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Camel Financial Indicators and Performance of Tier Three Commercial Banks in Kenya

[1*]James Ngatia, [2]Dr. Daniel Makori & [3]Mr. Joseph Theuri
[1]Master student, Department of Accounting and Finance, School of Business, Economics and Tourism Kenyatta University
[2&3] Department of Accounting and Finance, School of Business, Economics and Tourism Kenyatta University
***Email of the Corresponding Author: jimmyngatia@gmail.com**

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Abstract

Tier three banks are vital to the Kenyan economy by promoting competition and ensuring efficiency in the banking sector. Despite their importance, recent statistics indicate poor performance among these banks, possibly due to their financial practices. However, limited research exists on how the CAMEL approach affects their financial performance. This study addressed this gap by analyzing the financial performance of Kenya's tier three commercial banks through CAMEL factors, namely; capital adequacy, asset quality, management, earning ability, and liquidity. The study was guided by the Free Banking Theory, Agency Theory, Capital Buffer Theory, and Transactional Cost Theory. An explanatory research design was adopted, with a focus on 18 tier three commercial banks. Secondary panel data were collected from the banks' records over a period of ten years (2014-2021). The regression results revealed a coefficient of determination (R-squared) of 0.6918, indicating that 69.18% of the variance in financial performance (ROA) is explained by the CAMEL variables. The analysis identified that Capital Adequacy, Asset Quality, Management Quality, and Liquidity significantly affect the financial performance of tier-three commercial banks, while Earnings Ability did not show a statistically significant effect. The study further examined the moderating effect of Ownership Identity on the CAMEL-ROA relationship, but the findings indicated that it does not enhance the predictive power of the model. Consequently, Ownership Identity was ruled out as a significant moderator. The study concludes that the CAMEL framework is essential for assessing the financial health of tier-three commercial banks in Kenya, emphasizing the importance of strong capital adequacy, liquidity, and management quality for profitability. The study recommends that bank management prioritize these CAMEL components while policymakers should create supportive regulatory frameworks and further research should explore additional performance indicators and potential moderators affecting financial performance.

Keywords: *CAMEL model, financial performance, tier-three commercial banks, Kenya, ownership identity*

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1.1 Introduction

The primary role of banks in today's economy is to maintain economic stability and resilience against financial volatility. Commercial banks are particularly essential in allocating resources within countries, facilitating the flow of funds between depositors and investors (Ombaka & Jagongo, 2018). For banks to provide effective financial intermediation, they must ensure consistent profitability, which enables them to cover operational costs and support long-term sustainability (Amin, Sanusi, Kusairi, & Abdallah, 2018). The financial decisions made by banks, thus, have significant implications for economic growth, as profitable banks boost shareholder confidence, encourage investments, and stimulate overall economic expansion (Anthony, 2019). Conversely, poor bank performance can lead to crises that disrupt economic growth and stability (Ombaka & Jagongo, 2018).

The ownership identity of banks—whether state-owned, privately owned, or foreign-owned—significantly influences their financial performance and risk management strategies, affecting their priorities, regulatory compliance, and access to capital, which in turn impacts profitability and economic contributions (Berger, 2007). State-owned banks often adopt different operational and lending strategies compared to privately owned banks, reflecting diverse governance approaches and resource allocation methods (Boubakri, Cosset, & Saffar, 2013). This ownership structure shapes banks' interactions with the broader economy, as public and private institutions may pursue varied investment and lending strategies. Globally, the dynamics of the banking sector vary widely; the total assets of the global banking industry reached an estimated USD 124 trillion in 2018, with the U.S. banking sector accounting for USD 17.5 trillion (International Monetary Fund, 2019). While U.S. banks have dominated the global market, European banks have adopted more conservative practices, reducing their size and increasing risk aversion (International Monetary Fund, 2019). In Africa, stringent regulations, mergers, and bank failures have led to a decline in the number of banks, exemplified by Nigeria's reduction from 89 banks in 2004 to 27 in 2020 (Njiraini, 2020). Meanwhile, in Kenya, commercial banks are pivotal to the economy, with loans totaling Kshs. 2.5 trillion in 2018—equivalent to 52% of the country's GDP (Kenya Bankers Association, 2019).

The CAMEL approach, introduced in the United States in 1979, is a widely accepted model for evaluating bank performance (Rostami, 2015). This model assesses banks based on five key metrics: Capital Adequacy, Asset Quality, Management Efficiency, Earnings, and Liquidity (Khrawish & Siam, 2011). CAMEL is considered an ideal tool for monitoring the health and risk levels of financial institutions, helping to predict and mitigate potential bank failures (Hays, De Lurgio, & Gilbert, 2009). Studies have shown that CAMEL parameters positively influence credit risk decisions and key profitability ratios such as Return on Assets (ROA) and Return on Equity (ROE) (Jha & Hui, 2012; Olweny & Shipho, 2011).

Within the CAMEL framework, capital adequacy measures a bank's capacity to withstand financial difficulties and continue operations. The Basel Accord recommends the Capital Adequacy Ratio (CAR), a core capital ratio, to safeguard banks against losses in times of crisis (Karamoy & Tulung, 2020). Asset quality is another critical metric, gauging the risk level of non-performing loans within bank portfolios. High ratios of non-performing loans indicate a riskier

asset profile, potentially undermining profitability (Kutum, 2017). Studies in Kenya have shown that asset quality significantly impacts bank performance, particularly in tier-three commercial banks with smaller capital reserves (Kamande, 2017).

