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ABSTRACT

This study examined how debt to Equity Ratio affects the financial performance of commercial banks in Kenya, covering a five-year timeframe from 2019 to 2023 across all 40 licensed institutions. Using a correlational research approach, the analysis relied on panel data regression methods, supported by essential diagnostics such as unit root assessments, fixed versus random effects estimations, and the Hausman test to determine the most appropriate model. The findings, displayed using tables and visual aids, revealed that the debt-to-equity accounted for 47.28% of the variation in return on assets. This suggests that more than half of the performance differences remain influenced by other, unexamined factors. The results showed that higher levels of debt relative to equity had a statistically significant and negative impact on profitability. In contrast, short-term debt appeared to have a slight positive influence on performance, though this effect was not statistically meaningful. Overall, the study emphasized that the way banks manage their debt to equity Ratio significantly affects financial outcomes. It recommended that bank leaders adopt more cautious approaches to financing particularly by limiting overreliance on long-term debt and equity-based structures in order to safeguard profitability and support sustainable operations.

Key Words: *Total Debt, Shareholders' Equity, Debt Management*

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INTRODUCTION

The financial performance of banks is an important measure of their stability, influencing both their ability to attract investment and their capacity to lend to businesses and individuals. Strong financial performance indicates effective management, efficient operations, and effective risk management practices, which are essential for maintaining trust among depositors and stakeholders (CBK, 2022). Financial performance reflects a company's capacity to generate profits and effectively utilize and manage its resources (Fatihudin & Mochklas, 2018). In the banking sector, maintaining strong financial performance is vital for ensuring the stability and sustainability of the financial industry, which serves as a cornerstone for economic growth and development (Ongore & Kusa, 2023). In addition to providing assistance to development projects by directing funds towards productive uses, facilitating the flow of funds from those who have excess to those who are in need, and providing support for the financial and economic policies of the government (Njoroge, 2024; Efionayi, 2024), the banking sector is an essential component of the financial services sector.

According to Kimathi, Mugo, and Njeje (2021), the debt-to-equity ratio of a bank is an essential indicator of the institution's overall health. This ratio indicates the amount of debt that the bank possesses in comparison to the amount of equity that its shareholders have invested. Bank size has been identified as a potential moderating factor in the relationship between debt to equity Ratio and performance. Larger banks may benefit from economies of scale and better access to capital markets, potentially influencing how debt to equity Ratio affects their performance (Mwangi & Murigu, 2021). Furtheremore, larger banks often have more diversified funding sources and greater capacity to manage debt, impacting their financial performance and stability.

In Singapore, banks typically maintain conservative debt to equity Ratio ratios due to strict regulatory oversight and a focus on stability (Dacanay, Leonida, & Meriño, 2024). As of 2023, the average debt to equity Ratio for Singaporean banks was around 7-8%, which is above the Basel III minimum requirement of 3%. DBS Bank, the largest in Singapore, reported a debt to equity ratio of 7.3% in Q4 2023 (Hukom & Lubis, 2023). This conservative approach has contributed to the resilience of Singapore's banking sector, with non-performing loan ratios remaining low at around 1.5% for major banks. In contrast, Brazilian banks tend to operate with higher debt to equity Ratio due to the country's volatile economic conditions and higher interest rates da Rosa (München, Kimura & Kayo, 2024). The average debt to equity Ratio for Brazilian banks was approximately 11-12% in 2023, with Itaú Unibanco, Brazil's largest private bank, reporting a debt to equity ratio of 10.8% in its latest financial report. Despite higher leverage, Brazilian banks have shown resilience, with the sector's overall capital adequacy ratio standing at 16.2% as of December 2023.

Regionally, South Africa's banking sector is the most developed and advanced on the continent, with debt to equity ratios generally consistent with international standards (Lichaba, 2023). The average debt to equity ratio for South African banks was approximately 6-7% in 2023, exceeding the regulatory minimum. The "Big Four" banks in South Agrica- Standard Bank, FirstRand, Absa, and Nedbank which dominate the market, reported debt to equity Ratios ranging from 6.5% to 7.5% in their latest financial statements. South Africa's banking sector has shown resilience, maintaining a capital adequacy ratio of around 16% in 2023, well above the regulatory minimum of 10.5% (Oyetade, Obalade & Muzindutsi, 2023). However, the sector faces challenges from the country's economic slowdown, with non-performing loans increasing slightly to 4.3% in 2023 from 3.9% in the previous year. In Ghana, banks have been grappling with high non-performing loan ratios and the aftermath of a sector-wide recapitalization effort (Essilfie, 2023).

