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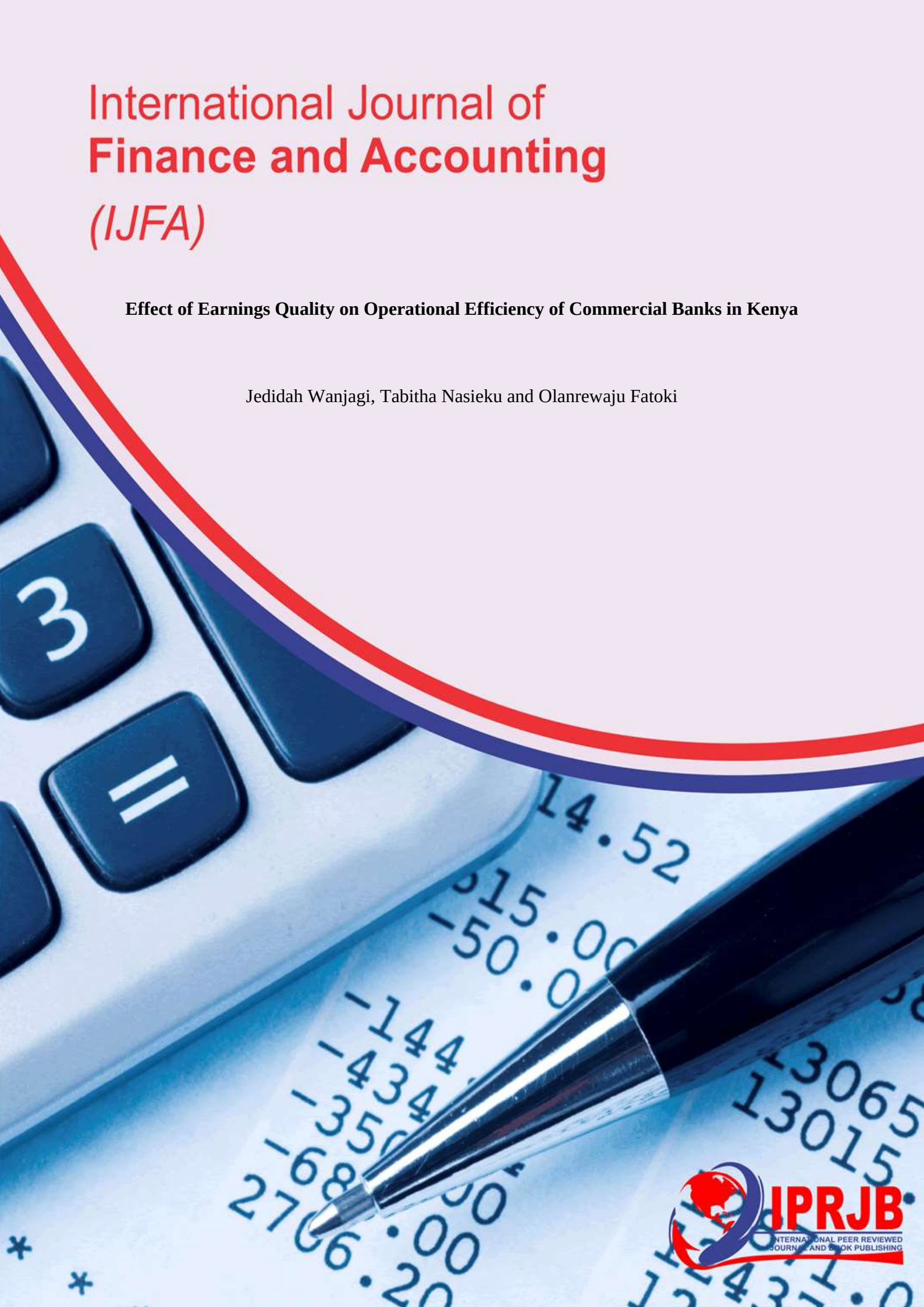

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Effect of Earnings Quality on Operational Efficiency of Commercial Banks in Kenya

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Abstract

Purpose: This research examines the effect of earnings quality on the operational efficiency of commercial banks in Kenya, emphasizing its critical role in financial stability and risk management. A two-step analytical framework was employed: initially, Stochastic Frontier Analysis (SFA) was used to compute the operational efficiency scores for each bank. Subsequently, a panel Generalized Method of Moments (GMM) regression model was applied to explore the relationship between these efficiency scores and capital adequacy.