Management quality, another CAMEL component, reflects a bank's operational efficiency and cost management. Effective management strategies support profitability by optimizing income and minimizing operational costs (Shahzad et al., 2018). For banks, liquidity is essential in maintaining the ability to meet short-term financial obligations. The liquidity coverage ratio, a Basel Accord recommendation, ensures banks have enough high-quality liquid assets to cover unexpected cash demands (Arsew et al., 2020). Each CAMEL parameter thus contributes to a bank's financial stability and performance.

In Kenya, tier-three commercial banks represent the smallest segment in the banking sector, accounting for just 8.9% of the market and a modest portion of total deposits and loans (Central Bank of Kenya, 2021). Despite their size, these banks play a crucial role in extending credit to small and medium-sized enterprises (SMEs) that may not have access to larger banks (CBK, 2021). However, tier-three banks face unique financial challenges, such as lower asset quality and higher non-performing loan ratios, which hinder their growth and profitability (CBK, 2017). This underscores the need for a focused analysis of these banks to address their distinct operational dynamics and support their role in economic development.

1.2 Statement of the Problem

Tier-three commercial banks play an essential role in the Kenyan banking sector by fostering competition, promoting financial inclusion, and offering credit services to small and medium enterprises (SMEs) that may lack access to larger financial institutions. These banks contribute significantly to economic growth by focusing on niche markets and underserved segments, helping drive innovation and accessibility in the sector. However, despite their economic importance, tier-three banks have faced consistent underperformance relative to their larger counterparts, with a decline in Return on Assets (ROA) from 13.65% in 2016 to 8.62% in 2021 (CBK, 2017; Central Bank of Kenya, 2020). This downward trend is especially concerning when contrasted with the stable performance of tier-one and tier-two banks, which have weathered similar economic conditions while maintaining financial resilience (Kenya Bankers Association, 2020). As tier-three banks currently hold only 8.9% of the total commercial banking market, continued underperformance could threaten their sustainability, limit competition, and reduce financing options for SMEs.

The declining financial performance of tier-three banks raises critical questions about the factors contributing to this trend. Research suggests that the CAMEL model components—Capital Adequacy, Asset Quality, Management Quality, Earnings Ability, and Liquidity—significantly affect bank performance. Studies by Isanzu (2017), Ombui (2019), and King'ori et al. (2017) suggest that capital adequacy is essential for stability and shock absorption, while research by Kutum (2017) and Ekinci and Poyraz (2019) highlights the importance of asset quality in maintaining profitability. Effective management practices, as noted by Al Zaidabin (2020) and Shahzad et al. (2018), also contribute to operational efficiency and earnings. Despite these insights, gaps and inconsistencies in the literature persist, as many studies, including those by Isanzu (2017)

and Ekinci and Poyraz (2019), were conducted outside Kenya and may not fully capture the local banking environment or the distinct challenges facing tier-three banks. Furthermore, existing Kenyan studies have typically analyzed the banking sector as a whole, overlooking unique issues such as limited capital access and a higher prevalence of non-performing loans among smaller banks.

Another area of limited research involves the role of ownership identity—foreign versus domestic ownership—in moderating the relationship between CAMEL components and financial performance. Since ownership structure can impact management practices, risk tolerance, and capital allocation, it is essential to explore whether foreign or domestically owned tier-three banks exhibit different financial outcomes from similar strategies. This study aims to address these gaps by specifically examining the influence of CAMEL components on the financial performance of tier-three commercial banks in Kenya and investigating whether ownership identity moderates these effects. By focusing on the unique characteristics of tier-three banks, this research seeks to provide targeted insights to enhance their sustainability and profitability, ensuring they continue to fulfill their crucial role in the Kenyan banking sector.

1.3 Objectives of the Study

This study was guided by both general objective and specific objectives.

1.3.1 General Objective

The general objective of this study was to examine the effect of CAMEL financial indicators on financial performance of tier three commercial banks in Kenya.

1.3.2 Specific Objectives

This study was guided by the following specific objectives:

i. To determine the effect of capital adequacy on financial performance of tier three commercial banks in Kenya.
ii. To establish the effect of asset quality on financial performance of tier three commercial banks in Kenya.
iii. To determine the effect of management quality on financial performance of tier three commercial banks in Kenya.
iv. To establish the effect of earning ability on financial performance of tier three commercial banks in Kenya.
v. To determine the effect of liquidity on financial performance of tier three commercial banks in Kenya.
vi. To establish the moderating effect of ownership identity on the relationship between CAMEL approach to financial performance of tier three commercial banks.

1.4 Research Hypotheses

H_{01}: Capital Adequacy has no significant effect on financial performance of tier three commercial banks in Kenya.

H_{02}: Asset quality has no significant effect on financial performance of tier three commercial banks in Kenya.

H_{03}: Management quality has no significant effect on financial performance of tier three commercial banks in Kenya.

H_{04}: Earnings ability has no significant effect on financial performance of tier three commercial banks in Kenya.

H_{05}: Liquidity has no significant effect on financial performance of tier three commercial banks in Kenya.

H_{06}: Ownership Identity has no significant moderating effect on the relationship between the CAMEL approaches of financial performance of tier three commercial banks in Kenya.

1.5 Scope of the Study

The conceptual scope of this study centers on evaluating the effect of the CAMEL approach on the financial performance of tier-three commercial banks in Kenya. It specifically examines all 22 tier-three banks registered and operational in Kenya as of 2021. The study utilizes secondary panel data obtained from the annual financial reports submitted to the Central Bank of Kenya (CBK) by these banks. Data collection spans a ten-year period from 2012 to 2021, enabling a comprehensive analysis of the trends and factors that influence financial performance within this banking segment. This focused approach allows for an in-depth understanding of how the CAMEL components impact the financial health of tier-three commercial banks in Kenya.

