of companies listed on the New York Stock Exchange during a 36-year period. His findings showed a negative correlation between interest rate fluctuations and residual profits, but a positive correlation with unexpected rises in book values. This study illustrates how monetary policy tools affect corporate financial measurements that are not related to the banking sector. However, there is a contextual disadvantage to the study's focus on the US, whose monetary policy framework differs greatly from Kenya's.

Going on to the Kenyan context, some scholars have examined the relationship between monetary policy actions and the financial performance of commercial banks. (Muia & Mwikamba, 2023) Looked into how the Central Bank Rate, open market activities, money supply, and lending rates affected Kenyan banks' performance. Their research showed that while the money supply and the central bank rate had a negative impact on bank profitability, lending rates and open market operations had a beneficial impact. Although this study offers important insights into Kenyan banks' responses to changes in monetary policy, it ignores the moderating influence of bank size, which is the focus of this investigation.

(Kithandi, 2022) also explored the effects of the Central Bank Rate, cash reserve ratio, and repo rate on the return on equity of commercial banks in Kenya from 2016 to 2020. Using a longitudinal research design, the study found that the Central Bank Rate and cash reserve ratio negatively impacted financial performance, whereas the repo rate had a positive effect. This research underscores the differential effects of various monetary policy tools but does not evaluate how different bank sizes react to these interventions. This study extends that line of inquiry by incorporating bank size as a moderating variable in the Kenyan banking sector.

Further, (Shikumo & Mirie, 2020) investigated the factors that influence Kenyan commercial banks' lending to small and medium-sized businesses. While not exclusively focused on monetary policy, their findings revealed that bank size played a crucial role in determining lending behaviors, with larger banks more likely to extend credit to SMEs. This study aligns with the

argument that larger banks may respond differently to monetary policy interventions than smaller ones, reinforcing the rationale for including bank size as a moderating factor in the present study.

(Kimani S. , 2024) conducted an unpublished master's thesis focusing on monetary policy and financial performance among Kenyan commercial banks. Her research confirmed that monetary policy significantly influences bank profitability, with tools such as the Central Bank Rate having a considerable impact on bank earnings. However, this study did not incorporate a panel data approach, which is essential in capturing the dynamic nature of monetary policy effects over time. This research addresses that methodological gap by employing panel data analysis to track monetary policy impacts across multiple years.

(Mulwa, 2020) further explored the impact of monetary policy on Kenyan commercial banks' financial performance. His study highlighted the strong relationship between interest rate adjustments and banks' profitability, demonstrating that higher interest rates tend to reduce lending and lower bank earnings. While this study provides a foundational understanding of monetary policy effects in Kenya, it does not incorporate recent monetary policy changes, particularly those introduced after 2015. This study extends the timeline to 2014–2023, ensuring a more comprehensive analysis of monetary policy trends.

Collectively, these studies underscore the critical role of monetary policy interventions in shaping banking sector performance. However, they also reveal significant gaps that this study aims to address, including the moderating role of bank size, methodological improvements through panel data analysis, and the inclusion of more recent monetary policy changes in Kenya. By bridging these empirical, methodological, and contextual gaps, this study provides a more nuanced understanding of how monetary policy interventions influence financial performance within Kenya's banking sector.

2.3.1 Effects of Interest Rates Policies on Financial Performance

(Mursidah et al., 2023) delved into the various elements that shape the profitability of the banking industry. The study analyzed 31 Indonesian conventional banks over the years 2017 to 2021, categorizing them based on core capital: small, medium, and large. The results unveiled that capitalization negatively affected the profitability of small and medium banks, while it had a beneficial impact on larger banks. Additionally, interest rate policy positively influenced the

profitability of small and medium banks but had a negative effect on larger institutions. It was discovered that this policy could only regulate the connection between capital and credit risk regarding profitability for small banks. According to the study's findings, smaller banks react to changes in interest rate policy more quickly than their larger counterparts. However, the dynamics of interest rate policies and their impact on Kenyan banks' financial health—where fluctuating interest rates are crucial in deciding lending strategies and overall economic resilience—were not covered in this study.

Similarly, (Wambutta, 2023) investigated the impact of interest rate spreads on the financial performance of Kenya's commercial banks using a descriptive study design. The study examined data from 37 commercial banks between January 2018 and December 2022 and found a statistically significant connection at the 5% level. The study concluded that banks' lending policies and overall financial performance are impacted by changes in interest rate spreads. The study's limitation to 37 commercial banks creates an empirical vacuum because a comprehensive analysis of all 39 institutions could provide deeper insights.

In addition to discussing the banking environment in Kenya, (Kithandi, 2022) looked into the effects of monetary policy tools, such as the central bank rate, on the financial performance of Kenyan commercial banks between 2016 and 2020. The study found that an increase in the central bank rate reduces profitability and discourages lending, which has a negative impact on return on equity. This is consistent with research by (Waweru & Oribu, 2023), who found that changes in interest rate policies had a major impact on bank performance via affecting liquidity levels. According to their research, banks see a decrease in loan uptake and consequently lower revenues when interest rates are high.

Further, (Maigua & Gekara , 2016) examined the factors that influence interest rates in Kenya and discovered that changes in interest rate policies have a significant impact on the profitability of commercial banks. According to their findings, in order to avoid negative effects on bank performance, the Central Bank of Kenya should implement policies that strike a balance between borrowing costs and economic growth. Likewise, (Shikumo & Mirie, 2020) investigated the impact of interest rates on SME loans in Kenya. According to their research, banks often lend less to small businesses when interest rates rise, which has an effect on their bottom line because of the

decreased interest revenue. These results highlight how interest rate policies influence the financial stability of commercial banks.

Beyond Kenya, (AL-Slehat, 2022) studied Jordanian commercial banks' interest rate fluctuations and financial performance, emphasizing the role of banking security as a middleman. Using data from 2011 to 2018, the study found that banking security played a major mediating role in the relationship between interest rate risk and financial outcomes. The results showed that important factors that affect bank profitability include asset quality, bank size, and interest rate spreads. However, our research included banking security as a mediating component, creating a conceptual gap with Kenyan studies that concentrate on direct correlations between interest rates and bank performance.

Beyond Kenya, (AL-Slehat, 2022) examined the financial performance and interest rate swings of Jordanian commercial banks, highlighting the function of banking security as a mediator. Using data from 2011 to 2018, the study discovered that the relationship between interest rate risk and financial outcomes was significantly mediated by banking security. The findings demonstrated that interest rate spreads, bank size, and asset quality are significant determinants of bank profitability. This study had a conceptual gap because, unlike Kenyan studies that focus on the direct relationships between interest rates and bank performance, it includes banking security as a mediating factor.

Additionally, in its most recent Monetary Policy Report, the Central Bank of Kenya (2025) stressed that interest rate policy changes have a significant impact on banks' bottom lines. The study found that central bank rate decreases in early 2025 lowered borrowing costs, which encouraged credit expansion and increased commercial banks' profits. This empirical evidence supports the assertion that interest rate policies have a major impact on Kenyan banks' financial performance.

Numerous studies highlight how interest rate policies have a significant impact on the financial performance of commercial banks. While global studies, such as those by (Mursidah et al., 2023) and (AL-Slehat, 2022), focus on interest rate fluctuations in broader contexts, Kenyan studies like those by (Wambutta, 2023), (Kithandi, 2022), and (Maigua & Gekara , 2016) provide direct insights into how interest rate policies influence banks’ profitability. The findings suggest that high-interest rates constrain lending, reducing banks' income, while favorable interest rate policies

enhance credit expansion and financial performance. This body of literature highlights the need for well-balanced monetary policies that promote financial sector stability and economic growth.

2.3.2 Effects of Reserve Requirement Policies on Financial Performance

(Lwando & Lubinda, 2024) aimed to look into how changes to Zambia's Statutory Reserve Ratio Requirement affected the country's commercial banks' profitability between 2007 and 2017. Throughout the lengthy 11-year examination, the study used monthly data and a strong time series methodology. It incorporated information from all Zambian commercial banks active during this era. The study found that statutory reserves negatively impacted the financial performance of these banks. Additionally, it examined other bank-specific factors affecting profitability, revealing that inflation and open market operation balances had detrimental effects. A noteworthy finding was the estimated adjustment speed of approximately 62%, indicating how quickly Zambian banks could transition from short-run dynamics to a long-term profitability equilibrium. However, the study left certain conceptual and contextual gaps unaddressed, particularly concerning the role of reserve requirements in influencing bank performance in Kenya.

Similarly, (Faykuzzaman et al., 2021) carefully investigated, in the case of Bangladesh, the intricate connection between bank profitability and variations in the cash reserve ratio. The study focused on ten well-known traditional commercial banks and used time-series data covering five years, from 2017 to 2021, using the Coefficient of Correlation and a t-test for hypothesis confirmation. The study came to the conclusion that shifts in the cash reserve ratio have a negative influence on banks' long-term profitability, which in turn affects their function as financial intermediaries. However, this research presents a contextual gap, as the banking sector in Kenya operates under different economic and regulatory conditions.

Examining Kenya's context, Wanjiru and Kamau (2023) explored the impact of statutory reserve requirements on the liquidity and profitability of commercial banks in Kenya. Their study, covering data from 2015 to 2022, found that increased reserve requirements led to a decline in liquidity, limiting the banks' ability to issue loans. The study concluded that higher reserve requirements negatively affect bank profitability as they reduce interest income from loans. This aligns with Njoroge (2021), who investigated how variations in the cash reserve ratio influence the financial stability of Kenyan banks. Njoroge's findings indicated that while higher reserves

enhance financial security, they simultaneously constrain credit expansion and reduce profitability, highlighting the delicate balance that banks must maintain.

Further, (Kiemo & Kamau, 2021) analyzed how monetary policy tools, specifically cash reserve requirements, impact the profitability of commercial banks in Kenya. Using panel data from 39 banks between 2014 and 2021, the study revealed that higher reserve requirements reduced banks' net interest margins, negatively impacting their overall performance. This finding aligns with Mwangi (2020), who focused on the Central Bank of Kenya's policies regarding reserve requirements and their effects on financial intermediation. Mwangi's research concluded that stringent reserve policies reduce lending activity, leading to lower financial performance for commercial banks.

The impact of Basel III prudential requirements on the financial stability of listed African banks prior to the Covid-19 outbreak was examined by (Obadire & Obadire, 2023) in a larger African context. The study, which looked at 45 banks in six African nations, discovered that minimum capital requirements and liquidity had a detrimental impact on financial performance. There was a contextual gap, too, as it did not particularly examine the connection between reserve requirements and Kenyan banks' financial performance.

Similarly, (Kirui & Mugo, 2023) examined the complex interplay between capital adequacy and lending effectiveness in Kenyan banks from 2016 to 2021. Their study revealed that higher capital adequacy requirements led to reduced lending, limiting profitability. However, it did not explore reserve requirements, presenting an empirical gap. (Glocker, 2022)further examined how reserve requirements influence the likelihood of bank failures, comparing them with capital requirements. The study found that while reserve requirements can enhance financial stability, excessive levels lead to riskier lending behavior, adversely affecting banks' financial health. This underscores the critical role of reserve requirement policies in shaping commercial bank performance.

Furthermore, the Central Bank of Kenya (2025) highlighted in its most recent Monetary Policy Report that adjustments to reserve requirements have a substantial effect on the financial performance of commercial banks. According to the paper, early in 2025, a decrease in the cash reserve ratio improved liquidity, enabling banks to increase credit issuance and boost profitability. The claim that reserve requirements, as a monetary policy tool, are a key factor in determining bank profitability in Kenya is supported by this empirical data.