Kenyan banking sector has faced serious challenges

in recent years, which have impacted debt to equity Ratios and overall financial performance. The largest banks in Kenya, such as KCB and Equity Bank, reported debt to equity ratios of 8.7% and 9.2% respectively in their 2023 financial statements. These figures are above the minimum regulatory requirement of 3% set by the CBK, consistent with international Basel III standards. The financial sector plays a pivotal role in economic stability, yet commercial banks face ongoing challenges related to declining financial performance (IMF, 2020). Factors such as increasing non-performing loans, stringent regulatory frameworks, and heightened competition have been identified as key contributors to this issue (Barde, Kantudu, Dandago, Jalingo, Zik-Rullahi, Yusuf & Suleiman, 2023; Šipilova, Meņšikovs & Baltgailis, 2023).

Kenya's banking sector has demonstrated some level of resilience and growth, significantly contributing to the nation's economic stability. In 2023, the sector's total assets expanded by KES 1.2 trillion, marking a 17.6% increase. This growth was largely fueled by a 15.1% rise in banking deposits, attributed to the widespread adoption of mobile and online banking platforms (Kenya Bankers Association, 2024). Despite a 21.0% increase in operating income, the sector experienced a 9.1% decline in pre-tax profits, highlighting challenges in cost management and operational efficiency. Additionally, the Central Bank of Kenya reported that the ratio of non-performing loans (NPLs) to gross loans increased to 13.8% in July 2024, up from 13.2% in the previous quarter, indicating rising credit risks within the industry(CBK, 2023).

The sector is also dealing with a dynamic regulatory and economic environment. In response to a deceleration in economic growth and controlled inflation, the Central Bank of Kenya reduced the benchmark lending rate by 75 basis points to 11.25% in December 2024, aiming to stimulate private sector credit growth (Business Radar, 2024). Moreover, the adoption of sustainable finance practices is gaining momentum, with 93% of Kenyan banks committed to advancing Sustainable Development Goals, reflecting a shift towards environmentally and socially responsible banking. However, the sector faces ongoing challenges, including the need to manage rising NPLs and adapt to technological advancements, all while maintaining profitability and supporting economic growth.

Statement of the Problem

The Kenyan banking sector, an important component of the country's financial system, has been facing serious financial challenges in recent years, with financial performance showing a consistent downward trend. This decline has been particularly evident in key performance indicators such as profitability, asset quality, and overall stability. According to the Central Bank of Kenya Annual Report (2023), the sector's return on assets (ROA) decreased from 3.8% in 2019 to 2.9% in 2023, ROE decreased from 21.1% to 17.3% within that same period (CBK, 2023). The deterioration in financial performance has been accompanied by a rise in non-performing loans (NPLs), which reached 13.3% in 2023, up from 12.0% in 2019 (Kenya National Bureau of Statistics, 2024). This increase in NPLs has put pressure on banks' balance sheets and raised concerns about the overall financial standing of the sector. The persistent high level of NPLs points to issues in credit risk management and the broader economic environment affecting borrowers' ability to repay loans.

Furthermore, the banking sector in Kenya has experienced a decline in net interest margins (NIM), a key measure of profitability from core banking activities. The average NIM for Kenyan banks decreased from 7.2% in 2019 to 6.1% in 2023 (Kenya Bankers Association, 2024). This compression in margins has been attributed to increased competition, regulatory changes, and the lingering effects of the interest rate cap that was in place from 2016 to 2019. The challenging operating environment has also affected the sector's efficiency. The cost-to-income ratio for Kenyan banks increased from 54.3% in 2019 to 58.7% in

2023, indicating declining operational efficiency (Cytonn Investments, 2024). This rise in costs relative to income has put additional pressure on banks' profitability.

While some years have seen growth and profitability, others have seen a decline in financial performance. Although the banking sector has seen growth in assets, profitability has been declining in recent years (CBK, 2023). According to the Kenya Bankers Association, the industry's pre-tax profits fell by 6.2% in 2021, with net profits declining by 4.7%. This decline was attributed to increased loan loss provisions, higher operating expenses, and reduced interest income. A trend analysis of financial performance of commercial banks indicate unfavorable/declining trajectory in view of profitability indicators over the period 2010 to 2021 (Central Bank of Kenya, 2022). The profit before tax of commercial banks stood at 20.1 percent as at 2012 which declined to 16 percent in 2013. The lowest return on equity for the banks in Kenya was 14.1% in 2018 and the highest performance was in the year 2022 when the commercial banks realized an average return on equity of 25.6%. However, there was a drop in performance in 2022 when the banks registered an average ROE of 13.9%. The overall performance in terms of return on equity shows that the financial performance was fluctuating over the period 2018 to 2023 (CBK, 2023).