2.0 Literature Review

This chapter examines the existing literature relevant to financial performance in banking, focusing on theoretical foundations and empirical evidence regarding the CAMEL model components and their influence on bank profitability. It identifies key gaps and sets the foundation for the study's analysis of Kenya's tier-three commercial banks.

2.1 Theoretical Literature Review

This section explores the theoretical frameworks underpinning the relationship between CAMEL components and financial performance. Key theories, including the Free-Banking Theory, Agency Theory, Capital Buffer Theory, and Transaction Cost Theory, offer insights into the mechanisms driving bank stability, risk management, and profitability.

2.1.1 Free-Banking Theory

The Free-Banking Theory, introduced by George Selgin in 1988, conceptualizes money as a commodity with its price determined by interest rates, proposing that market forces, rather than central authorities, should control the money supply (Hendrickson, 2020). The theory promotes self-regulation, suggesting that competitive banking environments encourage banks to practice

prudent reserve management and lending, driven by profit motives to avoid defaults and failures (Selgin, 1988). This theory contrasts with the Real Bill Doctrine, which restricts banks to lending against secure, short-term commercial papers to maintain liquidity (Maux, 2020). While it emphasizes the benefits of market-regulated banking, critics argue that market-driven regulation may not prevent excessive risk-taking and may lack robustness against external economic shocks (White, 2015). The Free-Banking Theory is relevant to this study as it provides insights into how market dynamics influence CAMEL variables such as capital adequacy, liquidity, and asset quality, underscoring the importance of prudence in managing these factors to enhance financial stability and performance.

2.1.2 Agency Theory

Developed by Jensen and Meckling in 1976, Agency Theory examines the contractual relationships within organizations, focusing on potential conflicts between stakeholders, particularly managers and shareholders (Panda & Leepsa, 2017). The theory posits that these conflicts, or "agency problems," arise when stakeholders' interests diverge, leading to agency costs that hinder efficiency (Madison, 2014). Agency Theory emphasizes control mechanisms like performance-based compensation and monitoring to align managers' actions with shareholders' interests, which can improve financial performance (Donellan & Rutledge, 2016). However, the theory is often critiqued for narrowly focusing on managers and shareholders, overlooking other stakeholders like customers and suppliers. In this study, Agency Theory is applied to CAMEL components such as asset quality and management capability, suggesting that aligning managerial practices with shareholder goals can enhance financial performance by reducing agency costs.

2.1.3 Capital Buffer Theory

Proposed by Milne and Wiley (2001), the Capital Buffer Theory explores banks' capital management practices, particularly their use of capital buffers—capital held above the regulatory minimum to absorb potential losses and ensure operational stability (Silva, 2017). This theory suggests that banks with higher capital buffers can take on riskier but potentially profitable activities, balancing stability with growth opportunities (Trung & Wahab, 2021). However, critics argue that the theory may oversimplify the link between capital buffers and risk-taking, overlooking external factors like regulatory changes and economic conditions. Capital Buffer Theory is relevant to this study as it informs the understanding of capital adequacy, a key CAMEL variable, showing how capital buffers contribute to financial stability and impact the performance of tier-3 commercial banks.

2.1.4 Transaction Cost Theory

The Transaction Cost Theory, conceptualized by Ronald Coase in 1937, explains that all market transactions incur additional costs beyond the goods or services' inherent value, including information, coordination, and enforcement costs (Lu & Wung, 2021). The theory argues that reducing these transaction costs enhances organizational efficiency and financial performance (Nikolaeva & Pletnev, 2016). Its primary strength lies in promoting cost-reduction strategies to improve performance, though it may overlook other factors like innovation and customer relationships. In this study, Transaction Cost Theory is used to analyze how CAMEL components

affect transaction costs, linking factors like asset quality to enforcement costs and capital adequacy to opportunity costs, which are essential for improving financial efficiency in tier-3 banks.

2.2 Empirical Literature Review

This review explores the relationship between various aspects of financial management—specifically, Capital Adequacy, Asset Quality, Management Quality, Earnings Ability, Liquidity, and Ownership Identity—and the financial performance of banks. Capital Adequacy, measured by the Capital Adequacy Ratio (CAR), is emphasized as crucial for financial stability and risk tolerance. Studies by Isanzu (2017) and Ombui (2019) demonstrate a positive correlation between CAR and bank performance, particularly in China and Kenya, respectively. However, these findings primarily focus on larger banks, indicating a need for further research into how CAR impacts tier-three banks.

Asset Quality is another key determinant of financial performance, with studies revealing a complex relationship between non-performing loan (NPL) ratios and profitability. Kutum (2017) found that higher NPL ratios were positively associated with profitability in Palestinian banks, while Ekinci and Poyraz (2019) observed a negative correlation in Turkish banks. The Kenyan study by Sporta (2018) aligns more closely with the latter findings, showing that lower asset quality, as indicated by high NPL ratios, negatively impacts profitability. These mixed results highlight the need for a deeper understanding of how asset quality affects performance, especially in tier-three banks that may struggle with credit risk management.

Management Quality plays a significant role in influencing financial outcomes by optimizing resource use and operational efficiency. Research by Al Zaidabin (2020) in Jordan and Shahzad et al. (2018) in Pakistan indicates that effective management positively affects bank performance. However, Kamande's (2017) study on listed banks in Kenya suggests that these results may not translate to smaller, tier-three banks, which operate under different dynamics. This gap underscores the necessity for further investigation into management quality within this specific banking tier.