In conclusion, various studies underscore the impact of reserve requirement policies on financial performance. While global studies, such as those by (Lwando & Lubinda, 2024) and (Faykuzzaman et al., 2021), explore the effects in Zambia and Bangladesh, Kenyan studies like those by (Bw'auma, 2021), (Mabati & Onserio, 2020), and (Kiemo & Kamau, 2021)provide direct insights into how reserve policies affect liquidity and profitability. The findings suggest that higher reserve requirements constrain banks' ability to lend, reducing interest income, whereas lower reserve ratios enhance financial intermediation and profitability. This body of literature highlights the need for balanced monetary policy measures that promote financial stability while ensuring commercial banks remain profitable.

2.3.3 Effects of Open Market Operations Policies on Financial Performance

(Alika et al, 2024) meticulously explored the ramifications of open market operations (OMOs) on inflation in Nigeria from 2015 to 2024. Their findings indicate a concerning rise in inflation, coupled with a lack of significant effectiveness of OMOs in managing this economic challenge. While these operations proficiently regulate liquidity within the banking framework, they are less successful in controlling the overall money supply, which contributes to the ongoing inflationary trend. The importance of central banks using OMOs to affect short-term interest rates is emphasized in the study. By trading financial instruments, the central bank can manipulate reserve levels and affect loan interest rates. Additionally, OMOs can stimulate economic growth by expanding the money supply, making it easier for consumers and businesses to finance themselves, and encouraging investment and consumption. OMOs are also used by central banks to preserve stability and handle disturbances in the financial markets. The contextual approach taken in this study is distinctive since it does not aim to assess how OMOs affect banking organizations' financial performance.

The discussion of monetary policy and its effects on financial markets has also benefited greatly from the contributions of Kenyan academics. (Fredrick, 2020) investigated the efficacy of monetary policy tools in Kenya and discovered that although OMOs played a significant role in determining liquidity levels, exogenous shocks and structural inefficiencies in the financial system limited their ability to control inflation. The relationship between OMOs and credit accessibility in Kenyan banks was also examined by (Adhiambo et al., 2021), who concluded that although

OMOs successfully controlled liquidity, they frequently resulted in unexpected loan restrictions for small and medium-sized enterprises (SMEs). These results are essential for comprehending how OMOs affect Kenya's economy, especially in a developing nation where credit availability is essential for economic expansion. The research suggests that while OMOs can help manage liquidity, they should be complemented by other financial policies to ensure broader economic stability. Moreover, government interventions and policy adjustments can help bridge the gap between liquidity control and credit availability for businesses. This highlights a critical challenge in monetary policy implementation in Kenya, where regulatory mechanisms need to be adaptable to changing economic conditions.

A study by and (Langat, 2022) delved into Kenya's monetary policy evolution, emphasizing the role of financial liberalization in enhancing market efficiency. However, they noted that excessive reliance on OMOs without complementary fiscal measures limited their overall effectiveness. This observation aligns with findings from (Alika et al, 2024), where OMOs, though effective in regulating liquidity, did not reduce inflation enough. The relationship between OMOs and economic growth in Kenya was also examined by (Gachanja, 2012), who made the case that although liquidity adjustments were helpful in controlling short-term swings, strong regulatory frameworks were necessary to stop market volatility. The study went into more detail on how OMOs affected interest rate changes and how this affected the economy's borrowing and investment choices. OMOs by themselves might not produce the intended economic results if fiscal and monetary policy are not properly coordinated. The Kenyan context underscores the necessity of a multifaceted policy approach to mitigate the risks associated with liquidity injections and withdrawals.

(Haruna & Abu Bakar, 2021) conducted a study that took a deep dive into the nuances of financial freedom, allocative efficiency, and growth in the United States by employing a sophisticated sector model. This model adeptly weaves in the credit market game framework put forth by (Martin & Tornell, 2004), situated within a double sector endogenous growth framework. Their research reveals that while financial freedom acts as a growth engine, it simultaneously increases the likelihood of crises and requires costly bailouts. Notably, the research does not explore the contextual link between OMO and the financial effectiveness of Kenyan banking firms. This study presented an empirical, contextual, and conceptual gap that the present study aims to address.

(Kariuki, 2023) provided empirical evidence on the impact of OMOs on banking sector profitability, demonstrating that banks with strong risk management frameworks benefited more from liquidity adjustments than those with weaker governance structures. This aligns with Were and (Olinga, 2023), who examined the role of OMOs in stabilizing Kenya's banking sector and found that their success was contingent on broader macroeconomic stability and effective regulatory oversight. Both studies underline the importance of OMOs in ensuring financial stability but caution against overreliance on them as a singular policy instrument.

These Kenyan studies collectively reinforce the notion that while OMOs play a critical role in shaping financial markets, their effectiveness is context-dependent. As such, this study builds upon existing research by addressing empirical, contextual, and conceptual gaps related to the influence of OMOs on the financial performance of banking institutions in Kenya. The findings suggest that while OMOs are a useful tool for liquidity management, they must be integrated within a broader policy framework that considers market dynamics, regulatory capacity, and fiscal policy coordination. Moreover, policymakers must ensure that OMOs do not inadvertently stifle credit accessibility for key economic players, such as SMEs. Future research should explore more dynamic approaches to OMOs that incorporate technological advancements and innovative financial instruments to enhance their effectiveness. Ultimately, a well-structured and adaptive monetary policy framework is essential to optimize the benefits of OMOs while mitigating their limitations in Kenya's evolving financial landscape.

2.3.4 Moderating Role of Bank Size

(Nguyen & My, 2024) investigated the effect of the board of directors' characteristics on banking performance in Vietnam, considering the moderating role of bank size. Utilizing a subset of 35 joint-stock commercial banks from 2011 to 2021, the authors employ the Feasible Generalized Least Squares (FGLS) method to analyse the data. The findings reveal that board size, duality, and government ownership significantly impact bank performance and that bank size moderates these relationships. However, the study has methodological limitations, such as using a small sample size and needing more consideration for other potential moderating factors. The magnitude of a bank can significantly affect the influence of fintech on its financial success. This study presented both a conceptual and contextual gap, which is critical in understanding the broader implications

of bank governance and performance in different economic settings. The Vietnamese banking sector has unique structural factors that influence these dynamics, necessitating further comparative studies in other economies, including Kenya.

(Eklemet et al., 2023) delved into the intricate dynamics of board size as an intermediary variable influencing the interplay between board attributes and banking performance. This comprehensive study meticulously gathered data from 18 authorized banks in Ghana, spanning the years 2012 to 2020, resulting in a robust dataset comprising 180 observations. Employing the System Generalized Method of Moments, the researchers adeptly evaluated the causal connection between board characteristics and the performance of banks within the Ghanaian context. This methodological choice was pivotal in addressing issues of endogeneity and unobserved heterogeneity. This study underscores the importance of board size in enhancing the connection between board attributes and banking performance while also noting the contextual and conceptual distinctions between Ghanaian and Kenyan banks. The Ghanaian banking sector operates within a unique regulatory framework that shapes the influence of governance structures on financial outcomes, offering insights that may be relevant for Kenyan banks facing similar market challenges.

Kenyan scholars have also examined the role of bank size in moderating financial and governance variables. (Bw'auma, 2021) explored how board characteristics influence banking performance in Kenya, revealing that while board independence and diversity positively impact financial performance, bank size significantly moderates these effects. Larger banks benefit more from strong governance structures due to their capacity to absorb regulatory and economic shocks. Similarly, (van Zanden, 2023) larger banks are better at using technology, while smaller banks have more integration hurdles, according to an analysis of the moderating influence of bank size on fintech adoption and financial performance. These results highlight the need for customized regulations to guarantee that smaller banks may successfully compete while upholding strong governance structures.

According to a study by (Ouma, 2020), which looked at how bank size affected credit risk management in Kenyan banks, smaller institutions were more susceptible to economic shocks, even when larger banks had superior risk mitigation techniques. This is consistent with (Kariuki, 2023), who demonstrated that the profitability of OMOs is significantly influenced by bank size.

Furthermore, (Waweru & Oribu, 2023) emphasized how bank size influences the association between board composition and financial stability, supporting the notion that governance plans ought to be customized to address the particular difficulties that various bank types encounter.

These Kenyan studies collectively highlight the crucial role of bank size in shaping financial and governance outcomes. By integrating insights from Vietnam, Ghana, and Kenya, this study aims to bridge empirical, contextual, and conceptual gaps, providing a more comprehensive understanding of how bank size moderates the relationship between governance structures and banking performance. The findings suggest that policymakers and financial institutions should adopt differentiated governance strategies that account for bank size, ensuring resilience and competitiveness in dynamic economic environments. Future research should further explore the role of technological innovation and regulatory adaptability in enhancing the effectiveness of governance structures across different banking contexts.

2.4 Summary of Literature Review and Research Gaps

Year & Author	Topic of Study	Findings of Study	Focus of Study	Identified Gap (Type)
(Alika et al, 2024)	Effects of Open Market Operations on Inflation in Nigeria	OMOs regulate liquidity but are ineffective in controlling inflation.	Open Market Operations and Inflation	Contextual – Not focused on Kenya
(Camilla & Kiemo, 2023)	Interest Rate Risk in Kenya: The Banking Sector Stability and Fiscal Risks Nexus	Financial instability, contractionary monetary policy raises fiscal and banking sector stability risks	Interest rates Monetary Policy Interventions	None – Kenyan study

(Bordo' & John, 2021)	Influence of Monetary Policy on Economic Activities	Government interventions shape economic activities, employment, and price stability.	Monetary Policy Interventions	Conceptual – Does not link to banks
(El-Herradi' & Leroy, 2023)	'Role of Commercial Banks in Monetary Policy Implementation"	Commercial banks are essential to both economic expansion and financial intermediation.	Banking Sector and Monetary Policy	Contextual – Lacks Kenyan focus
(Eklemet et al., 2023)	"Board Size as a Moderator in Banking Performance"	The association between board characteristics and financial success is influenced by board size.	Bank Governance	Contextual – Ghanaian focus
(Harakeh et al., 2020)	Commercial Banks and Economic Development	Banks facilitate financial access, deposit acceptance, and economic growth.	Banking Sector and Economic Growth	Contextual – No direct policy link
(Hassan et al., 2023)	Interest Rate Adjustments and Economic Growth	Raising interest rates curbs inflation, while lowering them stimulates economic activities.	Monetary Policy and Inflation Control	Contextual – Not focused on Kenya

(Kithandi, 2022)	"Impact of Monetary Policy on Financial Performance of Banks in Kenya"	Monetary policy tools influence short-term bank profitability and liquidity.	Monetary Policy and Bank Performance	Methodological – Did not use advanced econometric techniques like GMM
(Kimani S. , 2024)	Effects of Monetary Policy on Credit Accessibility and Loan Performance	Monetary tightening reduces credit issuance, affecting economic growth.	Monetary Policy and Credit Accessibility	Conceptual – Did not account for bank size and structural differences
(Kithinyi, 2019)	"Impact of Bank Size on Financial Performance'	Larger banks have competitive advantages but face systemic risks.	Bank Size and Financial Performance	Contextual – Limited focus on Kenya
(Ouma, 2020)	Bank Size and Credit Risk Management in Kenya	Larger banks manage risk better than smaller banks, which are vulnerable to economic shocks.	Bank Size and Risk Management	None – Kenyan study
(Nguyen & My, 2024)	Board Characteristics and Banking Performance in Vietnam	Board size, duality, and ownership affect performance, with bank size moderating these effects.	Bank Governance and Financial Performance	Contextual – Vietnamese focus

(van Zanden, 2023)	Fintech Adoption and Bank Performance in Kenya	Large banks integrate fintech better, while smaller banks face challenges.	Fintech and Banking Performance	None – Kenyan study
(Ozili, 2023)	Impact of Interest Rates on Borrowing and Economic Activity	Lower interest rates encourage borrowing, while higher rates reduce spending.	Monetary Policy and Economic Growth	Contextual – No focus on Kenya
(Haruna & Abu Bakar, 2021)	Financial Freedom and Economic Growth	Financial freedom fosters growth but increases crisis risks, requiring costly bailouts.	Financial Freedom and Growth	Conceptual – No direct bank link
(Rantyanti & Halim, 2020)	Monetary Policy Interventions and Banking Sector Stability	Government policy influences financial stability and competition in the banking sector.	Monetary Policy and Financial Stability	Contextual – No Kenyan focus
(Shirya', E., et al, 2023)	Effect of Monetary Policies on Bank Performance	Monetary policy significantly affects banking outcomes.	Monetary Policy and Bank Performance	Contextual – Not focused on Kenya
(Njeru et al., 2019)	Board Characteristics and Banking Performance in Kenya	Board independence and diversity enhance financial performance, moderated by bank size.	Bank Governance and Financial Performance	Conceptual – Study is on governance against performance

(Waweru & Oribu, 2023)	Bank Size and Financial Stability in Kenya	Larger banks manage financial stability better due to governance structures.	Bank Size and Financial Stability	Methodological – Bank size is an independent variable here, whereas in the current study, it is a moderating variable.