In response to these challenges, Kenyan banks have been exploring various strategies to improve their financial performance, with debt to equity Ratio being a key area of focus. Debt to equity Ratio, has the potential to enhance returns but also carries inherent risks. The average debt to equity Ratio for Kenyan banks stood at 8.9% in 2023, higher than many of their African counterparts (CBK, 2023). However, the relationship between debt to equity Ratio and bank performance in Kenya remains complex and not fully understood area. While some studies suggest that higher debt to equity Ratio can lead to improved profitability through increased lending capacity and economies of scale, others argue that excessive debt to equity Ratio can increase financial risk and vulnerability to economic shocks (Muriithi et al., 2023; Onyango & Olweny, 2022).

The heterogeneity of the Kenyan banking system, which includes major differences in size, business models, and risk appetites among banks, further complicates the ongoing discussion regarding the optimal degree of financial leverage for Kenyan banks. For example, larger banks have a tendency to have higher debt to equity Ratios in comparison to smaller banks; nevertheless, the influence of this difference on financial performance is not quite clear-cut (Kimathi et al., 2021).Given the significant part that the banking sector plays in the development of Kenya's economy and the issues that it is currently facing, there is an immediate and pressing need to gain a more thorough understanding of the relationship between financial leverage and bank performance.

The association between bank performance and debt to equity Ratio has been the subject of several research conducted in Kenya and elsewhere in Africa. A notable inverse relationship between debt to equity Ratio and the performance of the corresponding institutions was found by Thiong'o, Matata, and Kamau (2024) when studying the financial performance of Kenyan commercial banks. However, Kosgei and Rono (2022) discovered that among Kenyan commercial banks listed on stock exchanges, leverage correlates positively with financial success. Similarly, Olulu-Briggs (2024) discovered that financial leverage and the performance of Nigerian banks are positively correlated. Ubeh, Okoye, Nwoye and Amahalu (2024) found that listed banks' financial performance is significantly affected by debt to equity Ratio. There are contextual, methodological, and conceptual gaps because the studies were performed at different eras, used different procedures, and looked at different variables, notwithstanding these results. This study sought to address these gaps by analyzing how debt to equity ratio impacts the financial performance of Kenyan

banks.

Objectives of the Study

The objective of the study was to analyze the effect of debt to equity Ratio on the financial performance of Kenyan banks.

LITERATURE REVIEW

Pecking Order Theory

The Pecking Order Theory was introduced by Myers and Majluf (1984). This theory reflects the principle of minimizing effort or resistance in capital-raising, with equity financing being the least desirable option due to its higher costs and complexities (Brealey et al., 2011). The theory highlights the impact of information asymmetry, where managers, possessing more knowledge about the firm's prospects, prefer financing options that minimize the need to share sensitive information with external investors (Shyam-Sunder & Myers, 1999). This framework has become a cornerstone in corporate finance, providing insights into how companies make financing decisions, and has been extensively examined in empirical research (Fama & French, 2002).

Internal financing, which mostly consists of retained earnings, is at the top of the hierarchy since it is advantageous in terms of cost and has a low level of risk. It is possible for businesses to minimize the costs that are associated with external financing by utilizing their own internal capital. These costs include interest payments on debt and underwriting fees on shares. Additionally, relying on internal funds helps maintain ownership control and avoids the dilution of existing shareholders' equity (Myers, 1984; Jensen, 1986; Fama & French, 2002; Leary & Roberts, 2010). The use of internal funds also signals management's confidence in the firm's future cash flows and financial stability, which can positively impact investor perception and firm valuation (Myers, 1984; Frank & Goyal, 2003; Fama & French, 2005; Shyam-Sunder & Myers, 1999). Debt does not dilute ownership and allows existing shareholders to retain control. However, excessive debt can lead to financial distress and increase bankruptcy risk, which firms aim to avoid (Myers, 1984; Jensen, 1986; Fama & French, 2002; Leary & Roberts, 2010). The decision to issue debt also sends a positive signal to the market, suggesting that management believes in the firm's ability to generate sufficient future cash flows to service the debt (Ross, 1977; Myers, 1984; Frank & Goyal, 2003; Fama & French, 2005).