Earnings Ability, often gauged through interest income ratios, is also vital for a bank's profitability. Studies by Saif-Alyousfi et al. (2017) and Sathyamoorthi et al. (2017) across Saudi Arabia and Botswana confirm a positive link between stronger earning ability and financial performance, though results can differ by region. The Kenyan study by Kirunja (2018) corroborates these positive findings, showing that higher interest income significantly enhances earnings per share. However, the implications for tier-three banks, which may face unique challenges and revenue sources, warrant additional research.

Finally, Ownership Identity, particularly regarding whether a bank is foreign or domestically owned, significantly influences financial performance by shaping risk management and operational strategies. Studies by Farazi et al. (2014) in the MENA region and Arman (2015) in Indonesia suggest that foreign ownership often enhances performance due to increased capital access and management expertise. Conversely, San et al. (2011) found that domestic banks in Malaysia outperformed foreign banks in efficiency, indicating that local ownership can offer advantages. This highlights the need for focused research on tier-three banks in Kenya to explore

how ownership identity affects the relationship between financial management practices and performance outcomes. Overall, while existing literature provides valuable insights into these financial factors, the inconsistencies and context-specific results underscore the importance of examining these elements within the unique environment of Kenya's tier-three banking sector.

2.3 Conceptual Framework

The conceptual framework illustrated above outlines the relationship between financial management variables and the financial performance of tier-three commercial banks, as measured by Return on Assets (ROA).

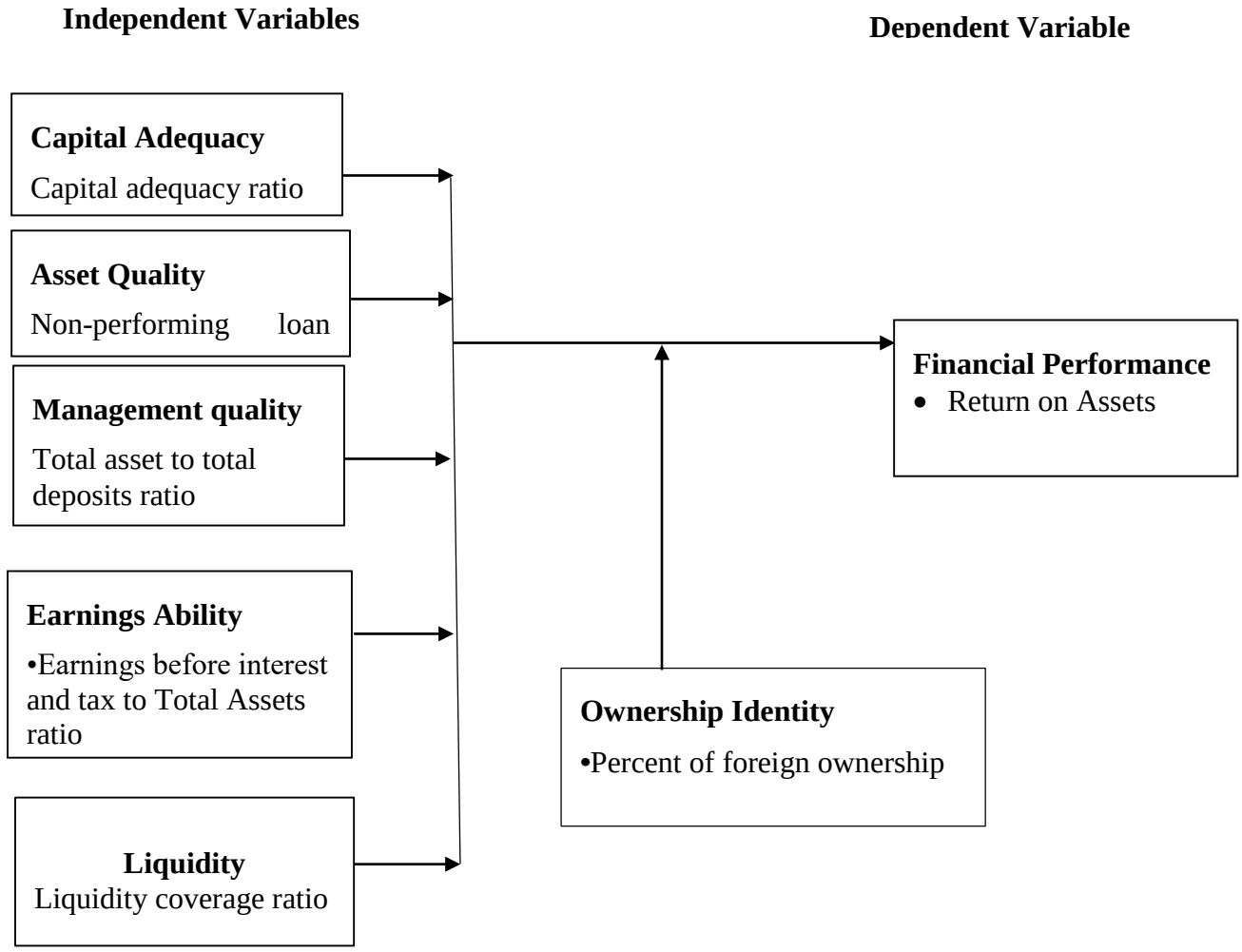

Figure 1: Conceptual Framework

Source: Researcher (2024)

This model identifies five independent variables—Capital Adequacy (measured by the Capital Adequacy Ratio), Asset Quality (Non-Performing Loan ratio), Management Quality (Total Assets to Total Deposits ratio), Earnings Ability (Earnings Before Interest and Tax to Total Assets ratio), and Liquidity (Liquidity Coverage)—that influence financial performance. Ownership Identity, represented by the percentage of foreign ownership, serves as a moderating variable affecting the relationship between these practices and Return on Assets (ROA). This framework aims to explore the collective impact of these variables on the financial health of banks, particularly in Kenya's tier-three banking sector.

