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Financial Leverage and Financial Performance: The Mediating Role of Financial Distress: Evidence from Firms Listed in East African Community Exchange Markets

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Abstract

This study examined the mediating role of financial distress on the relationship between financial leverage and financial performance of firms listed on East African Community exchange markets. The study utilized explanatory and longitudinal research designs with the guidance of a positivist research philosophy. The study targeted 112 listed firms on the East African Community exchange markets. After applying inclusion and exclusion criteria, the study focused on 48 firms for a span of 10 years from 2015 to 2024, yielding 480 observations. Financial leverage was positively related to financial distress (b = 8.390, 95% CI [4.468, 11.214], p <.001) and negatively related to financial performance directly (b = -0.226, 95% CI [-0.293, -0.175], p <.001). Financial performance was positively related to financial distress (b = 0.011, 95% CI [0.008, 0.015], p < .001). The indirect effect was positive (0.093, 95% CI [0.044, 0.146], p <.001) and in the opposite direction of the direct effect, indicating competitive mediation. The total effect was negative on financial performance (-0.133, 95% CI [-0.211, -0.073], p < .001).These findings highlight that manager should weigh the cost of additional leverage against the returns it generates, especially where liabilities already approach total assets. The results also bring attention to management on redirecting their focus to financial leverage by maintaining adequate liquidity buffers, proactive covenant and refinancing management, and continuous internal monitoring of the firm's asset-to-debt ratio, which can cushion the mechanism through which excessive financial leverage adversely affects financial performance.

Keywords: *Financial Performance; Financial Leverage; Financial Distress; East African Community Exchange Markets*

1. Introduction

Financial performance is a tool for measuring firms' current development and potential growth (Le Thi Kim et al.,2021). It involves assessing a firm's financial weaknesses and strengths (Chelogoi, 2020; Ndirangu, 2017). It is widely regarded as the cornerstone of the company's financial health and performance (Matar & Eneizan, 2018). Ichsan et al. (2021) present financial performance as a measuring instrument that helps implement the firm's financial resources. A firm's ability to effectively and efficiently utilize resources is reflected by its high financial performance. Bartolacci et al. (2020) emphasize that financial performance is a crucial component of a firm's overall performance and significantly impacts the management of business operations. However, in the current rapidly changing world, ineffective financial performance has become a significant

concern among listed firms across the globe. Thus, it results in significant drift in the supporting key pillars of economic growth and commitment policies such as the United Nations Sustainable Development Goals (SDGs), particularly SDG 8 decent work and economic growth, SDG 9 industry, innovation and infrastructure, as well as SDG 16. Gu et al. (2023) supported this assertion by outlining that financial loss reporting has increased significantly in developed economies, primarily the United States and European Union exchange markets, in the erstwhile, particular two -three decades, with statistics showing about 50% of US public firms and 70 % of science-based and high-tech firms have reported losses in recent years.

Despite the significant growth of developed financial markets, a substantial number of firms delist, mainly due to financial performance issues (Baxamusa & Jalal, 2023; Davydiuk et al., 2020; Magni et al., 2022). For instance, in the United States, various listed corporations on the NYSE decreased by 15.28% mainly because of poor financial performance. Gelter and Thel (2024) indicated that about 112 companies were delisted from NYSE and 115 from the National Association of Securities Dealers Automated Quotations (NASDAQ) in 2019, due to failure to maintain consistent financial performance, among other reasons (Srivastava et al., 2024). In Japan, a total of 94 corporations have been removed from the list of the Tokyo Stock Exchange (TSE), marking the highest number since 2014. The surge was primarily driven by a growing rate of poor financial performance.

The Johannesburg Stock Exchange (JSE) is the largest in Africa and ranks as one of the top global financial markets by market capitalization (Mekwa, 2024). Despite its crucial role in the African context, firms listed on this stock exchange face financial difficulties, leading to either voluntary or involuntary delisting. Mekwa (2024) reveals that approximately 28% of listed companies on the JSE were delisted between 2012 and 2022 due to consistently poor financial performance. Lansdell et al. (2025) further reported that approximately 302 firms were delisted from the JSE between 2010 and 2023 due to financial health issues, among other underlying issues.