Source: Researcher & Reviewed Literature (2025)

2.5 Conceptual Framework

Its primary goal is to give readers a comprehensive grasp of the relationship between the study's independent and dependent variables. Interest rates, reserve requirements, and open market operations are the independent variables in this study. Financial performance is the dependent variable, and bank size is the moderating variable.

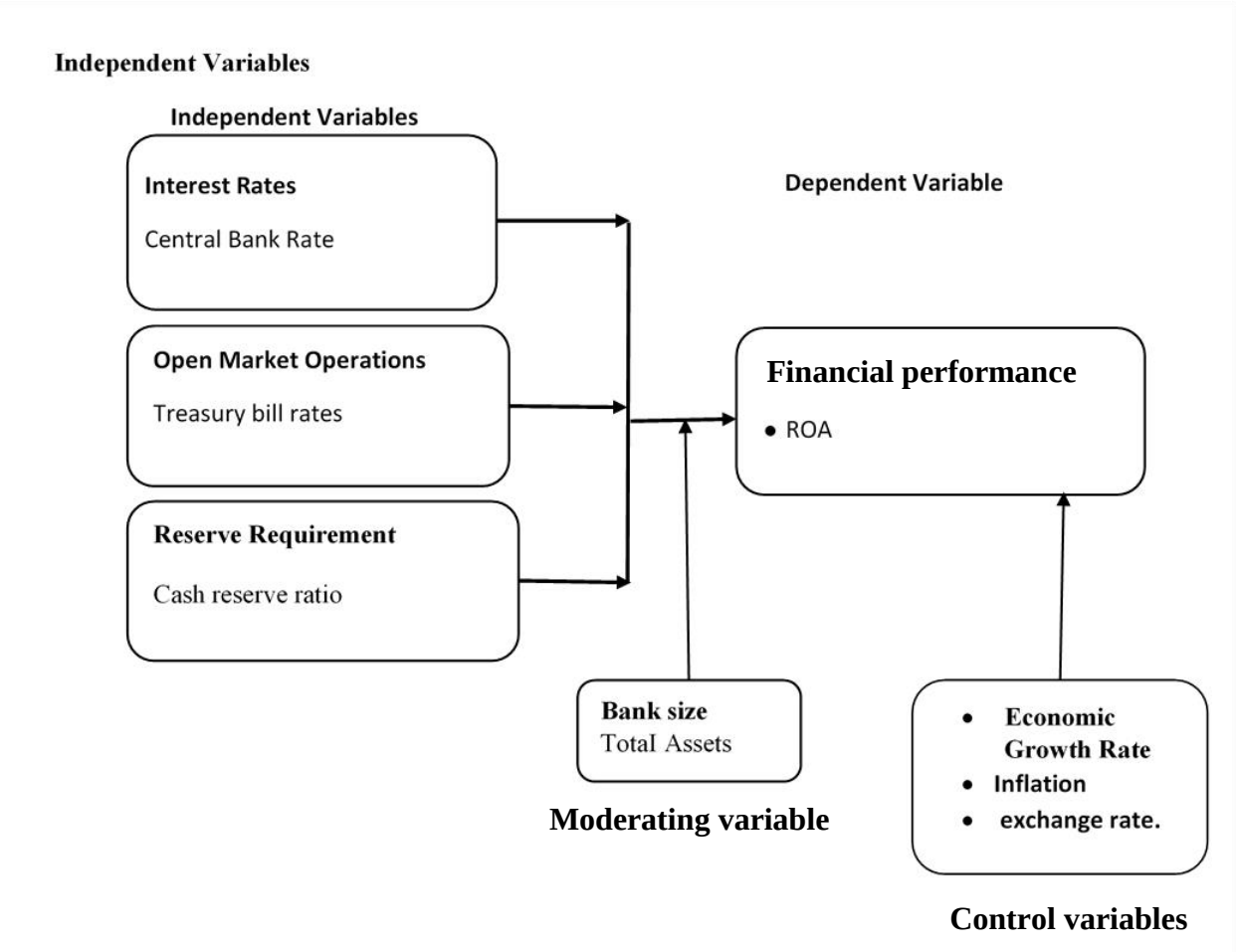

Figure 2.3: Conceptual Framework

Source: Researcher (2025)

For monetary policy research to be accurate and valid, interest rate and open market operations measurement is essential (Bui et al., 2021). However, concerns have been raised regarding whether the chosen indicators—interest rates for measuring interest rate effects and treasury bill (T-bill)

rates for assessing open market operations—are appropriate. A critical evaluation of these choices is necessary to determine their validity in capturing the intended monetary policy effects (Laurent, 1988).

As a variable, interest rates are sometimes defined broadly to include a variety of rates, including interbank, lending, deposit, and central bank rates (CBR) (Mutwiri, 2013). It can be challenging to draw a direct line between monetary policy and financial success when "interest rates" are used as a general metric because of the uncertainty they introduce. For example, the cost of borrowing for individuals and businesses, as well as the revenue streams of commercial banks, are directly impacted by the loan rate. In the meantime, the central bank rate is a tool for policy that affects the economy's total credit and liquidity conditions (Sayi, 2004). Choosing a more accurate metric, like the loan rate or CBR, might improve the validity of the results if the study's goal is to evaluate how monetary policy affects bank performance. By specifying the type of interest rate used, the study would avoid potential misinterpretations and ensure that the measurement aligns with the study's focus (Bui et al., 2021)

There are significant factors to consider when selecting T-bill rates as a gauge of open market activity. In order to control liquidity and affect interest rates, the central bank engages in open market operations by purchasing and disposing of government securities (Laurent, 1988). The yield on short-term government securities, or T-bill rates, give information about market expectations and the cost of borrowing for the government. Nevertheless, T-bill rates do not accurately reflect the magnitude of central bank liquidity interventions, even though they can be a useful stand-in for open market activities (Mutwiri, 2013). Open market operations are also characterized by the volume of securities traded, which directly impacts money supply and credit availability. Relying solely on T-bill rates may overlook the scale and effectiveness of liquidity adjustments undertaken by the central bank (Sayi, 2004). Incorporating information on the volume of securities exchanged would enhance the assessment and offer a more thorough understanding of open market activities and how they affect financial performance (Bui et al., 2021).

While interest rates and T-bill rates are useful indicators, refining their definitions would enhance their validity. The study should clearly specify whether lending rates, the central bank rate, or interbank rates are used to measure interest rate effects (Laurent, 1988). Additionally, while T-bill

rates provide a useful benchmark for assessing open market operations, considering the volume of transactions alongside interest rate movements would offer a more complete representation of the central bank's interventions (Mutwiri, 2013). By addressing these concerns, the study can ensure that the chosen indicators accurately reflect the monetary policy tools being examined, thereby strengthening the reliability of its findings (Sayi, 2004).

2.6 Operationalization of Variables

Table 2.1: Operationalization of Variables

Variable	Measurement	Data Sources
Financial Performance	Return on Asset	Kenya Bureau of Statistics (Kenya National Bureau of Statistics. (2023).
Interest Rate	Central Bank Rate	"Central Bank of Kenya (CBK,2023)".
Reserve requirement	Cash reserve ratios	"Central Bank of Kenya (CBK,2023)".
Open market operation	Treasury bills rates	"Central Bank of Kenya (CBK,2023)".
Bank Size	Total Assets	"Central Bank of Kenya (CBK,2023)". World Bank statistics (2024)
GDP Growth	Good and services value	"Central Bank of Kenya (CBK,2023)". World Bank statistics (2024)
Inflation Rate	Consumer price	"Central Bank of Kenya (CBK,2023)". World Bank statistics (2024)
Exchange Rate	Price of one currency in terms of the other	"Central Bank of Kenya (CBK,2023)". World Bank statistics (2024)

2.7 Control Variables

In order to improve a study's internal validity and demonstrate a strong causal or correlational relationship between variables, control variables are essential. Researchers can isolate the effect of the independent variable on the dependent variable and make sure that results aren't the consequence of other impacts by controlling extraneous elements. This results in judgments that are more accurate and dependable (Ashok & Praveenakumar, 2025).

The study is more internally valid when control variables are used to help rule out other possible causes for the reported results. This implies that confounding variables or other unrelated factors are less likely to be the cause of the results. Because control variables make sure that all pertinent variables are taken into consideration, they serve to reduce the impact of bias in the study. Results become more impartial and objective as a result. Researchers can improve the validity of their findings by adjusting for unrelated factors. This increases the likelihood that the findings can be repeated in different research (Ashok & Praveenakumar, 2025).

Economic growth rate, inflation, and exchange rate were considered as control variables in this study due to their significant influence on the financial performance of commercial banks and their interaction with monetary policy interventions in Kenya. Economic growth rate is crucial because it reflects the overall health and expansion of the economy, which directly affects banks' asset quality, loan demand, and profitability. Inflation is included because it affects the real value of returns on bank assets and liabilities; high or volatile inflation can erode banks' profit margins and influence interest rate policies, making it a key factor when assessing the impact of monetary policy on bank performance.

Similarly, exchange rate fluctuations are relevant as they affect the cost of foreign-denominated liabilities, the value of foreign assets, and overall financial stability, especially in an open economy like Kenya's that is exposed to global trade and capital flows. Exchange rate movements can amplify or dampen the effects of monetary policy interventions on banks by influencing inflation and economic growth, thus serving as an important control to isolate the direct impact of monetary policy tools on bank performance. Including these three macroeconomic variables ensures that the study accounts for external economic conditions that could confound the relationship between monetary policy and financial outcomes, thereby enhancing the accuracy and robustness of the

findings on how monetary policy interventions and bank size jointly affect commercial banks in Kenya.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

The numerous techniques, instruments, and approaches utilized to collect and compile data related to the research problem are thoroughly examined in this chapter. It provides a summary of the study's participants and the approaches that will be applied. This chapter covers the tools and procedures for data collection in depth, as well as the study's design, target demographic, sample size, sampling methodology, and philosophy. It also covers data analysis, presentation, pilot testing, and the analytical instruments used.

3.2 Research Philosophy

The research philosophy includes the conventionally recognized theories, approaches, models, practices, research, and methodologies or model of observation and understanding of phenomenon (Tamminen & Poucher, 2020). This study used a positivist philosophical framework, which is distinguished by a methodical approach that prioritizes objectivity, empirical data, and the evaluation of results using statistical analysis. According to (Cooper & Schindler, 2018), positivist research emphasizes systematic observation and measurement, ensuring that findings are reliable and replicable, which facilitates the collection of quantitative data, which can be analyzed to derive generalizable findings.