3.0 Research Methodology

This study adopts a positivist philosophy, focusing on quantitative analysis to objectively examine the relationship between financial management practices (measured by the CAMEL indicators) and financial performance of Kenya's tier-three commercial banks. Utilizing an explanatory research design, the study aims to explore cause-effect relationships, analyzing data from 18 purposively selected tier-three banks operational from 2012 to 2021. Secondary data was collected from annual financial statements, covering variables such as capital adequacy, asset quality, management quality, earnings ability, and liquidity, alongside ownership identity as a moderating factor. The study employed a panel regression model to assess direct and moderating effects, ensuring data robustness through diagnostic tests for normality, multicollinearity, and heteroscedasticity. Data validity was enhanced by rigorous testing for regression assumptions

4.0 Findings

This section details the findings of the study. In particular, the study conducted inferential analysis, including correlation and regression analysis. These findings are presented in the sections below.

4.1 Correlation Analysis

The correlation between the various variables were conducted at the 0.05 level of significance. The results are as shown in Table 1:

Table 1: Correlation Results

Variable	ROA	Capital Adequacy	Asset Quality	Management Quality	Earnings Ability	Liquidity	Ownership Identity
ROA	1.000						
Capital Adequacy	0.462	1.000					
P-value	0.000						
Asset Quality	0.513	0.189	1.000				
P-value	0.000	0.033					
Management Quality	0.608	0.383	0.190	1.000			
P-value	0.000	0.000	0.032				
Earnings Ability	0.584	0.336	0.845	0.295	1.000		
P-value	0.000	0.000	0.007				
Liquidity	0.599	0.248	0.882	0.103	0.820	1.000	
P-value	0.000	0.005	0.000	0.000	0.000		
Ownership Identity	0.595	0.236	0.801	0.070	0.788	0.880	1.000
P-value	0.000	0.007	0.000	0.000	0.000	0.000	0.000

Source: Research Data (2024)

The correlation analysis in Table 1 highlights statistically significant relationships between Return on Assets (ROA) and several independent variables among tier-three commercial banks in Kenya, underscoring the importance of these factors in driving financial performance. Capital Adequacy shows a positive and moderate correlation with ROA ($r = 0.462$, $p = 0.000$), suggesting that well-capitalized banks can better absorb losses and sustain profitability. This aligns with findings by Isanzu (2017) and Ombui (2019), who emphasize capital adequacy's critical role in supporting bank stability. Similarly, Asset Quality is moderately correlated with ROA ($r = 0.513$, $p = 0.000$), indicating that banks with fewer non-performing loans typically achieve higher profitability, a result consistent with Ekinci and Poyraz (2019) and Sporta (2018). Additionally, Management Quality shows a moderately strong correlation with ROA ($r = 0.608$, $p = 0.000$), suggesting that operational efficiency and prudent decision-making are vital for profitability, as supported by Al Zaidabin (2020) and Shahzad et al. (2018). For tier-three banks, this underscores the need to strengthen management practices for optimal financial outcomes.

Earnings Ability ($r = 0.584$, $p = 0.000$) and Liquidity ($r = 0.599$, $p = 0.000$) are also positively and significantly correlated with ROA, highlighting the importance of generating consistent earnings and maintaining adequate liquidity for financial stability, consistent with findings from Saif-Alyousfi et al. (2017) and Edem (2017). Finally, Ownership Identity, represented by foreign ownership percentage, has a positive correlation with ROA ($r = 0.595$, $p = 0.000$), suggesting that foreign-owned banks benefit from additional capital and advanced managerial practices, in line with Farazi et al. (2014) and Arman (2015). Collectively, these relationships underscore the

significance of capital strength, asset quality, management efficiency, revenue generation, liquidity, and strategic ownership in enhancing the financial performance of tier-three commercial banks in Kenya.

4.2 Multiple Linear Regression Analysis

Multiple linear regression was conducted. The model significance is as shown in Table 2 below:

Table 2: Multiple Linear Regression Model

Statistic	Value
R-sq: Within	0.716
R-sq: Between	0.6676
R-sq: Overall	0.6918
Wald chi2(5)	289.57
Prob > chi2	0.000

Source: Research Data (2024)

The multiple linear regression results using the random effects model are summarized in Table 2The regression model reveals a strong explanatory power in assessing the financial performance of tier-three commercial banks in Kenya, as measured by Return on Assets (ROA). With a within R-squared of 0.716, the model explains 71.6% of the variance in ROA due to changes in independent variables within banks over time. Additionally, the between R-squared value of 0.6676 indicates that 66.76% of the variance in ROA is explained by differences across banks. The overall R-squared of 0.6918 suggests that 69.18% of the total variation in financial performance is collectively explained by the model, underscoring its robustness. The Wald chi-square statistic of 289.57, accompanied by a p-value of 0.000, highlights the statistical significance of the model, suggesting that the CAMEL components—Capital Adequacy, Asset Quality, Management Quality, Earnings Ability, and Liquidity—alongside Ownership Identity, collectively have a significant effect on the banks' financial performance. These findings underscore the model's strength and confirm that the independent variables have a considerable influence on ROA, providing a comprehensive understanding of how these factors shape profitability within tier-three commercial banks:

Table 3: Coefficient of Regression Results

Variable	Coefficient	Std. Error	Z-value	P>|Z|	95% Conf. Interval Lower	95% Conf. Interval Upper
Capital Adequacy	0.0308992	0.0150606	2.05	0.040	0.0013809	0.0604175
Asset Quality	-0.0297015	0.0124626	-2.38	0.017	-0.0541277	-0.0052753
Management Quality	0.004131	0.0004531	9.12	0.000	0.0034243	0.005019
Earnings Ability	-0.0168757	0.1324697	-0.13	0.899	-0.2765115	0.24276
Liquidity	0.0001182	1.63E-05	7.25	0.000	8.62E-05	0.0001501
Constant	-0.0185448	0.0042924	-4.32	0.000	-0.0269578	-0.0101318
sigma_u	0.006369					
sigma_e	0.0147698					
rho (fraction of variance due to u_i)	0.15679329					

Source: Research Data (2024)

The regression analysis reveals significant impacts of several CAMEL components—Capital Adequacy, Asset Quality, Management Quality, and Liquidity—on the financial performance of Kenya's tier-three commercial banks, measured by Return on Assets (ROA). Capital Adequacy shows a positive and statistically significant relationship with ROA (Coefficient = 0.0309, p = 0.040), indicating that well-capitalized banks can better withstand financial shocks and maintain profitability. Similarly, Management Quality positively affects ROA (Coefficient = 0.0041, p = 0.000), highlighting the importance of effective leadership and operational efficiency. In contrast, Asset Quality negatively impacts ROA (Coefficient = -0.0297, p = 0.017), suggesting that higher non-performing loans adversely affect profitability, emphasizing the need for robust credit risk management.

Liquidity is positively associated with ROA (Coefficient = 0.0001182, p = 0.000), indicating that adequate liquidity levels help banks mitigate insolvency risks and capitalize on growth opportunities. However, Earnings Ability does not significantly affect ROA (Coefficient = -0.0169, p = 0.899), suggesting that income generation prior to interest and taxes may not drive profitability in this context, possibly due to other operational factors. Overall, these findings underscore the critical importance of strong capital, effective management, high asset quality, and sufficient liquidity for the financial success of tier-three commercial banks in Kenya.

4.3 Moderating Effect of Ownership Identity in the Relationship Between CAMEL approach and Performance

The sixth objective of the study was to determine the moderating effect of ownership identity on the relationship between the CAMEL approach and the financial performance of tier-three commercial banks, as summarized in Table 4.11:

Table 4: Model Summary for Moderation Effect

Statistic	Value
R-sq: Within	0.6885
R-sq: Between	0.6522
R-sq: Overall	0.6609
Wald chi2(5)	255.6
Prob > chi2	0.000

Source: Research Data (2024)

The moderated model summary indicates that the inclusion of Ownership Identity explains 68.85% of the within-group variance in Return on Assets (ROA), 65.22% of the between-group variance, and 66.09% of the overall variance. This represents a slight reduction from the initial model's R-squared values (within = 71.6%, between = 66.76%, overall = 69.18%), suggesting that the moderating effect does not enhance the model's explanatory power. Despite the Wald chi-square statistic confirming the model's overall robustness (255.6, p = 0.000), the reduction in R-squared values indicates that Ownership Identity does not significantly impact the relationship between CAMEL components and financial performance for tier-three commercial banks in Kenya.

Table 5: Coefficient of Regression with Moderation

Variable	Coefficient	Std. Error	z-value	P>|z|	95% Conf. Interval Lower	95% Conf. Interval Upper
Capital Adequacy*Ownership Identity	-0.0002748	0.0001714	-1.6	0.109	-0.0006107	-6.11E-05
Asset Quality*Ownership Identity	-0.0010882	0.0002168	-5.02	0.000	-0.0015131	-0.0006632
Management Quality*Ownership Identity	-9.67E-05	1.04E-05	9.29	0.000	-7.63E-05	-0.0001171
Earnings Ability*Ownership Identity	-0.0038709	0.0023636	-1.64	0.101	-0.0085035	-0.0007617
Liquidity*Ownership Identity	1.67E-06	2.69E-07	6.22	0.000	1.15E-06	2.20E-06
Constant	0.0014824	0.0029447	0.5	0.615	-0.0042892	0.0072539

Source: Research Data (2024)

The moderated model results in Table 5 reveal varying effects of Ownership Identity on the relationship between CAMEL components and financial performance, measured by ROA, among tier-three commercial banks in Kenya. The interaction term for Capital Adequacy Ownership

Identity has a negative coefficient (-0.0002748) but is not statistically significant (p = 0.109), suggesting that while ownership identity might weaken the positive effect of capital adequacy on ROA, this moderation is minimal and statistically inconclusive. In contrast, the interaction for Asset quality and Ownership Identity shows a significant negative effect (-0.0010882, p = 0.000), indicating that ownership identity intensifies the negative relationship between asset quality and ROA, underscoring how foreign or domestic ownership influences how non-performing loans affect profitability. The moderation effect on Management Quality is also notable, where Ownership Identity changes the coefficient from a positive (in the unmoderated model) to a small negative value (-0.0000967, p = 0.000), suggesting a slight but statistically significant reduction in the positive impact of management efficiency on ROA.

For Earnings Ability and Ownership Identity, the interaction is insignificant (-0.0038709, p = 0.101), aligning with the initial model's results that earnings ability alone does not have a significant effect on ROA. The Liquidity and Ownership Identity interaction, however, presents a small but significantly positive effect (1.67E-06, p = 0.000), indicating that ownership identity marginally strengthens the positive impact of liquidity on ROA. Overall, the moderating effect of ownership identity varies across CAMEL components, reducing the impact of capital adequacy, asset quality, and management quality while enhancing the effect of liquidity. Despite these specific moderating influences, the reduction in the R-squared values in the moderated model suggests that Ownership Identity does not significantly enhance the model's explanatory power, indicating that its moderating effect on financial performance is limited in this context.