The financial performance of listed firms in developing economies, including the East African Community capital markets, which comprise five operational stock exchanges, Nairobi Securities Exchange, Uganda Securities Exchange, Dar es Salaam Stock Exchange, Somalia Stock Exchange, and Rwanda Stock Exchange, in Kenya, Uganda, Tanzania, Somalia, and Rwanda, respectively, serves as a fundamental barometer of overall economic progress and market stability (EAC, 2026). It reflects not only firm-level efficiency, profitability, and governance structures, but also the broader institutional environment, such as regulatory quality, investor protection, and financial infrastructure. Generally, the Central Bank of Kenya (CBK) report on financial stability in 2023 revealed that the Nairobi All Share Index (NASI), NSE 20, and market capitalization, as a reflection of listed firms' performance, declined by 11.9%, 23.4%, and 23.4%, respectively, in 2022 compared to 2021. Consistently, further declines of 6.0%, 16.1%, and 16.1% were reported for NASI, NSE 20, and market capitalization in 2023. Additionally, the total equity turnover declined by 31.7% in 2022 compared to 2021.

Furthermore, Mbabazi and Kihooto (2022) reported that RSE is not growing at the expected rate in Rwanda, despite government support, due to financial issues. In Uganda, firms present inconsistent performance. For example, Uganda Clay Limited reported a 26% decrease in revenue, resulting in a 54% decline in gross profit (USE, 2023). British American Limited is included in this decline, as evidenced by 15% and 18% decreases in gross revenue and profit before tax, respectively, in mid-2025 (USE, 2025). The deficiency of listed firms in financial markets in

recent years is a consequence of poor financial performance, contrary to stakeholders' interests (Shikumo et al., 2023), and has adversely affected the economic growth and development of emerging economies (Gathara, 2019). Odhiambo et al. (2022), who examined listed firms on the NSE, reported that financial performance is essential to corporate survival and prosperity. The authors noted that using financial leverage can bolster financial performance but might accelerate financial distress if not properly managed. Therefore, these arguments motivated researchers to investigate the effect of financial leverage on the financial performance, mediated by financial distress of corporations listed on the East African Community exchange markets.

2. Literature Review

2.1 Theoretical Review

The trade-off theory was established by Kraus & Litzenberger (1973). It holds that firms balance the tax benefit of leverage against the cost of financial distress and agency conflict. Moderate financial leverage can raise financial performance through the interest tax shield, but beyond some points, the expected cost of distress and agency costs erode it (Chen, 2020). When distressed firms cannot meet their obligations, control may pass from shareholders to creditors (Arhinful & Radmehr, 2023). Therefore, Trade-off theory implies two major concerns: that leverage raises financial distress and distress, in turn, lowers financial performance. This sequence informs the mediation pathway of the current study. Conversely, the pecking order theory highlights that firms prefer internal financing and turn to leverage when retained earnings are insufficient (Frank et al., 2020). Debt then reflects a financing deficit, and high leverage can indicate weak internal resources, which is a precursor to distress. Therefore, this supports the argument of trade-off theory on the leverage-to-distress link.

Credit risk theory, formalized by Robert C. Merton in 1974, views a firm's equity as a call option on its assets, defaulting when the asset's value falls below the face value of debt. Higher leverage for a given asset volatility reduces the buffer between the asset value and the debt and increases the probability of default. Financial distress is often defined as a firm's inability to fulfill its financial obligations due to inadequate income (Che et al., 2024) and as a risk of insolvency (Suffian et al., 2023). Dirman (2020) and Suffian et al. (2023) argued that financial distress can be predicted or arise due to numerous determinants, including elevated levels of debt. This negatively impacts financial performance (Madhushani & Kawshala, 2018; Rubab et al., 2022; Wu et al., 2020). Merton's model is market-based and requires estimates of asset value and volatility, which are hard to obtain on thinly traded East African exchanges. This study therefore uses the Altman Z-score of 1995, a proxy for proximity to default based on accounting information. This covers its components (working capital, retained earnings, EBIT and equity relative to liabilities), which each provide a buffer against asset value decline, so a lower score signals a higher probability of distress. The construct is therefore financial distress, and it is measured by the Altman Z-score.

Deriving from the foregoing debate, observations affirm that the existing body of knowledge is limited in providing an integrated model that comprehensively defines the interrelationships among financial leverage, financial distress, and financial performance, particularly within developing economies such as EAC. Therefore, this study aimed to fill the existing knowledge gaps by addressing the weaknesses of individual theories, trade-off theory and credit risk theory, through integrating them while introducing new concepts, such as financial distress, to explain the relationship between financial leverage and financial performance using advanced research methodologies.