Moreover, equity financing is considered the least preferred option in the pecking order due to its high costs and negative signaling effects. Issuing new equity can be expensive because of underwriting fees, legal costs, and the potential for underpricing (Myers, 1984; Frank & Goyal, 2003; Fama & French, 2005; Shyam-Sunder & Myers, 1999). Furthermore, issuing equity can signal to the market that management believes the firm's stock is overvalued, leading to a potential decline in stock price (Myers & Majluf, 1984; Myers, 1984; Frank & Goyal, 2003; Fama & French, 2005). This adverse selection problem makes firms hesitant to issue equity unless absolutely necessary (Myers & Majluf, 1984; Myers, 1984; Frank & Goyal, 2003; Fama & French, 2005).

Empirical studies provide mixed evidence on the validity of the Pecking Order Theory. Some studies support the theory; however, other studies suggests that firms do not strictly follow the pecking order, particularly small and high-growth firms, which may rely more on equity financing due to limited internal funds and high debt capacity (Fama & French, 2005; Myers, 1984; Frank & Goyal, 2003; Leary & Roberts, 2010). Critics also argue that the theory does not account for factors such as market timing, agency costs, and the dynamic nature of financing decisions (Baker & Wurgler, 2002; Graham & Harvey, 2001; Myers, 2001; Fama & French, 2005).

The Market Timing Theory argues that firms strategically issue equity when stock prices are favorable and repurchase shares during periods of undervaluation, leveraging market fluctuations to optimize financing outcomes (Baker & Wurgler,

2002; Graham & Harvey, 2001; Myers, 2001; Frank & Goyal, 2003). These contrasting theories provide complementary insights into the factors influencing capital structure decisions. These theories provide alternative perspectives on capital structure decisions, highlighting the complexity and multifaceted nature of corporate financing (Myers, 1984; Graham, 2000; Baker & Wurgler, 2002; Fama & French, 2005).

In practice, the Pecking Order Theory has been observed in various industries and firm sizes. Large, established firms with stable cash flows and substantial retained earnings tend to follow the pecking order more closely, relying heavily on internal funds and conservative debt levels (Myers, 1984; Frank & Goyal, 2003; Fama & French, 2002; Leary & Roberts, 2010). In contrast, smaller, high-growth firms may deviate from the pecking order due to their need for external financing and limited access to internal funds (Fama & French, 2005; Myers, 1984; Frank & Goyal, 2003; Leary & Roberts, 2010). Myers (1984), Graham (2000), Fama and French (2002), and Baker and Wurgler (2002) all agree that a better understanding of the subtleties of the Pecking Order Theory is helpful in explaining the diversity of capital structure decisions that are made across companies and industries.

Empirical Literature Review

Debt-To-Equity Ratio and Financial Performance

A study by Maringka (2024) assessed the influence of return on assets (ROA) and debt-equity ratio (DER) on stock prices, with financial performance, represented by return on equity (ROE), as a moderating variable. The analysis revealed that improved asset profitability was associated with rising stock values, whereas a heavier reliance on debt financing corresponded with declines in share prices. When return on equity (ROE) was applied as a moderating factor, it was found to dampen the influence of asset-based profitability on market valuation. On the other hand, ROE appeared to enhance the effect of financial leverage, making the relationship between debt levels and stock prices both positive and significant under its influence. The study concluded that appropriate financial asset allocation enhances market expectations, leading to higher stock prices. However, asset management in the mining industry did not show an increase in company value as reflected by ROE, which negatively impacted stock prices. The findings suggested that effective management of ROE strengthens the influence of DER on stock prices, highlighting the importance of accurate financial performance assessment in the mining industry.

Martins et al. (2023) assessed the relationship between financial leverage and financial performance was investigated using data from 45 publicly listed Brazilian firms across various industries. The research utilized a multiple regression model to explore the effect of DER on profitability, measured through Return on Assets (ROA) and Return on Equity (ROE). The study found that higher levels of debt financing, reflected by a higher debt-to-equity ratio, had a significant negative effect on both ROA and ROE. This negative relationship was attributed to the increasing financial distress costs that arise with high levels of debt, which constrains the firms' ability to generate profits. Additionally, the study suggested that firms with higher leverage faced difficulties in achieving optimal profitability due to higher interest expenses and the pressure of debt repayment obligations. The results also aligned with the trade-off theory, which posits that while debt can be beneficial in tax shields, excessive debt can harm profitability by increasing financial risk. The researchers concluded that Brazilian firms, particularly those in capital-intensive industries, must carefully manage their debt levels to avoid diminishing returns on equity.