Positivism philosophical framework also enables establishment of causal relationships between variables, which is essential for understanding how monetary policy interventions impact financial performance while accounting for the moderating role of bank size (Park et al., 2020). Another key aspect is its commitment to value-free inquiry, ensuring that objectivity is maintained and minimizing researcher bias, which is crucial in financial research where subjective interpretations could skew results. By adhering to these principles, positivist research fosters a structured methodology that allows for hypothesis testing and the derivation of conclusions based on statistical evidence.

3.3 Research Design

The essence of research design lies in the careful structuring of conditions to facilitate the systematic collection and analysis of data, ensuring both relevance to the research objectives and efficiency in execution (Creswell & Creswell, 2018). This study adopted a combined cross-sectional and longitudinal survey design to obtain comprehensive and insightful data from the target population. The cross-sectional component allowed for a snapshot analysis of variables at a given point in time, making it useful for hypothesis testing and examining relationships among key factors (Saunders et al., 2019). Meanwhile, the longitudinal aspect facilitated the tracking of changes and trends over time, offering deeper insights into the dynamic effects of monetary policy on financial performance (Hair, et al., 2020).

These methods are justified as they allow for the integration of quantitative data, aligning with the research objectives. This design also allows for the effective use of data collection tools, facilitating collection of data from the population in a timely manner. The preference for this research design stems from its ability to reveal relationships between the variables under investigation. According to (Siedlecki, 2020), this strategy was preferred due to its ability to analyze a wide range of factors at once while also maintaining its capability of describing the diverse variables and circumstances within the study, including changes occurring over time.

3.4 Target Population

Within research, the study population includes all the elements that are being examined, whereas the target population pertains to the specific group of interest that shares specific characteristics but stands apart from others. As noted by (Casteel & Bridier, 2021), the intended population is identified as the exact collection of individuals from whom researchers seek information. This group includes potential participants who may form the study sample. Ultimately, the intended population is the specific collection of individuals, events, or items that the researcher intends to study, which can also be referred to as the eligible population involved in the research. The intended populace includes all 39 licensed financial institutions in Kenya that provide commercial banking services as of December 2023.

3.5 Sampling Design and Procedure

Sampling guarantees the selection of certain elements from a population, serving as accurate representatives of the entire population. In this study, a census approach was employed to collect information from all the commercial banks in Nairobi, considering the relatively small population size. A census is a better method since it reduces the bias that could otherwise have come with conducting sampling. A census is a better method since it reduces the bias that could otherwise have come with conducting sampling. Since a census approach was used, the study included a sample size of 39 commercial banks in Nairobi.

3.6 Data Collection Methods

Procedures for data collection and compilation are essential methods for gathering information in the field. It is imperative that researchers create instruments specifically for data collecting, as per the findings of (Saunders' et al., 2016). Financial statements published during the previous 10 years provided secondary data for this investigation. In particular, financial accounts and annual reports from 2014 to 2023 were used to collect data for all pertinent factors. Additionally, secondary data from the audited reports of the firms under study was gathered using observation schedules.

3.7 Data Collection Procedures

"A secondary data collection sheet was used to collect secondary data from the financial statements that were already in existence". Secondary data on financial performance and documented aspects of financial performance in banks was derived from a collection of published reports, scholarly writings, reputable journals, and other significant resources accessed through online platforms and library databases. Therefore, secondary data collection tools were employed, which include reviewing documents containing the available data that has been published such as: reports, financial statements, and annual reports from certain institutions. The NSE manual, the Capital Markets Authority (CMA), and the Kenya Bureau of Statistics were among the sources of this information, along with the banks' annual reports and audited financial statements.

3.8 Validity and Reliability

Ensuring the validity and reliability of the research is essential to preserving the integrity and credibility of the findings. Validity is the extent to which a study accurately depicts or assesses the specific idea it aims to examine (Creswell & Creswell, 2018). Contrarily, reliability refers to the research findings' stability and consistency throughout multiple trials (Saunders et al., 2019). For panel data analysis to yield accurate and widely applicable results, several elements must be present.

3.8.1 Validity

Validity in this study is ensured by using credible financial reports and banking databases to source data. Validity tests for panel data ensure the reliability and accuracy of regression results by addressing potential issues like serial correlation, heteroskedasticity, cross-sectional dependence, and endogeneity. These tests help determine the appropriate model specification and necessary corrections for more robust estimations (Kumbhakar et al., 2024). Construct validity was achieved by ensuring that the selected monetary policy tools accurately represent their intended economic implications (Babbie, 2020). Internal validity was maintained by controlling for confounding variables through the application of fixed-effects and random-effects models (Bryman, 2021). Furthermore, external validity was addressed by ensuring that the study's findings are applicable to a broader banking context beyond the sample used.

3.8.2 Reliability

Several statistical methods were used to ensure the dependability of this investigation. The internal consistency of the dataset was ensured by evaluating its consistency using the Cronbach's alpha coefficient (Tavakol & Dennick, 2011). Additionally, test-retest reliability was assessed by comparing results across different time periods to determine stability (Hair, et al., 2020). The study also incorporated robust standard errors to minimize biases associated with heteroskedasticity, enhancing the dependability of the findings. In order to promote informed decision-making by financial institutions and policymakers, this research attempts to offer precise and significant

insights into the relationship between monetary policy instruments and bank performance by guaranteeing validity and reliability.

3.9 Data Analysis

Following coding, the data was cleaned to guarantee the completeness and correctness of the information gathered. Descriptive and inferential approaches were used to evaluate the quantitative components of the collected data. By efficiently summarizing the data, programs like Microsoft Excel, STATA and IBM SPSS Statistics made the analysis easier. Measures including mean scores, Standard deviation and frequencies were accurate for this purpose. The assessment of central tendencies was used to evaluate descriptive data, which was then presented in a descriptive manner. Several statistical techniques, such as mean scores, panel regression analysis, and correlation analysis, were used to synthesize quantitative data analysis. A number of presumptions need to be examined and verified in order for the regression model to be accepted as suitable for the research

3.10 Panel Regression Model

The study incorporated a panel regression model as its analytical framework. Utilizing the "Ordinary Least Squares (OLS)" method, it merged time series and cross-sectional data into a cohesive panel data set. This approach is particularly advantageous as it allows for the examination of individual units, such as firms, over time, while acknowledging the diversity present among these entities. Through the application of panel data regression, the research effectively addressed the heterogeneity of cross-sectional units over time, enabling the incorporation of variables specific to individuals.

The model formulation and specification does not show that it is panel regression - add i&t subscripts; Panel regression considers heterogeneity, provides precise estimates, and accommodates individual-specific variables. Consequently, the financial performance of the banks was examined in relation to monetary policy tools. Panel regression provided reliable statistics for drawing inferences about a population. Therefore, the regression equations are expressed as follows:

Without moderation

$Y_{it} = ß0 + ß1X1_{it} + ß2X2_{it} + ß3X3_{it} + ß4X4_{it} + ε\_it$ 1

With moderation

$Y_{it} = ß0 + ß1X1_{it} + ß2X2_{it} + ß3X3_{it} + ß4(X1_{it} * X2_{it} * X3_{it}\ X4_{it}) + εit$ 2

Where; Yit = banks performance at time t for bank i; ß0 = the constant; ß1, ß2, ß3, ß4 = beta coefficients; $X1_{it}$ = Central bank rate at time t for bank i; X2_it = cash reserve ratio rate at time t for bank i; $X3_{it}$ = open market operation at time t for bank i; $X4_{it}$ = bank size at time t for bank i; εit = error term.

3.10.1 Addressing the Panel and Time Series Data Issue

The fact that the independent variables in this study are solely time series and constant across all banks, but the dependent variable is structured as panel data, presents a significant issue. This discrepancy brings up possible problems such autocorrelation and multicollinearity, which may have an impact on how accurate the regression estimations are. In order to remedy this, the study reorganized the independent variables, making sure they are appropriately described and taking into consideration both temporal and bank-specific variations as X_{it} rather than Xt. In order to account for unobserved heterogeneity across banks, the adoption of fixed-effects or random-effects models was also taken into consideration.

Tests like the Variance Inflation Factor (VIF) and a correlation matrix were used to lessen the impact of multicollinearity. Techniques like principal component analysis (PCA) or the elimination of highly correlated variables were used if considerable multicollinearity was found. The Durbin-Watson test and the Wooldridge test for autocorrelation in panel data were used to investigate autocorrelation, which has the potential to skew statistical conclusions. To increase model robustness in the presence of autocorrelation, methods like Arellano-Bond dynamic panel estimation and Generalized Least Squares (GLS) were applied.

To make sure the results were reliable, diagnostic tests were also carried out. Stationarity was evaluated using panel unit root tests, such as the Levin-Lin-Chu (LLC) and Im-Pesaran-Shin (IPS) tests. Additionally, to ascertain whether a fixed-effects or random-effects model is better suited for the investigation, the Hausman test was utilized.

Tables and graphs were employed to condense responses for further analysis and facilitate comparisons. The quantitative data was compiled to generate the final report.

3.11 Diagnostic Tests

Conducting tests for normality and unit roots before analysis is essential for examining the statistical properties of panel data and ensuring the selection of an appropriate evaluation method (Gujarati & Porter, 2009). The data's compliance with the presumptions required for regression analysis and other econometric methods is verified by these initial tests. Several diagnostic tests were used to assess the study model's importance in the context of examining how monetary policy tools affect Kenyan banks' financial performance. (Baltagi, 2008).

3.11.1 Hausman Test

In order to solve the problem of deciding between Fixed Effects (FE) and Random Effects (RE) models, Hausman presented a statistical approach in 1978. He maintained that the null hypothesis, which suggests that there is no link between the individual effects and the regressors, supports the Random Effects model over the Fixed Effects model. (Hausman', 1978).

The Hausman test is performed at a 5% significance level, where a p-value lower than 0.05 leads to the rejection of the null hypothesis in favor of the alternative hypothesis, which suggests that the Fixed Effects model is more appropriate. Conversely, if the p-value exceeds 0.05, the null hypothesis is accepted, thereby rejecting the alternative hypothesis and validating the use of the Random Effects model ((Greene, 2012); (Wooldridge', 2010)). This test is critical in panel data analysis as it helps in selecting the appropriate model to ensure unbiased and efficient estimates in econometric studies.

The alternative hypothesis, which implies that the Fixed Effects model is more appropriate, is rejected when the p-value is less than 0.05 in the Hausman test, which is conducted at a 5%

significance level. On the other hand, the null hypothesis is accepted if the p-value is greater than 0.05, which rejects the alternative hypothesis and validates the Random Effects model (Greene, 2012); (Wooldridge', 2010)). In panel data analysis, this test is essential since it aids in choosing the best model to guarantee objective and effective estimates in econometric research.

3.11.2 Test for Stationarity

To get accurate and trustworthy regression findings in panel data analysis, stationarity must be guaranteed. A time series is said to be stationary if its variance and mean, among other statistical characteristics, don't change over time. Time-varying means and variances in non-stationary data can produce erroneous regression results and misleading conclusions. A variety of unit root tests are frequently used to evaluate stationarity in panel data. One such test is the Levin–Lin–Chu (LLC) test, which assumes a common unit root process across all panels, making it useful for assessing overall stationarity trends. This test was introduced by Levin, Lin, and Chu in their 2002 study. Another widely used test is the Im–Pesaran–Shin (IPS) test, which allows for individual unit root processes in each panel, accommodating heterogeneity among cross-sectional units. This approach was proposed by Im, Pesaran, and Shin in their 2003 paper. Additionally, Fisher-type tests, such as those combining p-values from individual unit root tests, provide a more comprehensive understanding of stationarity across panels. Furthermore, the Hadri test evaluates the null hypothesis that all panels are stationary, offering a different perspective compared to tests that assume non-stationarity under the null hypothesis. Applying these tests helps determine whether differencing is necessary to achieve stationarity in the data. Ensuring stationarity is essential for obtaining robust and reliable regression results, thereby strengthening the validity of the study's findings.