Table 6: Coefficient of Regression for Moderated Variables

Variable	Coefficient	Std. Error	z-value	P>|z|	95% Conf. Interval Lower	95% Conf. Interval Upper
Capital Adequacy*Ownership Identity	-0.0002748	0.0001714	-1.6	0.109	-0.0006107	-6.11E-05
Asset Quality*Ownership Identity	-0.0010882	0.0002168	-5.02	0.000	-0.0015131	-0.0006632
Management Quality*Ownership Identity	-9.67E-05	1.04E-05	9.29	0.000	-7.63E-05	-0.0001171
Earnings Ability*Ownership Identity	-0.0038709	0.0023636	-1.64	0.101	-0.0085035	-0.0007617
Liquidity*Ownership Identity	1.67E-06	2.69E-07	6.22	0.000	1.15E-06	2.20E-06
Constant	0.0014824	0.0029447	0.5	0.615	-0.0042892	0.0072539

Source: Research Data (2024)

The analysis in Table 6 provides insights into the moderating effect of Ownership Identity on the relationship between CAMEL components and the financial performance of tier-three commercial banks in Kenya. The interaction term for Capital Adequacy*Ownership Identity has a negative coefficient (-0.0002748) and a p-value of 0.109, indicating that the moderating effect of ownership identity on the relationship between capital adequacy and ROA is not statistically significant. This shift from a positive and significant coefficient in the unmoderated model to an insignificant negative one suggests that while capital adequacy generally supports financial performance, this effect is somewhat weakened by ownership identity. However, the lack of statistical significance indicates that this moderating impact is minimal and does not substantially alter the capital adequacy-ROA relationship.

For Asset Quality*Ownership Identity, the interaction coefficient is -0.0010882 with a p-value of 0.000, revealing a significant and negative moderation effect. This indicates that ownership identity intensifies the negative relationship between asset quality (i.e., higher non-performing loans) and financial performance, emphasizing how ownership structure can further exacerbate the impact of asset quality issues on profitability. In the original model, asset quality had a negative effect on ROA, and this effect is amplified by ownership identity, underscoring the importance of maintaining asset quality, especially in banks with specific ownership structures that may be more vulnerable to asset quality fluctuations.

The interaction terms for Management Quality and Ownership Identity and Liquidity Ownership Identity offer further insights. Management quality and Ownership Identity shows a small but statistically significant negative moderation effect, suggesting that ownership structure slightly diminishes the positive influence of management quality on ROA. In contrast, the liquidity Ownership Identity interaction term has a positive and significant coefficient (1.67E-06, p = 0.000), indicating that ownership identity marginally enhances the positive effect of liquidity on financial performance. Overall, while ownership identity has varying effects across CAMEL components, the reduction in the model's R-squared values with moderation implies that ownership identity does not significantly enhance the model's explanatory power, suggesting a limited moderating effect between CAMEL factors and ROA in this context.

4.4 Hypothesis Testing

The results of the moderated regression analysis provide insights into the relationship between the CAMEL components (Capital Adequacy, Asset Quality, Management Quality, Earnings Ability, and Liquidity) and the financial performance of tier-three commercial banks in Kenya, measured by Return on Assets (ROA). Ownership Identity was tested as a moderating variable, but it did not significantly enhance the model's explanatory power, as indicated by a reduction in the overall R-squared value. The hypothesis testing results are discussed below under each specific objective.

4.4.1 Effect of Capital Adequacy on Financial Performance

The first objective was to determine the effect of Capital Adequacy on the financial performance of tier-three commercial banks in Kenya. Hypothesis (H_01): Capital Adequacy has no significant effect on the financial performance of tier-three commercial banks in Kenya. Based on the regression results, the null hypothesis (H_01) is rejected. Capital Adequacy was found to have a

positive and statistically significant relationship with ROA (Coefficient = 0.0309, P = 0.040). This indicates that banks with higher capital adequacy tend to perform better financially, supporting the Capital Buffer Theory (Milne & Wiley, 2001), which posits that banks maintaining sufficient capital buffers can absorb losses and continue operations, thus enhancing profitability. This finding aligns with studies by Isanzu (2017) and Ombui (2019), who reported that higher capital adequacy supports financial stability and performance. However, when moderated by Ownership Identity, the coefficient became negative and non-significant (Coefficient = -0.0002748, P = 0.109), suggesting that the effect of capital adequacy on ROA is not influenced by ownership structure.

4.4.2 Effect of Asset Quality on Financial Performance

The second objective was to establish the effect of Asset Quality on the financial performance of tier-three commercial banks in Kenya. Hypothesis (H_02): Asset Quality has no significant effect on the financial performance of tier-three commercial banks in Kenya. The null hypothesis (H_02) is rejected as Asset Quality demonstrated a significant negative relationship with ROA (Coefficient = -0.0297, P = 0.017). This finding indicates that a higher ratio of non-performing loans adversely affects financial performance, consistent with the research by Ekinci and Poyraz (2019), who found that poor asset quality negatively impacts profitability. Even when moderated by Ownership Identity, the coefficient remained significantly negative (Coefficient = -0.0010882, P < 0.000), showing that ownership does not alter the detrimental impact of asset quality on financial performance. These results emphasize the need for banks to maintain high asset quality to enhance profitability, regardless of ownership.