Methodology: The study utilized a panel Generalized Method of Moments (GMM) approach, addressing individual and time-specific effects, endogeneity, and correlation biases. It focused on data from 2008 to 2022, covering a 14-year period. The data was sourced from verified audited financial statements provided by the Central Bank of Kenya and the websites of the respective banks

Findings: The findings indicate a positive relationship between earnings quality and operational efficiency, with a 4% improvement in operational efficiency linked to an increase in capital adequacy. Additionally, the study highlights the significant role of market structure in this relationship.

Unique Contribution to Theory, Practice and Policy: This research contributes to agency theory by demonstrating how the selection of financial instruments can promote financial discipline within banks. Based on these results, it is recommended that policymakers implement comprehensive strategies emphasizing stringent earnings quality regulations to enhance bank performance and stability.

Keywords: *Earnings Quality, Operational Efficiency, Commercial Banks*

INTRODUCTION

Earnings quality measures how reliably a company's earnings reflect its current and future performance. For banks, earnings quality and operational efficiency are essential indicators of overall performance and long-term sustainability. In Kenya, maintaining high earnings quality has implications that go well beyond profitability: it fosters customer trust, strengthens shareholder value, and bolsters resilience to economic instability. Banks that achieve a balance between earnings quality and operational efficiency are better positioned to deliver sustainable returns to shareholders, create customer value, and navigate economic challenges. Continuous monitoring and improvement of these factors are vital for sustaining growth and stability within the banking sector. A bank's long-term sustainability depends heavily on its ability to generate quality earnings, which in turn protect and enhance capital reserves and shareholder returns. In contrast, financial losses reduce capital and liquidity, ultimately undermining operational efficiency and stability.

Earnings quality, as an indicator of a bank's financial well-being, plays a pivotal role in enhancing operational efficiency, particularly within the challenging context of the Kenyan banking sector. High earnings quality allows banks to allocate resources more effectively, reduce reliance on non-performing assets, and optimize capital usage, contributing directly to operational efficiency. Previous studies underscore the importance of this relationship: Cebenoyan (2003) highlighted that a strong, consistent earnings quality has a positive effect on operational efficiency, using a stochastic frontier methodology to link earnings quality persistence with improved firm efficiency. Similarly, Justin, Michael, Vasanthi, and Selvara (2006) showed that non-performing assets in Indian Cooperative banks directly weakened operational efficiency by impacting liquidity, profitability, and solvency ratios. These findings suggest that high earnings quality can mitigate risks that directly influence a bank's efficiency.

Statement of the Problem

Kenya's banking sector, however, faces distinct and pressing challenges that make these insights particularly relevant. As reported by the Central Bank of Kenya (CBK), despite increases in customer deposits and loans, the sector's return on assets declined to negative 2.0% in 2018 from negative 0.9% in 2017, indicating that efficiency gains from increased deposits were not realized(CBK, 2018). This trend suggests an inefficiency in translating asset growth into profitability and points to the need for strategies that elevate earnings quality, which could help Kenyan banks to better manage resources, withstand economic stressors, and boost profitability.

While studies like Wang and Yung's (2011) demonstrate how state ownership and government intervention can impact earnings quality and efficiency, evidence specific to Kenya remains sparse. Wang and Yung's findings on the complex effects of ownership structure on earnings management illustrate that government-protected banks in China managed to maintain lower levels of earnings manipulation, challenging conventional views on ownership and efficiency. These insights suggest that contextual factors, like ownership structure or market environment, can significantly shape the relationship between earnings quality and operational efficiency. However, with unique economic and regulatory conditions, Kenyan banks require tailored research to fully understand this relationship in their market.

Against this backdrop, this study examines the effect of earnings quality on the operational efficiency of commercial banks in Kenya, with particular attention to the moderating influence of market structure. By exploring these dynamics within Kenya's banking environment, the

study will assess whether the relationship between earnings quality and efficiency aligns with policy goals for resilience and profitability in the sector. The findings will help evaluate the potential for policy interventions to support efficient operations and strengthen Kenya's financial landscape. Furthermore, this research will provide actionable insights for policymakers, regulatory bodies, and industry leaders on how earnings quality influences bank performance and resilience, supporting informed decision-making in the banking sector.