A study by Tan et al. (2022) examined the relationship between financial leverage and firm performance in the Malaysian context by analyzing 100 publicly listed companies from various sectors on Bursa Malaysia between 2015 and 2020. The study employed a dynamic panel data model to assess the effects of DER on profitability and firm

value. The results indicated a statistically significant negative relationship between DER and firm performance, specifically in terms of ROA and Tobin's Q. The study highlighted that companies with high leverage faced increased financial risk, which adversely affected their profitability. This was particularly evident in the manufacturing and service sectors, where debt servicing costs significantly outweighed the benefits of leverage. The authors argued that while debt could potentially increase firm value under optimal conditions, excessive leverage, as reflected by a high DER, led to reduced financial flexibility and efficiency, which, in turn, negatively impacted firm performance. Their findings supported the agency theory, which suggests that the interests of debt holders and shareholders often diverge, leading to inefficient management when debt levels are too high.

A study by Arhinful et al. (2023) explored the impact of capital structure, specifically DER, on the financial performance of 20 Ghanaian financial institutions from 2018 to 2022. Using fixed-effects regression analysis, the study found a significant inverse relationship between DER and ROA, suggesting that as financial institutions increased their reliance on debt financing, their profitability decreased. The authors explained that higher debt levels increased the financial risk for the banks, leading to greater vulnerability in times of economic instability. Furthermore, the study noted that the high cost of servicing debt limited the ability of these institutions to invest in long-term growth opportunities, as significant portions of their earnings were directed towards interest payments. The researchers concluded that financial institutions in Ghana should adopt more conservative capital structures, particularly in times of economic uncertainty, to enhance their long-term profitability and financial stability. The study provided evidence that excessive leverage undermines profitability, especially in developing economies with volatile financial environments.

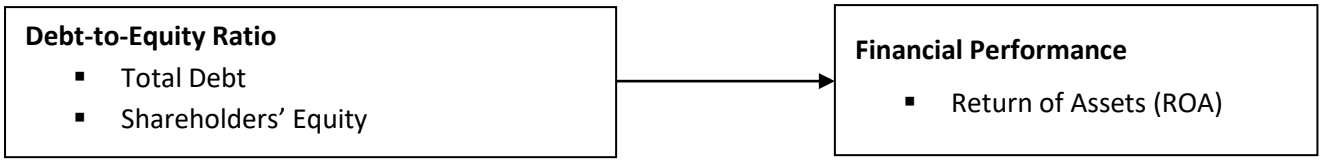
Mwiti and Gitagia (2024) investigated the effect of long-term debt on the financial performance of manufacturing firms listed on the Nairobi Securities Exchange (NSE) from 2015 to 2020. The study used a combination of correlation and regression analysis to assess how DER influenced profitability indicators such as ROA, ROE, and net profit margin. The results showed a statistically significant negative relationship between DER and both ROA and net profit margin, indicating that firms with higher leverage experienced lower profitability. The authors argued that while debt financing can be a useful tool for financing growth, firms in Kenya's manufacturing sector faced substantial challenges in managing high debt levels. The increased interest payments associated with higher DER limited the firms' capacity to reinvest earnings into business expansion and operational improvements. Moreover, the study found that the relationship between DER and financial performance was particularly strong during periods of high interest rates, highlighting the sensitivity of leveraged firms to macroeconomic conditions. The study supported the Pecking Order Theory, which emphasizes that firms prefer to use internal financing before resorting to external debt, and suggested that a more balanced approach to capital structure could help enhance the profitability of Kenyan manufacturing firms.

In Malaysia, Su Yee Kong et al. (2024) examined the relationship between financial ratios and firm efficiency among 30 publicly listed companies across the energy, plantation, and consumer sectors on Bursa Malaysia. The study utilized financial data from recent fiscal years to construct regression models testing the impact of DER, current ratio, total asset turnover, and debt ratio on financial efficiency. The findings revealed that the debt-to-equity ratio had a statistically significant negative influence on firm efficiency. This indicated that firms with higher levels of leverage tended to perform less efficiently, as increased debt servicing obligations constrained their operational agility and resource utilization. While the total debt ratio (debt-to-total assets) showed a positive but

statistically insignificant relationship with efficiency, the study emphasized that the negative implications of a high DER were consistent with the predictions of both agency theory and the resource-based view. The researchers concluded that overly leveraged firms in Malaysia faced challenges in sustaining efficient operations, potentially due to heightened financial risk and limited flexibility in responding to market dynamics.

Conceptual Framework

The Conceptual framework in Figure 1 outlines how the study variable was defined, measured, and analyzed to assess the relationship between debt to equity Ratio and financial performance. It specifies the type of variables, measurement scales, data sources, and applicable analytical methods. This structured approach ensures clarity, consistency, and empirical alignment throughout the research process.