2.2 Empirical Review

2.2.1Financial Leverage and Financial Performance

Financial leverage is crucial in predicting the financial performance of a firm, since stakeholders use leverage ratios to gauge the financial well-being of a company and evaluate its sustainability (Abid et al., 2024). Financial leverage supports an organization's investment activities, thereby improving financial performance (Ben Moussa & El Feidi, 2023). Further, financial performance is primordial for enhancing the firm's growth and satisfying shareholders' needs (Ben Moussa & El Feidi, 2023). Given the significance of the interaction between predictor and outcome variables, many researchers have explored the direct effect of financial leverage and financial performance in various contexts. These studies have produced mixed predictions and contradicting findings. For instance, Arhinful and Radmehr (2023) explored how financial leverage influences the financial performance of non-financial institutions listed on the Tokyo Stock Exchange in Japan. The study analyzed 263 non-financial companies from 2001 to 2021. It revealed that certain leverage indicators, including equity multiplier and interest coverage ratio, had positive, statistically significant impacts on ROA, ROE, Tobin's Q, and earnings per share. Conversely, other measures, such as the degree of financial leverage and debt-to-earnings before interest, taxes, depreciation, and amortization, negatively but significantly affected performance. Arhinful and Radmehr (2023) concluded that the use of debt influences financial performance; thus, firms are emboldened to utilize debt over equity due to the advantages derived from debt financing. However, researchers discourage the overuse of debt, as it may cause shareholders to lose their rights.

Similarly, Kalash (2023) assessed the impact of financial leverage on financial performance in Turkey. They employed panel data sourced from 200 listed corporations on the Istanbul Stock Exchange from 2009 to 2019. They discovered that financial leverage negatively and significantly affects financial performance. Mutumanikam and Adelin (2024) further reported a nuanced link between financial leverage and performance of publicly listed firms in Indonesia, India, and Brazil. In another study in China by Chen (2020), findings depicted that financial leverage has a negative and significant impact on the ROA of firms listed on the Shanghai and Shenzhen Stock Exchanges from 2010 to 2019.

Moreover, Ofulue et al. (2022) studied the influence of financial leverage on the financial performance of quoted industrial goods corporations in Nigeria across 13 years (2008-2020). The study specifically examined how the debt-to-equity ratio, short-term debt ratio and long-term debt ratio relate to cash value added (CVA), using panel data from 14 sampled firms. The research was anchored by agency theory and revealed that debt-to-equity and long-term debt ratios have a significant and negative link with CVA. Also, the short-term debt ratio demonstrated a significant and positive link with CVA. The study advocated that firms carefully manage their debt obligations to minimize financial risks and enhance profitability through better asset and liability management.

2.2.2 Financial Leverage and Financial Distress

The 2008 financial crisis that impacted nations globally was clear evidence of financial distress linked with high levels of financial leverage (Aliber & Zoega, 2019). It led to the failure of hundreds of firms in Great Britain, US, Ireland, Spain, Germany, Belgium, Netherlands, and the consequences spread even to developing economies (Aliber & Zoega, 2019; Kibe et al., 2023; Felipe & Estrada, 2020). Scholars were motivated to investigate how financial leverage influences

financial distress. For example, a study conducted in the US restaurant industry by Lee et al. (2011) connected the link between financial distress and financial leverage, employing capital intensity as a moderator, demonstrating the negative but significant effect of financial leverage on financial distress. This study utilized pooled regression analysis in examining data collected from 1990 to 2008. The scholars in the reviewed research noted that financial leverage is a crucial marker of financial distress. Conversely, Wangsih et al. (2021) conducted research on retail trade sub-sector enterprises listed on the Indonesian Stock Exchange from 2016 to 2020. They discovered that financial leverage significantly and positively affected financial distress. Similarly, Hermuningsih et al. (2022) explored manufacturing concerns listed on the Indonesia Stock Exchange from 2011 to 2021. With the aid of Structural Equation Modeling (SEM) analysis, this research reported that financial leverage significantly and positively affected financial distress, implying a higher likelihood of financial distress, particularly when a firm utilizes higher levels of leverage. The scholars concluded that an increase in leverage is associated with a high-risk level that an organization must tackle. This signals the firm's inability to fulfill its financial commitments, thereby increasing financial distress. This is substantiated by the argument of Maiyo et al. (2025).