Research Hypotheses

The research was guided by the following null hypothesis:

H_{01}: There is no significant relationship between earning quality and operational efficiency of commercial banks in Kenya.

H_{02}: Market structure does not moderate the relationship between earnings quality and operational efficiency of commercial banks in Kenya.

LITERATURE REVIEW

Theoretical Review

The Theory of Asset Liability Management (ALM), as proposed by Ronald (2013) and further developed by Martin Leibowitz (1987), emphasizes the alignment of assets and liabilities as a way for banks to manage risks and achieve stable cash flows. ALM theory holds that by matching every cash inflow with a corresponding outflow, banks can mitigate the liquidity and interest rate risks, which are inherent challenges in the financial sector. In this study, ALM serves as a foundational framework to examine how asset-liability alignment influences both earnings quality and operational efficiency, with a particular focus on the Kenyan banking sector.

Earnings quality which is defined by the stability and sustainability of a bank's income directly benefits from effective ALM strategies. By using techniques such as maturity matching, hedging, and securitization, banks can stabilize income streams, thus reducing the impact of fluctuating interest rates and liquidity constraints. This stability in earnings quality is critical, as it provides a foundation for more predictable cash flows and enables consistent financial planning. Operational efficiency, in turn, is closely tied to this earnings stability. When earnings are reliable and less volatile, banks can allocate resources more effectively and implement strategic plans with greater confidence. Thus, ALM not only supports banks in managing risk but also strengthens the internal operational framework, directly impacting their efficiency.

For Kenyan banks, ALM is particularly relevant due to the unique economic and regulatory challenges within the region. The Kenyan banking sector frequently faces high-interest rate volatility, liquidity constraints, and regulatory pressures, which can exacerbate the risks ALM aims to manage. By aligning assets and liabilities, Kenyan banks can buffer against these market uncertainties, thereby supporting a financial environment conducive to operational resilience and sustainable earnings. ALM practices enable Kenyan banks to achieve a level of earnings stability and operational efficiency that is essential for competitiveness in the face of economic fluctuations and market pressures faced in the region.

This study, therefore, applies ALM theory to investigate how the effective alignment of assets and liabilities contributes to the earnings quality and operational efficiency of Kenyan banks, framing ALM as a strategic necessity within Kenya's distinctive financial landscape.

Empirical Review

Earnings quality and operational efficiency are critical for banking performance, shaping a bank's profitability, liquidity, and overall financial stability. While numerous studies have explored these factors globally, specific insights into Kenya's banking sector remain limited. Existing literature underscores that market structure plays a moderating role in the relationship between earnings quality and operational efficiency, which calls for a deeper investigation in Kenya given the unique competitive dynamics in the sector.

Globally, factors such as market competition and regulatory frameworks influence earnings quality. For example, Wang and Yung (2011) found that in China, state-owned enterprises (SOEs) engage in less earnings manipulation than private firms, largely due to a regulated market environment and government intervention that lessens competitive pressures. This scenario contrasts with Kenya, where intense competition among privately-owned banks—with minimal state intervention—defines the market. In this highly competitive setting, Kenyan banks face greater pressures to enhance earnings quality to improve operational efficiency. Understanding how this competitive environment impacts earnings management practices in Kenya's banking sector is essential to evaluate market structure as a moderating factor.

Kenya-specific studies have provided insights relevant to earnings quality and efficiency. Oluoch and Gichaiya (2015) examined the earnings quality of public banks in Kenya. Their findings indicate that investors in Kenyan commercial banks generally have access to highly reliable earnings data, due to the high standards of financial reporting. However, the study also reveals that larger commercial banks tend to provide earnings data of higher quality than smaller commercial banks. The findings align with studies like Michael, Vasanthi, and Selvaraju (2006) on cooperative banks in India, where NPLs also constrained operational efficiency. However, while these studies highlight loan quality as a core issue, Kenyan banks face further challenges due to their competitive market structure, which influences the balance between risk-taking and earnings management practices.