Independent Variables **Dependent Variable**

Figure 1: Conceptual Framework

METHODOLOGY

Important assumptions regarding researchers' worldviews are contained in research philosophy, which is concerned with the growth and character of knowledge (Saunders, Lewis & Thornhill, 2007). When it comes to philosophical debates about truth and knowledge, there are two competing extremes. Two of these schools of thought are phenomenology and positivism, which are alternative names for the same branch of study: induction and deduction, respectively. Focusing on the here and now, phenomenology is a scientific philosophical tradition. In phenomenology, the researcher is open, trusts experience, and begins with the unknown.

A panel research design was utilized for this investigation. In light of the fact that panel data was utilized, the panel study design is the most appropriate. This approach was considered the most suitable for this research in providing information on the operational influence that the variables have. Because it is able to successfully shed light on a perceived problem at any given moment, the panel research design is an appropriate choice for this particular study. This necessitates revealing the relationship between the problem and the solution, which is why it is recommended to appreciate a problem before attempting to find a solution (Saunders et al., 2009).

This study examined all 40 licensed commercial banks operating in Kenya between 2019 and 2023, including 28 locally owned and 12 foreign-owned institutions. The study performed a census of all 40 commercial banks in Kenya, as the population's manageable size obviates the necessity for sampling. Employing a census methodology guarantees an elevated degree of statistical confidence in the results by collecting data from the complete population.

Information about the dependent and independent variables was gathered using the document review guide. Panel data was a part of the secondary data. Data quality and quantity can be significantly improved by combining time series and cross-sections, surpassing what would be achievable with only one of these dimensions alone (Gujarati & Porter, 2003).

The sample data covered the years 2019 through 2023. In order to guarantee that the data collected is accurate, certain filters will be used, as per Mathuva (2015). All items from the financial statements that exhibited indications of not

conforming to reasonable expectations were removed. Each year was considered as having 1% of the observations missing in each tail of the distribution for each variable, due to the numerous influential observations and data mistakes in the panel data that has to be studied (Fama and French, 1998). Such findings are in line with those of earlier research (Faden, 2014).

According to Hsiao (2007), panel data consists of observations on multiple entities over several time periods, making it ideal for examining changes at the individual commercial bank level. This approach provides the ability to establish the time sequence of variables and explore the development of relationships (Frees, 2004). Panel regression analysis is particularly advantageous as it accounts for individual heterogeneity, reducing biases associated with entity-specific effects (Hsiao, 2007). The use of panel data thus ensures more robust results and meaningful insights. Finally, panel data regression enables a comprehensive understanding of the relationships between variables by accounting for temporal and individual-specific factors. The results will be summarized and presented in tabular form to provide a clear and organized depiction of the findings.

RESULTS AND DISCUSSION

Descriptive Statistics

Descriptive statistics describes the quantitative summary measures that describe the basic features of a dataset, providing simple summaries about the sample and the variables involved. Descriptive statistics was necessary in giving overview of the financial leverage indicators and the financial performance of Kenyan banks before conducting further inferential analysis. Table 1 shows the descriptive statistics results.

Table 1: Descriptive Statistics

Variable	Minimum	Maximum	Mean	Std. Deviation
DER	5.527602	9.736155	7.293784	0.881083
ROA	-0.01079	0.031573	0.017599	0.007962

Table 1 shows that between 2019 and 2023, Kenyan commercial banks recorded varying levels of debt-to-equity ratios (DER), with the lowest observed value being 5.527602 and the highest at 9.736155. The average DER was 7.293784, indicating that banks generally depended more on debt than equity to support their operations. This points to a sector characterized by considerable financial leverage. The closeness of DER values across banks suggests a relatively uniform approach to leveraging within the industry.

Trend Analysis

The results of the trend analysis for the variables are shown in this section. The study used trend analysis to determine the variables' trend over time from 2019 to 2023. The trend analysis for DER is displayed in Figure 2.