4.4.3 Effect of Management Quality on Financial Performance

The third objective was to determine the effect of Management Quality on the financial performance of tier-three commercial banks in Kenya. Hypothesis (H_03): Management Quality has no significant effect on the financial performance of tier-three commercial banks in Kenya. The null hypothesis (H_03) is rejected as Management Quality was found to have a highly significant positive relationship with ROA (Coefficient = 0.0041, P < 0.000). This suggests that efficient management practices improve bank performance, aligning with findings by Shahzad et al. (2018), who observed that effective management enhances profitability. The positive influence of management quality persisted even with moderation (Coefficient = -0.0000967, P < 0.000), indicating that the impact of management quality on performance remains robust and uninfluenced by ownership structure.

4.4.4 Effect of Earnings Ability on Financial Performance

The fourth objective was to assess the effect of Earnings Ability on the financial performance of tier-three commercial banks in Kenya. Hypothesis (H_04): Earnings Ability has no significant effect on the financial performance of tier-three commercial banks in Kenya. The null hypothesis (H_04) is upheld as Earnings Ability was found to have a non-significant relationship with ROA (Coefficient = -0.0169, P = 0.899). This suggests that profitability, as indicated by earnings before interest and taxes to total assets ratio, is not a major determinant of financial performance for tier-three banks. This finding contradicts earlier studies by Saif-Alyousfi et al. (2017), who reported a positive influence of earnings on profitability. The lack of significance might be attributed to

variations in earnings structures across banks. The introduction of Ownership Identity as a moderator did not change the non-significant relationship (Coefficient = -0.0038709, P = 0.101), further affirming that ownership does not significantly affect the influence of earnings ability on performance.

4.4.5 Effect of Liquidity on Financial Performance

The fifth objective was to establish the effect of Liquidity on the financial performance of tier-three commercial banks in Kenya. Hypothesis (H_05): Liquidity has no significant effect on the financial performance of tier-three commercial banks in Kenya. The null hypothesis (H_05) is rejected as Liquidity showed a positive and significant relationship with ROA (Coefficient = 0.0001182, P < 0.000). This indicates that higher liquidity positively impacts financial performance, supporting the findings by Edem (2017) that adequate liquidity enhances banks' ability to meet short-term obligations and improves profitability. The moderating effect of Ownership Identity did not alter this significant positive relationship (Coefficient = 1.67e-06, P < 0.000), suggesting that efficient liquidity management is beneficial across banks, irrespective of ownership type.

4.4.6 Moderating Effect of Ownership Identity

The sixth objective of this study aimed to assess whether Ownership Identity significantly moderates the relationship between CAMEL components and the financial performance of tier-three commercial banks in Kenya. Hypothesis (H_06) posited that Ownership Identity has no significant moderating effect on this relationship. The findings support this hypothesis, as incorporating Ownership Identity into the model reduced the overall R-squared from 0.6918 to 0.6609, indicating no substantial enhancement in explanatory power. This suggests that whether a bank is foreign- or domestically-owned does not significantly impact the effects of core banking components on financial performance, aligning with findings from Farazi et al. (2014), who reported minimal performance differences between foreign and domestic banks. While Capital Adequacy, Asset Quality, Management Quality, and Liquidity showed significant positive impacts on ROA, Earnings Ability did not. The findings highlight that internal financial management strategies—rather than ownership structure—are paramount to profitability in Kenya's tier-three banks, providing actionable insights for policymakers and bank managers to focus on optimizing CAMEL metrics rather than ownership identity.

5.0 Summary

The study findings underscore the crucial role of the CAMEL components—Capital Adequacy, Asset Quality, Management Quality, Earnings Ability, and Liquidity—in determining the financial performance of tier-three commercial banks in Kenya. Specifically, Capital Adequacy, Asset Quality, Management Quality, and Liquidity were all found to have a significant positive impact on financial performance, as indicated by Return on Assets (ROA), while Earnings Ability did not exhibit a meaningful effect. Furthermore, the examination of Ownership Identity as a moderating factor revealed no significant alterations in these relationships, suggesting that the impact of the CAMEL components on performance remains consistent regardless of whether banks are foreign or domestically owned. These results highlight the importance of robust practices in capital, asset

management, and liquidity for achieving profitability and stability in tier-three banks, independent of their ownership structure.

6.0 Conclusion

The study concludes that the CAMEL framework is a valuable tool for assessing the financial health of tier-three commercial banks in Kenya. Capital Adequacy and Liquidity both contribute positively to ROA, indicating that strong capital reserves and liquidity are essential for financial resilience and profitability. Conversely, Asset Quality negatively impacts ROA, emphasizing the need for careful credit risk management. Management Quality also has a significant positive effect on ROA, underscoring the importance of operational efficiency. Earnings Ability did not demonstrate a significant influence, suggesting that profitability drivers beyond earnings, such as risk and operational management, are more pertinent to tier-three banks. The study further concludes that Ownership Identity does not moderate these relationships, highlighting that CAMEL components are universally important for bank performance regardless of ownership structure.

7.0 Recommendations

The study recommends that bank management prioritize capital adequacy, asset quality, and liquidity to strengthen financial performance, with a particular focus on managing non-performing loans and optimizing operational efficiency. Policymakers should support tier-three banks by implementing inclusive regulatory frameworks that emphasize robust capital and liquidity requirements and provide capacity-building initiatives for management improvement. Finally, further research is encouraged to explore additional performance indicators, such as Return on Equity (ROE), and to assess the influence of macroeconomic factors on financial performance. Additionally, examining other potential moderators, like corporate governance or market dynamics, could provide a more comprehensive understanding of performance influences across different banking segments.

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