This study seeks to address a significant gap by focusing specifically on how market structure influences the relationship between earnings quality and operational efficiency within Kenya's competitive banking environment. By investigating this dynamic, the study will contribute to the understanding of earnings quality and efficiency in developing economies with unique competitive pressures, offering valuable insights for policymakers and industry stakeholders to enhance the stability and performance of the banking sector in Kenya

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Conceptual framework

The research was guided by the following conceptual framework.

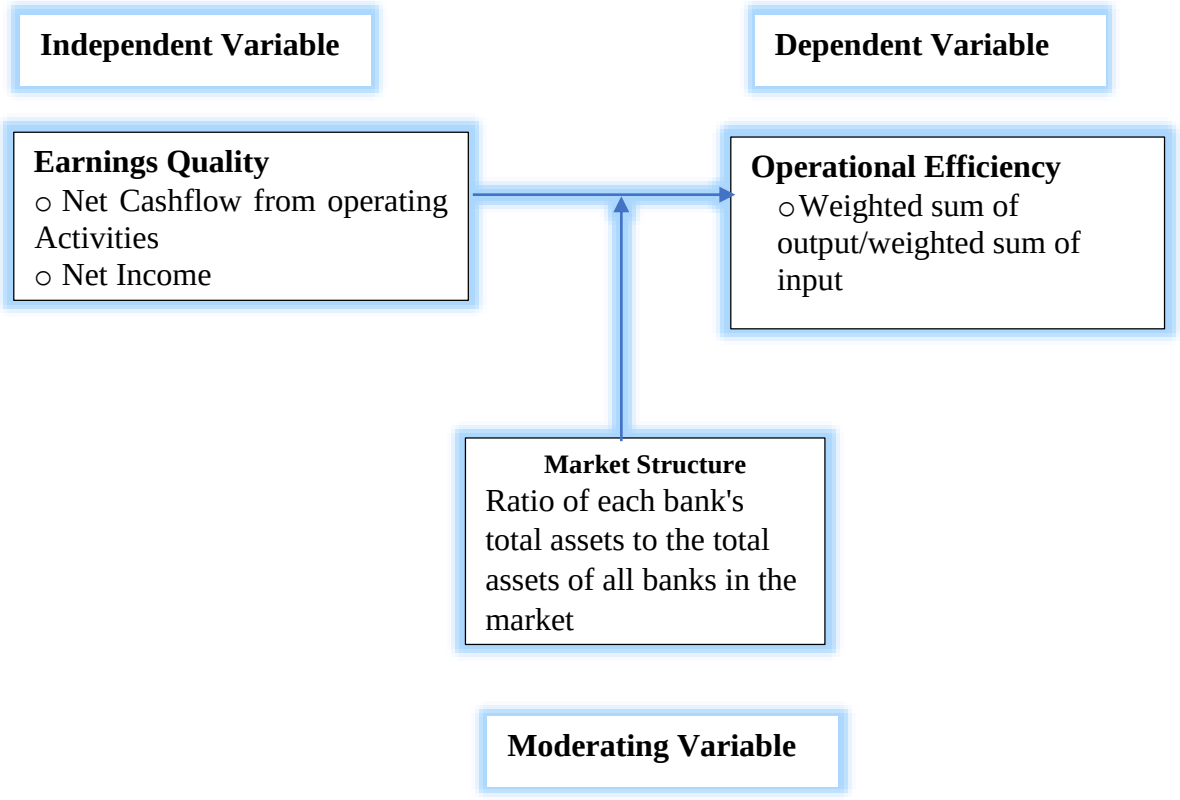

Figure 1: Conceptual framework

Source: Author, 2024

The conceptual framework indicates the interplay of key variables-earnings quality and market structure indicating how they influence operational efficiency of banks.

Earnings quality as an independent variable reflects the financial health of a bank. High earnings quality implies transparency and reliability in financial reporting, which is crucial for investors assessing the bank's stability and performance. Operational efficiency, as the dependent variable, measures how effectively a bank maximizes output using a given quantity of input. A positive relationship is expected, where better earnings quality supports higher operational efficiency by reducing earnings manipulation and promoting resource allocation aligned with true financial statements. Market structure acts as the moderating variable, influencing the relationship between earnings quality and operational efficiency. In a highly competitive market, banks may experience pressure to maintain profitability, potentially impacting earnings quality and, subsequently operational efficiency. Thus, earnings quality influences operational efficiency directly, but this relationship is shaped by the competitive pressures within the market structure, explaining why market structure is treated as a moderator in this framework.