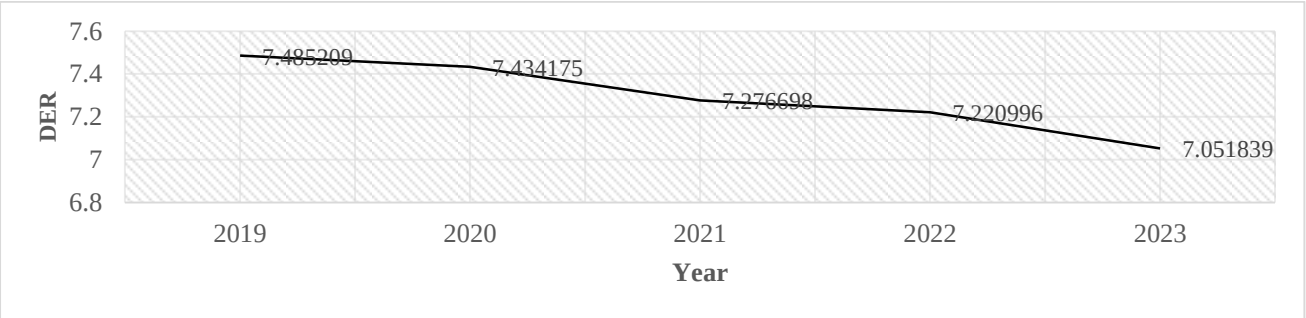


Figure 2: Trend Analysis for Debt-To-Equity Ratio

The trend line results in Figure 2 indicate that the average debt-to-equity ratio (DER) for Kenyan commercial banks was 7.4852 in 2019. It declined to 7.4342 in 2020, before experiencing a sharper drop to 7.2767 in 2021. The decline continued at a slower rate in 2022, where the average DER was 7.2210, and then declined further to 7.0518 in 2023. This downward trend suggests that banks gradually reduced their dependence on debt relative to equity over the five-year period. The consistent reduction in DER implies a change towards more equity-based financing or a controlled management of liabilities. This trend is consistent with financial prudence as it may indicate that banks were becoming more cautious with leverage, possibly in response to regulatory pressures, macroeconomic uncertainties, or strategic shifts towards stability. As supported by Muriithi (2020), optimal capital structure decisions influence risk-return trade-offs, where reducing leverage can safeguard firms from solvency-related volatility.

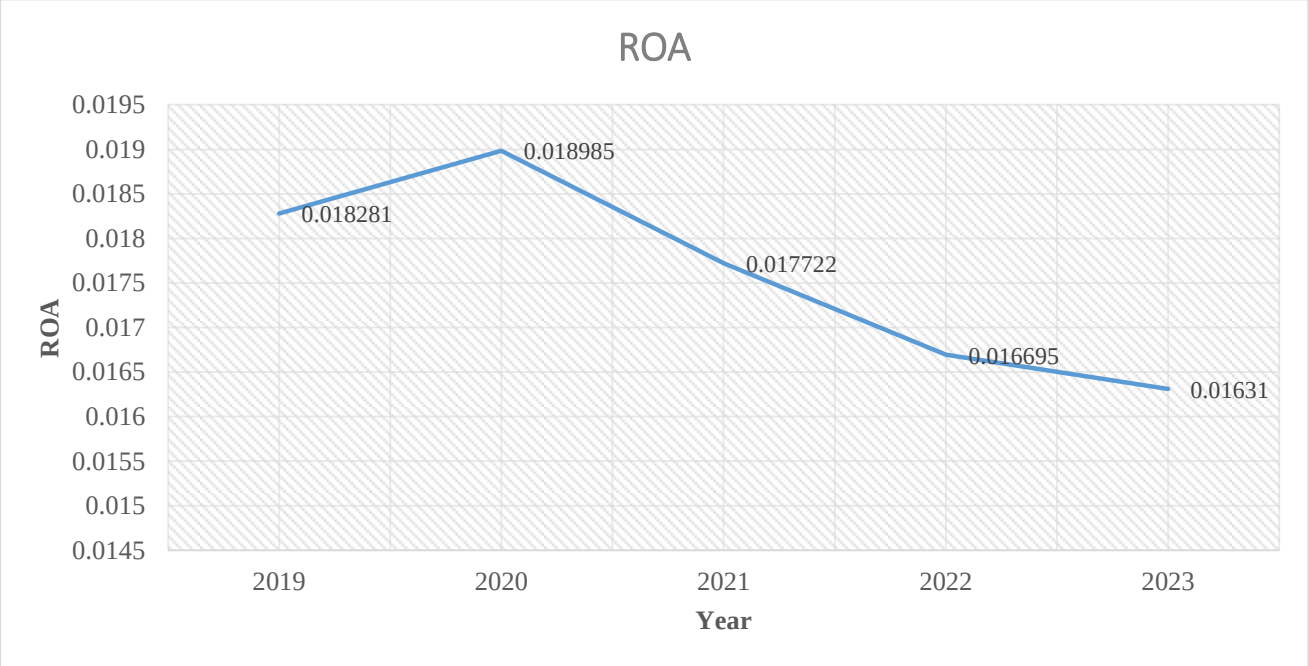


Figure 3: Trend Analysis for Return on Assets

The trend line shows that in 2019, the average ROA was 0.018281, which increased slightly to 0.018985 in 2020 representing the highest value recorded during the period. In 2021, ROA declined to 0.017722, followed by a continued drop to 0.016695 in 2022 and further down to 0.016310 in 2023. The trend demonstrates a slightly erratic but overall downward movement in profitability across the banking sector. While there was a marginal improvement in 2020, the consistent decline from 2021 to 2023 suggests mounting challenges to bank profitability. These could be attributed to increased operating costs, narrowing interest margins, credit risk impacts, or external shocks such as economic slowdowns and regulatory tightening. According to Athanasoglou et al. (2008), a bank's profitability is influenced by internal efficiency and macroeconomic stability. The observed decline in ROA implies a general gradual reduction in earnings from asset deployment.