3.11.3 Normality Test

A critical presumption for guaranteeing that parameter estimations are objective and effective is that the regression model's residuals follow a normal distribution, which is evaluated by the normality test (Razali & Wah, 2011). The normality of the dataset may be evaluated in this study using the Shapiro-Wilk or Kolmogorov-Smirnov tests. A p-value greater than 0.05 indicates that the residuals are normally distributed, which is a prerequisite for Ordinary Least Squares (OLS)

regression (Ghasemi & Zahediasl, 2012). However, if the assumption of normality is violated, data transformations such as logarithmic or square root transformations, or non-parametric methods, may be considered to improve the validity of statistical inferences (Mishra et al., 2019).

3.11.4 Autocorrelation Test

Autocorrelation arises when the residuals of a regression model exhibit a systematic pattern over time rather than being randomly distributed. This violation of the Ordinary Least Squares (OLS) assumption can lead to inefficient estimators, inflated R-squared values, and misleading statistical inferences (Wooldridge, 2021). In panel data analysis, where observations are collected over time for multiple entities, detecting and addressing autocorrelation is essential to ensure the validity of the regression results.

To test for autocorrelation in this study, the Durbin-Watson test was employed. The Durbin-Watson statistic ranges between 0 and 4, with a value close to 2 indicating no autocorrelation. A value significantly lower than 2 suggests the presence of positive autocorrelation, where residuals are positively correlated over time, while a value above 2 indicates negative autocorrelation, implying an inverse relationship between consecutive residuals (Gujarati & Porter, 2020). If autocorrelation is detected, corrective measures were taken to improve the efficiency and reliability of the model's estimates.

To address autocorrelation, the study may adopt Generalized Least Squares (GLS) or Feasible Generalized Least Squares (FGLS), both of which adjust standard errors and improve the efficiency of parameter estimates (Baum, 2021). GLS is particularly effective when the error structure is known, while FGLS is more practical when the structure of serial correlation needs to be estimated. These adjustments ensured that the regression results remain robust and unbiased despite the presence of autocorrelation.

3.11.5 Multicollinearity Test

Unstable coefficient estimates result from multicollinearity, which occurs when independent variables in a regression model have a high degree of correlation. In order to identify multicollinearity, this research used the Variance Inflation Factor (VIF), where a VIF above 10 is commonly considered indicative of significant multicollinearity (O'Brien, 2007). If

multicollinearity is present, strategies such as removing highly correlated variables, combining them, or applying Principal Component Analysis (PCA) to reduce dimensionality may be considered.

3.11.5 Heteroscedasticity Test

A fundamental tenet of Ordinary Least Squares (OLS) regression is violated when the variance of the residuals varies across data, a phenomenon known as heteroscedasticity (Gujarati' & Porter, 2020). This infraction may result in erroneous hypothesis testing results and ineffective estimators. This study used either the White test or the Breusch-Pagan test to identify heteroscedasticity. The Breusch-Pagan test examines whether the residual variance is systematically related to the independent variables, but the White test provides a more thorough assessment by detecting heteroscedasticity even in the presence of nonlinear correlations (Wooldridge, 2021).. One common approach is the use of robust standard errors, which adjust the standard error estimates to account for heteroscedasticity, thereby improving the reliability of statistical inferences (Hayes & Cai, 2020). Alternatively, the Generalized Method of Moments (GMM) can be applied, particularly in panel data settings, as it effectively addresses heteroscedasticity while also handling endogeneity concerns (Baum, 2021). These corrective strategies enhanced the accuracy of the study's findings, ensuring that statistical conclusions drawn from the model remain valid despite the presence of heteroscedasticity.

3.11.6 Linearity Test

In regression analysis, the linearity test is crucial for confirming if there is a linear relationship between the dependent variable—in this case, the financial performance of commercial banks—and independent factors like bank size and monetary policy interventions. Ordinary Least Squares (OLS) regression relies heavily on the assumption of linearity; any departure from this assumption may result in inaccurate forecasts and skewed coefficient values (Wooldridge, 2021). Maintaining the validity and interpretability of the regression model requires that the linearity assumption be upheld.

To test for linearity in this study, scatter plots and the Ramsey Regression Specification Error Test (RESET) was employed. Scatter plots of residuals against fitted values provided a visual

inspection of whether the data follows a linear pattern. If the residuals are randomly dispersed around zero without forming a discernible pattern, this suggests that the assumption of linearity is satisfied. However, if the residuals exhibit a systematic trend, such as a curve or distinct structure, it may indicate the presence of non-linearity (Gujarati' & Porter, 2020).

The Ramsey RESET test was conducted as a formal diagnostic check for model misspecification. This test aids in deciding if the model should incorporate higher-order terms of the independent variables to account for non-linearity (Baum, 2021). If the RESET test produces a significant p-value (typically below 0.05), it suggests the need for a more flexible functional form, such as polynomial regression or logarithmic transformations, to improve model fit. Addressing non-linearity ensures that the estimated relationships between variables accurately reflect real-world dynamics, thereby enhancing the reliability of the study's findings.

3.11.7 Time lags

Time lags, sometimes referred to as lagged variables in panel data analysis, are historical values of variables that are employed in a regression model to capture dynamic interactions. These lags are crucial for comprehending the temporal dynamics of panel data because they aid in modeling the ways in which previous observations impact present or future values (Shamsollahi et al., 2022).

For this study, there were no effects in short and long term hence time lags were not used to aid modeling in understanding temporal dynamics.

3.11.8 Ethical Consideration

Ethical considerations are fundamental in ensuring the credibility, integrity, and compliance of research with established ethical guidelines. This study adhered to ethical principles that safeguard the integrity of the study process as a whole, participant rights, and data authenticity. Ethical approval was sought from Strathmore Business School, ensuring compliance with academic requirements.

CHAPTER FOUR

DATA ANALYSIS, FINDINGS AND INTERPRETATION

4.1 Introduction

This section examines the ways in which important monetary policy instruments, such as the cash reserve ratio, central bank rate, and open market operations (as shown by Treasury bill rates), affect bank performance indicators, and particularly return on assets. It also looks at how economic conditions, such as GDP growth, interact with monetary policy instruments to influence banks' financial results, and how variables like bank size modify the relationship between monetary policy tools and performance.

4.2 Descriptive Statistics

Table 4.2 presents the descriptive statistics for the key variables used in this study, based on 390 observations.

The average Return on Assets across the sampled banks is approximately 2.75%, with a minimum of 1.5% and a maximum of 4.3%, indicating moderate variability in profitability. The mean Total Assets, a proxy for bank size, is around KSh 451.95 billion, showing substantial differences in institutional size (ranging from KSh 200 billion to KSh 740 billion). The Central Bank Rate averages at 8.35%, while the Cash Reserve Ratio and the 91-Day Treasury bill Rate average 5.1% and 7.74%, respectively. The macroeconomic indicators—GDP growth (mean = 5.39%) and inflation (mean = 6.06%)—show typical variation expected in a developing economy. The exchange rate has a mean of KSh 107.47/USD, with a notable spread from 98.5 to 122, reflecting fluctuations in currency value over the period.

The descriptive results indicate that Kenyan banks exhibit relatively stable profitability and regulatory conditions over the study period. The range in bank sizes and macroeconomic conditions suggests a heterogeneous operating environment. This is critical as bank performance is known to be influenced not only by internal characteristics but also by external macroeconomic and regulatory dynamics (Flamini et al., 2009). Moreover, the inclusion of interaction terms in the model is supported by literature such as (Barth et al., 2004), which emphasizes that regulatory

policies can have different effects depending on institutional scale. Therefore, understanding the moderating role of bank size is vital in evaluating the efficacy of monetary policy tools. The stability in variables like the Central Bank Rate and Cash Reserve Ratio across banks further supports the choice of fixed effects modeling, assuming time-invariant characteristics within institutions, which aligns with (Baltagi, 2008) on panel data econometrics.

Table 4.1: Descriptive Statistics

Variable	Obs.	Mean	Std. Dev.	Min	Max
Return on Assets	390	2.746	.536	1.5	4.3
Total Assets Billion KES	390	451.949	98.883	200	740
Central Bank Rate	390	8.35	1.507	6.5	10.5
Cash Reserve Ratio	390	5.1	.255	4.75	5.5
91 Day T Bill Rate	390	7.739	.478	6.9	8.7
GDP Growth	390	5.39	1.96	-.3	7.4
Inflation	390	6.06	.651	5	7
KES USD Exchange Rate	390	107.47	7.716	98.5	122

Source: Author Computations, 2025

4.3 Diagnostic Tests

Diagnostic tests are essential in regression analysis to ensure the validity and reliability of the model's estimates. These tests help detect potential issues such as non-normality, multicollinearity, heteroskedasticity, and stationarity, which can affect the accuracy of statistical inferences. By conducting these tests, researchers can determine whether the model meets key assumptions, allowing for appropriate corrections or model adjustments to improve robustness and interpretability (Gujarati & Porter, 2009).

4.3.1 Normality Test

Table 4.2 presents the results of the Shapiro-Wilk test for normality on the residuals of the regression model.

Table 4.2: Normality Test Result

Variable	Obs.	W	V	z	Prob>z
Resid	390	0.98234	0.01342	-0.567	0.567

Source: Author Computations, 2025

The W statistic is 0.98234, with a corresponding p-value of 0.567. Since the p-value is greater than the conventional significance level of 0.05, we fail to reject the null hypothesis that the residuals are normally distributed. This implies that the assumption of normality for the error term is satisfied, which is important for the validity of statistical inference, particularly for small sample sizes (Gujarati & Porter, 2009). Normality of residuals supports the use of parametric statistical tests and increases the reliability of hypothesis testing and confidence intervals (Field, 2013).

4.3.2 Test for Multicollinearity

Table 4.3 displays the Variance Inflation Factor (VIF) results used to assess multicollinearity among the independent variables.

A general rule of thumb is that a VIF value exceeding 10 may indicate problematic multicollinearity (Gujarati & Porter, 2009). In this table, aa VIF values are below the critical

threshold. The mean VIF of 3.653 indicates a fairly low level of multicollinearity across the model, which is within acceptable bounds for regression analysis (O'Brien, 2007).

Table 4.3: Variance Inflation Factor (VIF) Test for Multicollinearity

	VIF	1/VIF
KES USD Exchange Rate	5.752	.174
Cash Reserve Ratio	5.223	.191
Inflation	5.181	.193
91 Day T Bill Rate	3.866	.259
CBR	2.854	.350
GDP Growth	1.565	.639
Total Assets Billion KES	1.128	.887
Mean VIF	3.653	.

Source: Author Computations, 2025

4.3.3 Unit Root Test

Table 4.4 presents the results of the Levin-Lin-Chu (LLC) panel unit root test, which examines the stationarity of the variables used in the regression analysis. The null hypothesis for the LLC test is that the alternative hypothesis is that the panels are stationary, yet the panels contain unit roots, indicating that the series are non-stationary. If a variable's p-value is less than the significance level, which is often 0.05, it is said to be stationary and the null hypothesis is rejected (Levin et al., 2002).

As shown in the Table 4.5 below, Return on Assets, Total Assets and Exchange Rate have p-values above 0.05. This implies that these variables contain unit roots and are non-stationary at level. Therefore, there will be need for differencing to run regression models in panel analysis. Stationarity is a crucial requirement for time series and panel data regression models, as non-stationary data can lead to spurious regression results if differencing is not adopted (Baltagi, 2008).