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METHODOLOGY

Data Collection

The research utilized secondary data covering a 14-year period from 2008 to 2022, which was obtained from verified audited financial statements provided by the Central Bank of Kenya and the respective banks' websites. A structured data collection form was employed to extract relevant information from these financial statements. This form enabled the systematic extraction, coding, and editing of data, thereby streamlining the subsequent processing and analysis, in accordance with the recommendations of Saunders (2009). To ensure data accuracy, the collected information was cross-referenced between the audited financial statements and the data obtained from the Central Bank of Kenya.

Determination of Operational Efficiency

The study employed Stochastic Frontier Analysis (SFA) to evaluate the operational efficiency of Kenyan banks, utilizing the stochastic production function within the translog cost function framework as proposed by Coelli et al. (2005). The SFA model incorporated input variables, including loans and other assets, as proxies for earnings quality.

Loans, capital, labor, and deposits were selected as proxies for operational efficiency since they represent essential inputs and outputs in a bank's production process, aligning well with the typical measures in similar studies. The output variables; labor, measured as personnel expenses relative to total assets; capital, calculated by subtracting personnel expenses from operating expenses and dividing by fixed assets; and deposits, represented by total interest expenses divided by total funding. Loans represent the bank's primary revenue-generating output and a standard proxy for operational efficiency, as seen in Nasieku, Kosimbei and Obwogi (2013) and Srairi (2010). Capital, reflecting the physical and financial resources needed for operations. Efficient capital allocation is crucial for sustainability and expansion, and it has been measured in similar studies using expenses related to fixed assets (Srairi, 2010). Labor costs often measured by personnel expenses over total assets highlights cost efficiency in workforce management, a method also used by Fries and Taci (2005). Deposits, a primary funding source, gauge customer trust and the bank's resource mobilization capacity, as noted in studies by Altunbas et al. (2007) and Irsova (2010). These proxies are standard in banking efficiency studies since they provide a comprehensive view of a bank's core financial inputs and outputs.

Model Specification and Estimation Technique

Given the potential relationship between the independent variable, the following model was specified:

$$Operational\ Efficiency = \alpha_0 + Earnings\ Quality_{it} + \varepsilon_{it} \ldots\ldots\ldots\ldots\ldots\ldots\ldots 1$$

Where, α_0 is the constant and ε_{it} is the error term. The parameters i and t represents bank specific and time respectively.

Testing for Moderation Effect of Market Structure

To evaluate the moderating effect of market structure on the relationship between operational efficiency and earnings quality in banks, the study employed hierarchical regression analysis. Three regression models were utilized to assess this moderation effect.

The following models was used to test for moderation effect of market structure.

$Y = \alpha_0 + \varepsilon\beta_3 X_1 X_3 + \varepsilon\beta_i X_i + \varepsilon$..(i)

$Y = \alpha_0 + \beta_1 X_1 + \beta_2 X_3 + \varepsilon$.. (ii)

$Y = \alpha_0 + \beta_1 X_1 + \beta_2 X_3 + \beta_3 X_1 X_3 + \varepsilon$.. (iii)

Initially, the relationship between the independent variables and operational efficiency was examined. In the second phase, both the independent variables and the moderator (market structure) were included to predict operational efficiency and identify any changes in the dependent variable. The third phase introduced an interaction term, created by multiplying the independent variables by the market structure, to further test for moderation.

Estimation Technique

To ensure the robustness of the analysis, the data underwent tests for normality, multicollinearity, heteroscedasticity, and cointegration. Additionally, the study utilized panel Generalized Method of Moments (GMM) techniques to account for both individual-specific and time-specific effects, thereby addressing potential biases arising from endogeneity and correlation.