Correlation Analysis

The study variables and the nature and magnitude of their association with ROA are displayed in Table 2, which also contains the correlation matrix.

Table 2: Correlation Matrix

	ROA	DER
ROA	1.0000	
DER	-0.5632*	1.0000

There existed a negative and significant correlation between the debt-to-equity ratio (DER) and profitability (ROA), with a coefficient of -0.5632. An increase in DER, indicative of more financial leverage, results in diminished profitability. This finding is consistent with the findings of a study by Maringka (2024) who found that DER had a negative and significant effect on stock prices, implying poor investor perception of excessive leverage. Similarly, Mugun et al. (2019) observed a weak but negative correlation between DER and ROA in Kenyan microfinance institutions, emphasizing the importance of maintaining a balanced capital structure.

CONCLUSIONS AND RECOMMENDATIONS

The Debt-to-Equity Ratio showed considerable spread, with some institutions maintaining low reliance on debt while others operated with much higher levels of debt relative to equity. The average stood at 5.7209, pointing to a generally high dependence on borrowed funds. Results on ROA displayed moderate profitability across the sample, with values ranging from slight losses to modest returns, and an overall average of 0.0213701.

The study in addition utilized a Pearson correlation matrix in addition to the descriptive statistical findings. The results showed that ROA was strongly and adversely linked with DER (-0.5632), According to these findings, the return on assets decreases as different types of debt grow, indicating that relying too much on debt financing reduces profitability.

The results demonstrated that DER had a negative and statistically significant influence on ROA, with a coefficient of -0.019840 ($p = 0.001$). These results add weight to the argument that banks' reported returns on assets are lower when their leverage ratios are higher, whether that's relative to equity, total assets, or long-term obligations. This lends credence to the idea that banks' profitability can be eroded by increased financial risk and the interest burdendy period caused by excessive borrowing.

The findings reveal that overall debt levels relative to banks' capital structures have a significant impact on their financial performance. When banks rely heavily on borrowed funds to finance operations, their profitability tends to decline, likely due to the increased cost of servicing debt and the heightened exposure to financial risk. This relationship highlights the delicate balance that institutions must strike between utilizing debt for growth and safeguarding their returns. Excessive dependence on leverage can strain earnings and reduce the flexibility needed to respond to market fluctuations or regulatory pressures. Therefore, the study emphasizes the importance of adopting prudent financial strategies that optimize leverage use without compromising long-term stability and performance. Ensuring a well-structured approach to debt management is crucial for maintaining resilience and achieving sustainable growth in the banking sector.

Commercial banks in Kenya should consider adopting prudent financial leverage strategies to enhance their financial performance. Bank management should avoid excessive reliance equity-based debt structures due to their adverse impact on profitability. Instead, a balanced financing approach that optimizes debt utilization without compromising asset returns should be emphasized. Additionally, banks should explore avenues for internal financing and revenue diversification to reduce dependence on external borrowings.

Future research should consider extending the model by incorporating additional explanatory variables such as cost of capital, interest coverage ratios, or liquidity indicators to capture a broader spectrum of financial performance drivers.

Moreover, comparative studies between Kenyan banks and those in other regions, especially within East Africa, would be useful in understanding regional leverage-performance dynamics. Lastly, future studies should incorporate moderating or mediating variables such as regulatory reforms, macroeconomic conditions, or digital transformation levels to enrich the explanatory power of the model and uncover deeper insights into how leverage interacts with institutional and external environments to shape bank performance.

This study established that the financial leverage measures assessed did not account all the changes observed in the outcome variable, implying that more than half of the differences in return on assets can be attributed to other factors not captured within the current model. Therefore, future studies should consider incorporating additional internal and external variables to build a more comprehensive model of bank profitability and find out the variables responsible for the remaining percentage in variation. These may include macroeconomic factors such as interest rates, inflation, and GDP growth; institutional variables such as corporate governance structures, board composition, and managerial competency; and strategic variables such as income diversification, technological adoption, customer satisfaction, and digital banking efficiency.

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