Table 4.4: Levin-Lin-Chu Unit Root Test Results for Stationarity

Variable	Unadjusted t	Adjusted t*	p-value
Return on Assets	-6.0739	0.8653	0.8066
Central Bank Rate	-20.1092	-12.7359	0.0000***
Central Bank Rate	-8.6798	-4.2065	0.0000***
Day T Bill Rate	-12.1030	-4.2841	0.0000***
Total Assets	0.4925	5.2272	1.0000
GDP Growth	-18.3789	-10.7021	0.0000***
Inflation	-11.5044	-1.8753	0.0304**
Exchange Rate	8.4767	16.0416	1.0000

Note: Standard errors are reported in parentheses. **, *** indicates significance at the 95% and 99%, level respectively.

Source: Author Computations, 2025

4.3.4 Test for Heteroskedasticity

Table 4.5 presents the results of the White's test for heteroskedasticity, which assesses whether the variance of the residuals from a regression model is constant (homoskedastic) or varies across observations (heteroskedastic). The null hypothesis (H_0) of the test is that the residuals exhibit homoskedasticity.

Table 4.5: White's Test for Heteroskedasticity

Test Statistic	Value	p-value	Interpretation
Chi-squared (chi^2)	10.9	0.7599	Fail to reject the null hypothesis (H_0), indicates homoskedasticity (constant variance of residuals).

Source: Author Computations, 2025

From the results, the chi-squared test statistic is 3.25 with a p-value of 0.0710, which is greater than the conventional 0.05 significance level. Therefore, we fail to reject the null hypothesis, suggesting that the residuals have constant variance and there is no evidence of heteroskedasticity in the model. This supports the reliability of standard errors in the regression outputs, ensuring the validity of statistical inference (Gujarati & Porter, 2009).

4.3.5 Test for Fixed and Random Effects (Hausman Test)

The Hausman test is used to determine whether a fixed effects or random effects model is more appropriate for panel data analysis. Fixed effects control for time-invariant characteristics of individual entities, while random effects assume that these characteristics are uncorrelated with the independent variables. The test compares the consistency of coefficient estimates from both models to assess whether the random effects model provides efficient and unbiased estimates (Hausman', 1978).

Table 4.6 below displays the Hausman test results, which determines whether the fixed effects or random effects model is more appropriate. The test compares the difference in coefficients between the two models. The chi-squared statistic ($\chi^2 = 2.33$) and corresponding p-value (0.994) indicate that there is no systematic difference between the coefficients of the two models. Since the p-value is greater than 0.05, we fail to reject the null hypothesis, suggesting that the random effects model is the preferred choice. This implies that the individual bank effects are uncorrelated with the regressors, justifying the use of the more efficient random effects estimator (Hausman', 1978).

Table 4.6: Hausman (1978) specification test Model Selection

	Coef.
Chi-square test value	1.429
P-value	.994

Source: Author Computations, 2025

4.4 Correlation Analysis

Correlation analysis measures the strength and direction of the linear relationship between variables. Table 4.7 presents Pearson's correlation coefficients for key macroeconomic indicators in the study.

The results indicate that Central Bank Rate and Cash Reserve Ratio have a moderate positive correlation (0.295, $p = 0.0000$), suggesting that changes in the central bank's lending rate are associated with adjustments in the reserve requirements. Additionally, the 91-Day Treasury Bill Rate exhibits a positive correlation with both Central Bank Rate (0.561, $p < 0.05$) and Cash Reserve Ratio (0.356, $p < 0.05$), reflecting the interdependence of short-term interest rates and monetary policy instruments.

GDP Growth had a weaker insignificant correlation with Central Bank Rate and Cash Reserve Ratio. GDP Growth correlated positively with 91 Day T Bill Rate (0.204, $p < 0.05$) implying a connection between short-term interest rates and overall economic performance. Exchange was significantly correlated to all the other macro-economic factors lending credence the importance of exchange in spurring economic development and growth. However, since none of the correlation coefficients exceed 0.8, there is no severe multicollinearity concern, meaning the variables can be used together in regression analysis without significantly distorting the results (Gujarati & Porter, 2009).

Table 4.7: Pearson's Correlation Coefficients

Variables	(1)	(2)	(3)	(4)	(5)	(6)
(1) Central Bank Rate	1.000					
(2) Cash Reserve Ratio	0.295	1.000				
p-value	(0.000***)					
(3) 91 Day T Bill Rate	0.561	0.356	1.000			
p-value	(0.000***)	(0.000***)				
(4) GDP Growth	0.042	-0.067	0.204	1.000		
p-value	(0.413)	(0.187)	(0.000***)			
(5) Inflation	0.404	-0.193	0.082	0.310	1.000	
p-value	(0.000***)	(0.000***)	(0.107)	(0.000***)		
(6) KES/USD Exchange rate	0.185	-0.718	-0.216	0.122	0.390	1.000
p-value	(0.000***)	(0.000***)	(0.000***)	(0.016**)	(0.000***)	

Note: Standard errors are reported in parentheses. **, *** indicates significance at the 95% and 99%, level respectively.

Source: Author Computations, 2025

4.5 Monetary policy interventions on financial performance of commercial banks

The particular specific were used to examine the effect of monetary policy interventions on financial performance of commercial banks and the moderating role of bank size in Kenya. The study's first specific objective was to establish the relationship between interest rates and the financial performance of commercial banks in Kenya. The second objective was to establish the relationship between reserve requirements and financial performance of commercial banks in Kenya. Thirdly, to establish the relationship between open market operations and financial performance of commercial banks in Kenya. Lastly, to assess the moderating role of bank size on relationship between monetary policy interventions and financial performance among commercial banks in Kenya.

From Table 4.8, without the inclusion of moderating variable, the ROA of the banks significantly increased by 0.985. A unit increase in Central Bank Rate, resulted to a significant decline in the

ROA of banks by 0.100 times, unit increase in Cash Reserve Ratio led to a significant increase in the ROA of banks by 0.068 times, a unit increase in 91 Day T Bill Rate led to a significant increase in the ROA of banks by 0.031 times, A unit increase in inflation, resulted to a decline in the ROE of banks by 0.009 times, and a unit increase in Exchange rate led to a significant increase in the ROA of banks by 0.020 times. The resultant contribution of this factors was 13%.

The equation thus becomes;

ROAit = 0.985 + (-0.100×CBRit) + (0.068×CRRit) + (0.0.031×91DayTBillRateit)+ (-0.0.006×GDPGrowthit) + (-0.006×Inflationit) + (0.020×Exchangerateit) + 0.241.

Table 4.8: Effects of monetary policy on financial performance

Attributes	Without moderating effect	With moderating effect
Constant	0.985***	-0.584***
	(0.241)	(0.140)
Central Bank Rate	-0.100***	-0.034***
	(0.017)	(0.010)
Cash Reserve Ratio	0.068**	0.070***
	(0.028)	(0.016)
91 Day T Bill Rate	0.031***	0.019***
	(0.005)	(0.003)
GDP Growth	-0.006	0.019***
	(0.006)	(0.004)
Inflation	-0.009	0.017**
	(0.013)	(0.007)
Exchange rate	0.020***	0.006***
	(0.002)	(0.001)
Bank size		0.005***
		(0.000)
Chi square	302.652***	1973.474***
R squared	0.13	0.847
No. Observations	390	390

Note: Standard errors are reported in parentheses. **, *** indicates significance at the 95% and 99%, level respectively.

Source: Author Computations, 2025

4.5.1 Relationship between Interest Rates and the financial performance of Commercial Banks

The first objective of the study was to establish the relationship between interest rates and the financial performance of commercial banks in Kenya. The coefficient of CBR (-1.00) had a probability of 0.000 which was less than 0.05. Under null hypothesis which stated that there was no significant relationship between interest rates and the financial performance of commercial banks in Kenya. Therefore, null hypothesis is rejected at 5% significance level. Thus, a unit increase in CBR results in the decline in the ROA of banks by 0.100 times.

These findings align with recent studies in the Kenyan banking sector. For instance, research by (Kihuro, 2023) reported a significant negative relationship between Central Bank Rate and banks' Net Interest Margin (NIM), indicating that increases in the central bank rate adversely affect bank profitability. Similarly, a study by (Kipngetich, 2011) showed that the effect of interest rates on profitability is not significant in the short term for all the bank. Another study by (Ng'ang'a, 2017) found that financial performance of commercial banks in Kenya as measured by Return on Equity was negatively affected by introduction of capping interest rates. In view of the findings from previous studies in comparison with the current study, interest rate has adverse effect on bank performance.

4.5.2 Relationship between Reserve Requirements and the financial performance of Commercial Banks

The first objective of the study was to establish the relationship between interest rates and the financial performance of commercial banks in Kenya. The coefficient of CBR (0.068) had a probability of 0.016 which was less than 0.05. Under null hypothesis which stated that there was no significant relationship between reserve requirements and financial performance of commercial banks in Kenya Therefore, null hypothesis is rejected at 5% significance level. Thus, a unit increase in CBR results in the increase in the ROA of banks by 0.068 times.

The significance of Cash Reserve Ratio contrasts with findings from previous studies, which have highlighted the complex relationship between reserve requirements and bank profitability. For instance, in a study by (Mutai, 2021), an increase in reserve requirements was found to reduce the

profitability of Kenyan banks by limiting their lending capacity. Another study by (Micheni , 2022) found that cash reserve ratio regulations have an adverse association with commercial banks' financial performance in Kenya. This doesn't support the finding in the current study that the effect of Cash Reserve Ratio on Return on Assets may increase when other macroeconomic factors are accounted for, reflecting the broader economic environment in which banks operate.

4.5.3 Relationship between Open Market Operations and the Financial performance of Commercial Banks

The third objective of the study was to establish the relationship between open market operations and financial performance of commercial banks in Kenya. The coefficient of 91 Day T Bill Rate (0.031) had a probability of 0.000 which was less than 0.05. Under null hypothesis which stated that there was no significant relationship between 91 Day T Bill Rate and the financial performance of commercial banks in Kenya. Therefore, null hypothesis is rejected at 5% significance level. Thus, a unit increase in 91 Day T Bill Rate results in the increase in the ROA of banks by 0.031 times

This result aligns with findings in recent studies, such as those by (Khemraj & Pasha, 2021), which indicate that Treasury Bill rates significantly affect the profitability of banks by influencing the cost of funds and the yield on government securities. Similarly, a study by (Shirya et al., 2023) fond that open market operations had positive and significant effect on the earning performance of commercial banks in Nigeria. Another study by (AL-Obaidi, 2025) established that open market operations influenced to achieve economic stability. Results from previous studies are in line with the current study.

4.5.4 Moderating Role of Bank Size on Relationship between Monetary Policy Interventions and Financial Performance

The fourth objective of the study was to assess the moderating role of bank size on relationship between monetary policy interventions and financial performance among commercial banks in Kenya. The ROA of the banks significantly declined by 0.584. Under null hypothesis, there was no moderating role of bank size on relationship between monetary policy interventions and

financial performance among commercial banks in Kenya A unit increase in Central Bank Rate, resulted to a significant decline in the ROA of banks by 0.034 times with p value of 0.000 less than 0.05, unit increase in Cash Reserve Ratio led to a significant increase in the ROA of banks by 0.070 times with p value of 0.000 less than 0.05, a unit increase in 91 Day T Bill Rate led to a significant increase in the ROA of banks by 0.019 times with p value of 0.000 less than 0.05, a unit increase in GDP Growth, resulted to a significant increase in the ROE of banks by 0.019 times with p value of 0.000 less than 0.05, a unit increase in inflation, resulted to a significant increase in the ROE of banks by 0.017 times with p value of 0.018 less than 0.05, a unit increase in Exchange rate led to a significant increase in the ROA of banks by 0.006 times with p value of 0.000 less than 0.05 and a unit increase in bank size led to a significant increase in the ROA of banks by 0.005 times with p value of 0.000 less than 0.05.

The resultant contribution of this factors with moderating effect was 84.7%.