FINDINGS AND DISCUSSION

Descriptive Statistics

Table 1: Summary statistics for the input and output variables

Variable	Mean	SD	Min	Max	Skewness	Kurtosis
Total Cost	4.12e+06	6.50e+06	0.0000	4.17e+07	2.8274	11.9786
Total Loans	2.94e+07	4.95e+07	0.0000	3.73e+08	3.1555	15.4550
Earning Assets	1.55e+07	2.29e+07	0.0000	1.35e+08	2.3981	8.9840
Labor	0.0410	0.0394	0.0000	0.6756	8.9566	130.5773
Capital	0.1370	0.1298	-0.4254	1.1218	2.5612	18.6752
Deposits	0.2640	0.3314	0.0000	6.4895	12.3456	222.7268

Source: Author, 2024

The results presented in Table 1 demonstrate that the mean values of the input variables—total loans, earnings from assets, and total costs—were approximately Ksh 29.4 million, Ksh 15.5 million, and Ksh 4.12 million, respectively. The corresponding standard deviations were approximately Ksh 49.5 million, Ksh 22.9 million, and Ksh 6.5 million. The higher standard deviation observed for total loans indicates substantial variability around its mean.

In terms of skewness and kurtosis, total costs, total loans, and earnings from assets exhibited skewness values of 2.82, 3.15, and 2.39, respectively, along with kurtosis values of 11.97, 15.45, and 8.98, respectively. These statistics suggest a degree of asymmetry and heavier tails in the distributions of these variables, pointing to the presence of outliers or extreme values.

Dependent, Independent, and Moderating Variables

Table 2: Summary Statistics of Dependent, Independent, and Moderating Variables

Variable	Mean	SD	Min	Max	Skewness	Kurtosis
Operation Efficiency	0.8092	0.0965	0.0351	0.9720	-4.3511	29.6293
Market Structure	0.8626	1.0660	0.0000	23.3410	16.9429	349.609
Earnings Quality	0.6587	0.2156	0.0194	1.2248	-0.7360	3.0777

Source: Author, 2024

The descriptive statistics presented in Table 2 indicate that earnings quality had an average value of 0.6587, with a standard deviation of 0.2156. Additionally, the skewness and kurtosis values were -0.7360 and 3.0777, respectively. The maximum observed earnings quality among the banks was 1.2248, while the minimum was 0.0194. These statistics offer important insights into the distribution and variability of earnings quality across the banks studied.

Diagnostic Test

Table 3: Shapiro -Wilk test for normality

Variable	Obs	W	V	z	Prob>z
Operational Efficiency	546	0.62711	135.800	11.852	0.00000
Earnings Quality	568	0.56073	165.782	12.355	0.00000

Source: Author, 2024

The Shapiro-Wilk test statistic (W) in Table 3 reveals that the p-values for all variables were below the 1%, 5%, and 10% significance levels, leading to the rejection of the null hypothesis, which indicates that the data significantly deviates from a normal distribution. To further assess the data distribution, Q-Q plots and kernel density plots were generated. The Q-Q plot showed that the residuals deviated noticeably from the ideal line, particularly at the tails, suggesting a departure from normality. Similarly, the kernel density plot demonstrated deviations from the expected normal distribution. To address this issue, the data was transformed before proceeding with further estimations.

Model Estimation Results

Table 4: Effect of Earnings quality on operational efficiency

	Panel GMM
	Operational efficiency
Earnings quality	0.0396***
	(0.0028)
Constant	0.1609***
	(0.0407)
Observations	599
Number of Group	40

*Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1*

Source: Author, 2024

Hypothesis Testing

H_{01}: There is no significant relationship between earnings quality and operational efficiency in banking institutions in Kenya.

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The results in Table 4 obtained from the panel GMM analysis indicate a statistically significant positive correlation between the earning quality of banks and their operational efficiency. This significance is observed at the 1%, 5%, and 10% levels. The findings suggest that a one-unit increase in earnings quality results in a 4 percent improvement in operational efficiency of banks in Kenya.

The findings align with Oluoch and Gichaiga (2015), who observed that higher earnings quality enhances the financial performance of Kenyan banks. Similarly, Ekwe (2013) noted that investors tend to have greater confidence in banks with consistent and reliable earnings. High earnings quality signals financial stability and prudent management practices, which can attract investors and positively impact a bank's stock price and access to capital.

Moderation Effect of Market Structure on Relationship between Earnings Quality and Operational Efficiency

Table 5: The Moderating Effect of Market Structure on the Relationship between Earning Quality and Operational Efficiency

	Model One	Model Two	Model Three
	Operational Efficiency	Operational Efficiency	Operational Efficiency
Earnings Quality	0.0453***	0.0402***	0.0080*
	(0.0016)	(0.0028)	(0.0055)
Market Structure		-0.5444**	-1.1032*
		(0.2131)	(3.6446)
Interaction Term			0.0809*
			(0.2083)
Constant	0.0782***	0.1743***	0.6570***
	(0.0241)	(0.0414)	(0.0832)
Observations	599	571	560
R-squared	0.5760	0.2793	0.0205

Note: Interaction term = (*Earnings Quality * Market Structure)*

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Source: Author, 2024

Hypothesis Testing

H02: Market structure does not moderate the relationship between earnings quality and operational efficiency of commercial banks in Kenya.

The results obtained from Table 5 the panel GMM models reveal a positive relationship between market structure on the association between earnings quality and operational efficiency, with statistical significance detected at the 1%, 5%, and 10% thresholds. This are in line with findings by Dechow and Schrand (2004) who indicated, in competitive markets, banks are under greater scrutiny from regulators, investors, and the public. Therefore, there's an increased pressure on them to maintain high standards of transparency and financial reporting, which can further enhance the quality of earnings.

Conclusion

The null hypothesis (H_{01}) examined the relationship between earnings quality and operational efficiency. The researcher conducted an empirical investigation to examine the hypothesis that

there exists no significant effect of earnings quality on operating efficiency. The panel GMM analysis revealed a significant positive correlation between banks' earning quality and operational efficiency in Kenya, with significance at the 1%, 5%, and 10% levels. A one-unit increase in earnings quality corresponded to a 4 percent enhancement in operational efficiency. This positive relationship is underpinned by several key factors. Firstly, higher earnings quality fosters stability and predictability in income, facilitating effective operational planning and resource allocation. Secondly, banks with high earnings quality demonstrate superior capabilities in managing various risks such as credit, market, and operational risks, enabling informed decision-making and effective loss mitigation strategies.

This underscores the significance of prioritizing earnings quality as a strategic imperative for enhancing operational efficiency among banks in Kenya. This is achieved through the promotion of stability, effective risk management, cultivation of investor confidence, enhancement of cost efficiency, adherence to regulatory requirements, establishment of customer trust, and attainment of competitive advantage.

However, certain limitations of the study should be considered when interpreting these results. The focus on Kenyan commercial banks means that findings may reflect specific attributes of the Kenyan financial environment and regulatory framework, which may not be generalizable to banks in other countries. The second limitation of the study lies in the structural aspects of the banking sector on the Central Bank of Kenya (CBK) website, where only large banks are publicly listed. With fewer than a dozen banks in the segment, this restriction narrows the scope of the sample, potentially limiting the representativeness of findings across the entire banking sector. Expanding future studies to include non-listed banks could provide a more comprehensive view.

Policy Recommendation

In response to these revelations, policymakers are urged to enact a multifaceted approach aimed at nurturing a banking environment conducive to optimal performance and stability. For regulators, the results highlight the need to develop policies that reinforce earnings quality, transparency and quality. Regulators might strengthen guidelines for financial reporting and disclosures, ensuring banks provide accurate, high-quality earnings information. By fostering transparency, these measures could help create a more predictable and resilient banking environment, allowing regulators to better assess and mitigate systemic risks. Bank managers are encouraged to prioritize strategies that directly enhance earnings quality. This could involve adopting best capital allocation strategies across various assets to achieve both diversification and adequate levels of capitalization. Furthermore, the banks could re-access investment portfolios and capital allocation frameworks. Managers could also benefit from investing in robust risk management frameworks that prevent sudden swings in earnings, supporting a more predictable income stream and improving overall efficiency. Investors could use earnings quality as a benchmark when evaluating potential investments. High earnings quality signals a stable and reliable bank, reducing the likelihood of unexpected losses. Investors could therefore focus on banks with consistent earnings quality as part of a strategy that favors long-term growth and sustainability.

Suggestions for Future Research

While the study highlights the positive relationship between earnings quality and operational efficiency, there may be additional factors influencing this dynamic. Future research could explore other variables, such as technological innovations, management practices, or market

conditions, to provide a more comprehensive understanding of the determinants of operational efficiency in the banking industry.

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