The equation thus becomes;

ROAit = -0.584 + (-0.034×CBRit) + (0.070×CRRit) + (0.0.019×91DayTBillRateit) + (0.019×GDPGrowthit) + (0.017×Inflationit) + (0.006×Exchangerateit) + (0.005×Banksizeit) + 0.140

This finding aligns with the literature, where larger banks are often found to have better risk management and operational efficiency, which buffer them against the negative effects of certain macroeconomic shocks, such as changes in interest rates or reserve requirements (Molyneux et al., 2019).

4.6 Chapter summary

This chapter included tables, charts, and the researcher's personal interpretation of the study's findings and outcomes. Diagnostic tests and inferential statistics analysis between the variables were presented after the introduction of descriptive statistics.

CHAPTER FIVE

DISCUSSION, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents a summary of the study findings, draws conclusions based on the research objectives, and offers recommendations for policy, practice, and future research. The purpose of this study was to examine the effect of monetary policy interventions on the financial performance of commercial banks in Kenya, while also assessing how bank size moderates this relationship. The chapter begins by summarizing key insights derived from the analysis, followed by a discussion of conclusions that reflect the implications of the findings. Finally, it provides actionable recommendations aimed at enhancing policy design and strategic decision-making within the banking sector.

5.2 Discussion of Findings

5.2.1 Relationship between Interest Rates and the financial performance of Commercial Banks

The findings from the regression analysis highlight a significant relationship between interest rates, specifically the Central Bank Rate, and the financial performance of commercial banks. The negative association between Central Bank Rate and Return on Assets indicates that higher central bank rates can reduce banks' profitability. This is consistent with economic theory, which suggests that an increase in the central bank rate leads to higher borrowing costs for businesses and consumers, which in turn could lower demand for loans and reduce the interest income banks earn.

This outcome aligns with findings from (Mulwa, 2020), who observed that increases in the Central Bank Rate negatively impacted Net Interest Margins (NIM) in the Kenyan banking sector. The adverse effect of rising Central Bank Rate on bank profitability underscores the importance of central bank policies in shaping the banking environment and the need for commercial banks to carefully manage their interest rate risks.

However, when macroeconomic variables such as GDP Growth, Inflation, and Exchange Rate are introduced into the model, the significance of the Central Bank Rate on bank profitability diminishes. This suggests that the relationship between interest rates and bank performance is more nuanced and is affected by broader economic conditions. For example, while Central Bank Rate may negatively impact bank profitability, this effect could be counterbalanced by other factors, such as economic growth or exchange rate movements. (Moyo' & Tursoy, 2019) found similar results, noting that inflation has a significant negative effect on bank profitability.

In the study of (Moyo' & Tursoy, 2019), lower inflation rates were found to be associated with higher bank profitability, which further corroborates the present study's findings that inflation can negatively influence Return on Assets. This points to the complex interaction of interest rates with other macroeconomic variables, where the influence of central bank policies cannot be fully understood without considering the broader economic context.

Moreover, the favorable impact of fluctuations in exchange rates on Return on Assets in the present study highlights the importance of foreign exchange in the banking sector, especially in a globally interconnected economy. Exchange rate fluctuations often play a critical role in shaping the profitability of commercial banks, particularly those with significant foreign currency exposure. (Muriithi A. K., 2023) emphasized that exchange rate fluctuations negatively affect bank profitability, especially in developing economies like Kenya, where currency volatility is more pronounced. These findings suggest that managing exchange rate risk is a crucial component of a bank's strategy to maintain profitability in a volatile macroeconomic environment.

In conclusion, the association between interest rates and commercial banks' financial performance is influenced not only by the central bank's policy decisions but also by other macroeconomic factors such as inflation and exchange rates. This underscores the need for banks to adopt a comprehensive risk management approach that accounts for both domestic and global economic conditions. By strategically managing interest rate risks, inflation exposure, and currency fluctuations, banks can better position themselves to achieve sustainable profitability, even in the face of challenging economic conditions.

5.2.2 Relationship between reserve requirement and the financial performance of Commercial Banks

The regression analysis conducted in this study reveals a significant negative relationship between the reserve requirement and the financial performance of commercial banks, as measured by Return on Assets.

These results align with economic theory, which posits that higher reserve requirements tie up more capital in non-earning assets, reducing the amount of money available for lending and investment. As a result, banks may find it more challenging to achieve high profitability in periods of elevated reserve ratios. This finding is consistent with previous studies such as (Mutai, 2021), who reported a similar negative impact of higher Cash Reserve Ratio on the profitability of Kenyan banks, suggesting that tighter reserve requirements could stifle growth by limiting liquidity.

However, when additional macroeconomic variables like GDP Growth, Inflation, and Exchange Rate are incorporated into the model, the effect of Cash Reserve Ratio on Return on Assets becomes statistically insignificant. The second model's results indicate that while Cash Reserve Ratio initially shows a negative relationship with profitability, other factors, such as Inflation and Exchange Rate, have a stronger influence on a bank's financial performance when considered together. This shift in the statistical significance of Cash Reserve Ratio highlights the complexity of the banking environment, where macroeconomic conditions, such as inflationary pressures and exchange rate volatility, may overshadow the direct impact of reserve requirements. As banks are often exposed to these broader economic forces, their ability to mitigate risks associated with Cash Reserve Ratio may be limited, leading to diminished effects on profitability when other variables are accounted for.

This interaction between Cash Reserve Ratio and other macroeconomic factors is well-documented in the literature. For example, research by (Njeru et al., 2019) indicated that while Cash Reserve Ratio affects bank liquidity, its influence on profitability is mediated by other economic factors. In their study, inflation and exchange rates were found to play a significant role in determining bank profitability, with high inflation rates decreasing profitability and unfavorable exchange rate movements leading to increased financial stress for commercial banks. The findings

of the current study corroborate these observations, suggesting that the overall economic environment in which a bank operates plays a critical role in determining how effective reserve requirement is in shaping financial outcomes.

Consequently, while higher reserve requirement can negatively impact bank profitability by restricting liquidity and limiting lending opportunities, this effect may be mitigated or overshadowed by other macroeconomic conditions such as inflation and exchange rate movements. This underscores the need for banks to adopt holistic risk management strategies that account for not only regulatory policies like reserve requirement but also broader economic factors that influence their operations. By doing so, banks can better navigate the challenges posed by reserve requirements and other macroeconomic fluctuations, ensuring sustainable profitability even in turbulent economic times.

5.2.3 Relationship between Open Market Operations and financial performance of commercial banks in Kenya

The analysis in this study underscores the complex relationship between Open Market Operations, represented by the Treasury bill rate, and the financial performance of commercial banks, as measured by Return on Assets. Treasury Bill rate was found to have significant positive effect on Return on Assets, suggesting that fluctuations in Treasury Bill rates do significantly impact bank profitability.

This result may be attributed to the relatively short-term nature of Treasury Bills, which primarily affect liquidity in the short run rather than long-term profitability. Since Treasury Bills are short-term instruments, they may not provide substantial returns over time, particularly when other factors, such as inflation and exchange rates, exert a more dominant influence on financial performance.

This result aligns with existing literature on the subject. Studies like those by (Khemraj & Pasha, 2021) have found that Treasury Bill rates significantly influence the profitability of banks by altering the cost of funds and providing higher returns on government securities, which in turn affects banks' overall profitability. This is particularly important in the context of Open Market Operations, where central banks use instruments like Treasury Bills to manage liquidity and

control short-term interest rates. Banks that strategically adjust their portfolios in response to changes in Treasury Bill rates can improve their profitability, especially in environments where these rates are high, indicating favorable economic conditions for earning interest on government debt.

Thus, Open Market Operations, as reflected in Treasury Bill rates, have a strong and significant relationship with the financial performance of commercial banks, especially when considered alongside other macroeconomic factors. Banks that can navigate changes in Treasury Bill rates, along with broader economic conditions, are better positioned to optimize their profitability. This highlights the importance of sound monetary policy and effective management of interest rates by central banks in fostering a conducive environment for the banking sector to thrive.

5.2.4 Moderating Role of Bank Size on Relationship between Monetary Policy Interventions and Financial Performance

The results from this study reveal the significant moderating role of bank size on the relationship between monetary policy interventions and the financial performance of commercial banks, as measured by Return on Assets. One of the key findings is the positive interaction between the Central Bank Rate and bank size, with a coefficient of -0.034 ($p = 0.000$). This implies that larger banks experience a stronger negative impact on their profitability when the Central Bank Rate increases.

Larger banks, due to their more complex operations and extensive market reach, tend to be more sensitive to changes in interest rates. This sensitivity could be a result of the increased volume of loans and deposits they handle, making them more vulnerable to the cost of funds rising with higher central bank rates. In contrast, smaller banks, with simpler operational structures and a more localized customer base, may not face the same degree of negative impact, thus highlighting the significant role of bank size in mitigating or exacerbating the consequences of changes in monetary policy.

In addition to the Central Bank Rate, the Cash Reserve Ratio also interacts with bank size, but in a different manner. The results show a negative moderating effect between Cash Reserve Ratio and bank size, with a coefficient of 0.070 ($p = 0.000$). This suggests that as banks grow larger, the positive impact of Cash Reserve Ratio on profitability increases. Larger banks typically have

greater liquidity buffers and a more diversified asset portfolio, which allows them to absorb the costs associated with higher reserve requirements more effectively.

This capacity to withstand such regulatory burdens could explain why larger banks are less negatively affected by increases in the Cash Reserve Ratio compared to their smaller counterparts. These findings resonate with previous research, which argues that larger banks benefit from economies of scale and superior risk management capabilities, which help mitigate the adverse effects of regulatory changes (Molyneux et al., 2019).

Furthermore, the analysis indicates that bank size itself has a significant positive effect on profitability, with a coefficient of 0.005 ($p < 0.05$). Larger banks generally outperform smaller ones in terms of Return on Assets, which can be attributed to their ability to achieve scale economies and operate more efficiently. These banks benefit from a broader customer base, more diversified revenue streams, and better access to capital, all of which contribute to their higher profitability. Additionally, larger banks are better equipped to manage risks and leverage their operational scale to maximize returns, which helps buffer them against adverse effects of macroeconomic shocks, including those arising from changes in interest rates or reserve requirements.

Incorporating macroeconomic factors such as GDP growth, inflation, and exchange rates into the model further highlights the complex interaction between these variables and bank size. GDP growth, for instance, shows a positive relationship with Return on Assets (coefficient = 0.019, $p < 0.05$), indicating that economic expansion enhances bank profitability. Both inflation and exchange were as well statistically significant which shows they have positive effect on profitability.

These results suggest that macroeconomic stability, combined with the moderating effect of bank size, plays a crucial role in determining the financial performance of commercial banks. This finding reinforces the need for adaptive policies that account for both institutional characteristics and broader economic conditions when formulating monetary interventions that affect the banking sector.

In conclusion, the moderating role of bank size on the relationship between monetary policy interventions and financial performance is substantial, as larger banks tend to experience different

outcomes from smaller banks in response to changes in the Central Bank Rate and Cash Reserve Ratio. While the size of the bank does not appear to influence the relationship between Treasury Bill rates and profitability significantly, it clearly plays a role in buffering the effects of other monetary policy tools. These insights suggest that regulators and policymakers should consider the varying sensitivities of different banks based on their size when designing monetary policy interventions, and banks should tailor their risk management strategies to account for these differences in size-related vulnerabilities.

5.3 Conclusion

The findings of this study highlight the significant influence of monetary policy interventions, such as interest rates, reserve requirements Cash Reserve Ratio, and Open Market Operations, on the financial performance of commercial banks. The interest rate, which measures the rate at which central banks lend to commercial banks, was found to have a negative relationship with the profitability of banks. As the interest rate increases, it leads to higher borrowing costs for consumers and businesses, which reduces lending activities and thus lowers bank profitability, reflected in a lower Return on Assets. This supports the view that higher interest rates can place significant pressure on bank performance, in line with existing literature that highlights the challenges banks face in such an environment. The findings are supportive of classical theory of interest which posits interest rates are based on the capital supply and demand.

Reserve requirements Cash Reserve Ratio, which represent the fraction of commercial banks' deposits that must be held in reserve, showed a significant negative relationship with bank profitability in the initial model. However, when other macroeconomic variables, such as GDP Growth, Inflation, and Exchange Rate, were included, the effect of Cash Reserve Ratio became statistically insignificant. This suggests that while reserve requirements limit the liquidity available for lending, their direct impact on profitability is diminished when considering other economic factors, such as inflation and exchange rates, which play a more dominant role in determining bank performance. This is supported by financial repression theory such as high reserve requirements may distort financial markets leading to poor banks' financial performance.

Open Market Operations, proxied by Treasury Bill rates, had a positive and significant relationship with bank profitability, indicating that favorable operating conditions, such as lower Treasury Bill

rates, help banks maintain higher Return on Assets. This relationship suggests that when the central bank engages in open market operations that lead to favorable interest rates, banks are better able to manage their cost of funds and enhance profitability. These findings emphasize the critical role of macroeconomic stability in fostering a conducive environment for banks to thrive.

The moderating role of bank size was crucial in understanding how banks respond to monetary policy interventions. Larger banks were found to be more resilient to changes in the interest rate, likely due to their ability to absorb shocks and better manage risks. In contrast, the impact of Treasury Bill rates on larger banks' profitability was less favorable, indicating that bank size interacts differently with various monetary policy tools. These results underline the importance of considering bank size when assessing the effects of monetary policy on financial performance.

Therefore, the study underscores the complexity of the relationship between monetary policy interventions, macroeconomic factors, and the financial performance of commercial banks. The findings suggest that while interest rates, reserve requirements, and open market operations are key levers, the broader economic context, including inflation, exchange rates, and GDP growth, also plays a critical role in shaping bank profitability. Thus, policymakers should consider both institutional factors like bank size and broader economic conditions when designing monetary policies to support the banking sector.

5.4 Suggestions for Policy

Policymakers should consider the findings of this study when designing monetary policies that affect the banking sector. First and foremost, interest rate policy should take into account the potential adverse effects on bank profitability, especially during periods of rapid interest rate increases. While controlling inflation is crucial, policymakers need to strike a balance between maintaining stable prices and avoiding excessive strain on the banking sector. Gradual adjustments in interest rates would allow banks to better absorb changes and maintain profitability.

In light of the findings related to reserve requirements Cash Reserve Ratio, policymakers should periodically review the impact of reserve ratios on bank liquidity and profitability. While higher reserve requirements can enhance the stability of the financial system, they also limit the banks' ability to lend and generate income. Policymakers should consider flexible reserve requirement

frameworks that account for prevailing macroeconomic conditions. Lowering reserve requirements during periods of economic slowdown or crisis could provide banks with the necessary liquidity to sustain lending activities and support economic recovery.

Policymakers should also continue to emphasize the importance of open market operations in shaping the overall banking environment. The positive relationship between Treasury Bill rates and profitability indicates that sound management of government securities can provide an avenue for improving bank profitability, especially in times of economic stability. Policymakers could work towards maintaining favorable conditions in the Treasury Bill market to support the banking sector's profitability.

Lastly, the role of macroeconomic stability, including factors like GDP growth, inflation, and exchange rates, cannot be overstated. Policymakers must foster an environment of economic stability to ensure banks can thrive. Economic growth policies, inflation control measures, and exchange rate management should be aligned to create a stable macroeconomic environment. This alignment will benefit the banking sector by providing a predictable and favorable operating environment, thus supporting long-term profitability.

5.5 Limitations of the study

The study used secondary data from all the 39 listed commercial banks in Kenya. The limitation which came with was that the results of this study may not be generalizable to other financial institutions due to its focus on commercial banks. Commercial banks and other financial institutions operate differently, such discoveries should be treated carefully, even though they can offer other financial companies' useful information. To improve this, this study may need to be replicated or expanded to include additional financial institutions.

Although the data collected annually over a ten-year period provides a sufficient foundation for the analysis and offers valuable insights for the banks, the relatively short time frame and low data frequency present certain limitations. Specifically, the use of annual data over only ten years restricts the ability to conduct a more detailed panel analysis, which could capture finer temporal variations and trends. Extending the study period to 20–30 years with quarterly data intervals

would enhance the robustness and depth of the findings, improving their reliability and practical applicability.

5.6 Suggestions for Further Research

Future research should aim to explore the long-term effects of monetary policy interventions, such as interest rates, reserve requirements (CRR), and open market operations, on the profitability and sustainability of banks. While this study provides valuable insights into the short-term relationships, understanding the long-term impacts can help policymakers and bank managers make more informed decisions. Longitudinal studies could provide a clearer picture of how these policies evolve over time and their cumulative impact on the banking sector.

Additional research is needed to explore how different bank characteristics such as; ownership structure, risk appetite, and geographical diversification, influence this relationship. A more focused understanding of the factors contributing to this moderating effect could offer deeper insights into the dynamics of the banking sector.

Lastly, future studies should expand the scope to include a broader range of countries or regions to compare how different economic environments and monetary policy frameworks affect bank profitability. Cross-country comparisons can reveal how variations in monetary policy implementation and macroeconomic conditions impact the financial performance of banks, offering valuable lessons for countries with similar economic structures but different policy approaches.

5.7 Suggestions for Theory and Practice

Theoretically, capital structure, strategic planning, and risk management should be prioritized in order to improve the financial performance of Kenyan commercial banks. Practically, this means putting new technologies into place, enhancing asset quality, and fortifying internal controls. Leverage and profitability appear to be negatively correlated, according to research. The balance of debt and equity in a capital structure can be optimized to improve financial performance. A bank's performance in terms of finances, customers, and learning and growth is greatly influenced

by strategic planning. Financial stability depends on maintaining strong asset quality, which includes lowering non-performing loans.

Practical suggestions such as artificial intelligence, automation, and digital banking systems can lower expenses and improve operational efficiency. Asset quality can be raised by putting in place strong credit risk management procedures, such as loan paperwork, collateral evaluation, and monitoring. Strong internal controls that are developed and put into place, such as segregation of roles and frequent audits, can reduce fraud and errors and guarantee the accuracy of financial data. Enhancing customer relationship management techniques, such as tailored support and focused advertising, can boost client retention and loyalty, which will raise revenue production and employee skills and expertise can be strengthened by funding training and development initiatives, which will increase output and performance.

Kenyan commercial banks can boost stability, increase their financial performance, and support the nation's general economic growth by implementing these theoretical and practical suggestions.

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APPENDICES

4.5.5 Appendix I: Ethical approval

Strathmore UNIVERSITY

26th March 2025

Ms Mwangi Margaret,
margaretmwangi.wanjiru@strathmore.edu

Dear Ms Mwangi,

RE: Effect of Monetary Policy Interventions on Financial Performance of Commercial Banks and the Moderating Role of Bank Size in Kenya

This is to inform you that SU-ISERC has reviewed and **approved** your above SU-masters proposal. Your application reference number is **SU-ISERC2819/25**. The approval period is from **26th March 2025 to 25th March 2026.**

This approval is subject to compliance with the following requirements:

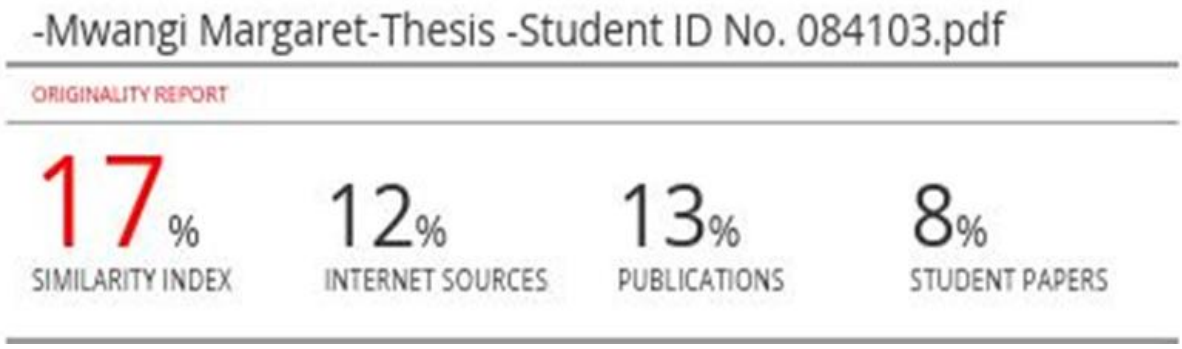
i. Only approved documents including (informed consents, study instruments, MTA) will be used.
ii. All changes including (amendments, deviations, and violations) are submitted for review and approval by SU-ISERC.
iii. Death and life-threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to SU-ISERC within 72 hours of notification.
iv. Any changes anticipated or otherwise that may increase the risks or affected safety or welfare of study participants and others or affect the integrity of the research must be reported to SU-ISERC within 72 hours.
v. Clearance for the export of biological specimens must be obtained from relevant institutions.
vi. Submission of a request for renewal of approval at least 60 days prior to the expiry of the approval period. Attach a comprehensive progress report to support the renewal.
vii. Submission of an executive summary report within 90 days of completion of the study to SU-ISERC.

Before commencing your study, you will be expected to obtain a research license from National Commission for Science, Technology, and Innovation (NACOSTI) https://research-portal.nacosti.go.ke/ and obtain other clearances needed.

Yours sincerely,

Mr Ambrose Rachier,
Chairperson; SU-ISERC

4.5.6 Appendix II: Plagiarism check



4.5.7 Appendix III: Data Extraction Template

bank	year	ROA	CBR	CRR	TBill	GDP	Inflation	Exc. Rate	Tot assets
1-39 banks replicated 10 times.	2014 - 2023	Rates per year and bank	Rates per year and bank	Rates per year and bank	Rates per year and bank	Rates per year and bank	Rates per year and bank	Rates per year and bank	Total assets per year and bank

4.5.8 Appendix IV: Analyzed Random effect Regression Tables

Regression results

ROA	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
CBR	-.1	.017	-5.97	0	-.133	-.067	***
CRR	.068	.028	2.41	.016	.013	.123	**
__91DayTBillRate	.031	.005	5.79	0	.02	.041	***
GDPGrowth	-.006	.006	-0.97	.333	-.019	.006	
Inflation	-.009	.013	-0.70	.482	-.035	.016	
KESUSDExchangeRate	.02	.002	11.93	0	.016	.023	***
Constant	.985	.241	4.09	0	.513	1.458	***

Mean dependent var	2.746	SD dependent var	0.536
Overall r-squared	0.130	Number of obs	390
Chi-square	302.652	Prob > chi2	0.000
R-squared within	0.467	R-squared between	0.000

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

Regression results

ROA	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
CBR	-.034	.01	-3.57	0	-.053	-.015	***
CRR	.07	.016	4.47	0	.039	.1	***
__91DayTBillRate	.019	.003	6.21	0	.013	.024	***
GDPGrowth	.015	.004	4.06	0	.008	.022	***
Inflation	.017	.007	2.36	.018	.003	.032	**
KESUSDExchangeRate	.006	.001	5.44	0	.004	.007	***
TotalAssetsBillion~S	.005	0	31.44	0	.005	.005	***
Constant	-.584	.14	-4.19	0	-.858	-.311	***

Mean dependent var	2.746	SD dependent var	0.536
Overall r-squared	0.847	Number of obs	390
Chi-square	1973.474	Prob > chi2	0.000
R-squared within	0.837	R-squared between	0.852

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