The investigation by Lucky and Michael (2019) on how financial leverage influences corporate financial distress among 15 listed manufacturing companies in Nigeria from 2008 to 2016 demonstrated a significant relationship. In comparison, Ufo (2015) studied the impact of leverage and financial distress of selected manufacturing concerns in Ethiopia from 1999 to 2005. General least squares regression was used to analyze the data. The findings from the investigation revealed that leverage negatively but significantly affected financial distress. Other investigations have yielded akin evidence on this aspect (Erawati et al., 2025; Luspratama et al., 2023; Setyadhy & Yolanda, 2024).

In the context of the East African Community exchange markets, Yegon and Koske (2018) evaluated the impact of financial leverage on the likelihood of financial distress among 40 publicly quoted corporations on the Nairobi Securities Exchange (NSE) in Kenya. A secondary dataset was collected from 2006 to 2015 and analyzed using a panel regression model. The findings demonstrated that financial leverage positively and significantly affects financial distress. Additionally, a study by Maiyo et al. (2025) reported similar findings.

With respect to the extensive review of previous studies, the evidence suggests that limited research has been carried out regarding the link between financial leverage and financial distress in the East African Community, especially in the exchange markets of Kenya, Uganda, Tanzania, and Rwanda. Thus, the study contributed new knowledge to the existing literature in the context of EAC by examining the impact of financial leverage on financial distress.

2.2.3 Financial Distress and Financial Performance

Financial distress occurs when a firm experiences financial challenges affecting its usual operations and potentially leads to bankruptcy proceedings in the event of insolvency. It affects a firm's performance efficiency (Ahmad et al., 2020) and raises the probability of bankruptcy, adversely affecting stakeholders' resources (Nelson & Squires, 2017). It may result in a firm's inability to meet its obligations or an attempt to restructure its debts to avoid default (De Mel & Buddhika, 2025; Islam et al., 2023; Madhushani & Kawshala, 2018). Additionally, financial distress is a critical issue in nearly all financial markets, negatively affecting firms' financial performance and ultimately leading to their failure (Madhushani & Kawshala, 2018). Islam et al. (2023) examined accounting comparability and financial distress of US firms. They argued that

firms threatened by financial distress may forego valuable investments, such as promising research and development and profitable capital budgeting, which affects their future financial performance. Thus, due to the high rate of corporate failure resulting from poor financial performance, which is often explained by financial distress, scholars have been prompted to place greater emphasis in a global context on understanding how financial distress relates to financial performance.

Furthermore, Jahan and Kabir (2019) researched the influence of financial distress on the financial performance of non-bank financial institutions (NBFIs) quoted on Dhaka Stock Exchange in Bangladesh, utilizing data from 20 NBFIs over five years (2013–2017). Findings showed a surge in distressed NBFIs, demonstrating that financial distress significantly influences financial performance. Similarly, Boachie (2025) reported a significant effect on the relationship between financial distress and performance of selected rural banks in the Ashanti Region, Ghana. From the literature review, the evidence suggests that no studies have focused on investigating the effect of financial distress on financial performance in the context of publicly quoted corporations on the EAC exchange markets.

2.2.4 Mediating role of Financial Distress on the Link between Financial Leverage and Financial Performance

Most scholars have explored the direct effect of financial leverage on financial performance in various contexts (Abid et al., 2024; Ben Moussa & El Feidi, 2023; Kalash, 2023; Shaikh et al., 2022; Towo, 2023). The critical analysis of several studies has shown that some scholars (Arhinful & Radmehr, 2023; Ben Moussa & El Feidi, 2023) reported a positive and significant relationship between various proxies used to measure variables, while others (Abid et al., 2024; Chen, 2020; Ofulue et al., 2022) reported a negative but significant relationship between financial leverage and financial performance matrices. Consequently, Aaron (2023) established that financial leverage has an insignificant effect on ROA. The above studies show variation in their findings; perhaps this could be attributed to the indifference in the proxies used to measure financial leverage and financial performance, and the study's context.

In addition, other scholars (Ahmad et al., 2020; De Mel & Buddhika, 2025) have analyzed the direct relationship between financial distress and financial performance, while others, such as Lucky and Michael (2019), have examined the direct effect of financial leverage on financial distress. Due to inconclusive findings and the direct effects reported between these variables in prior studies, this new study creates an opportunity to assess the effect of financial leverage on financial performance via financial distress.

Various studies have utilized financial distress as a mediator in different outcome and predictor variables. For instance, Muhmad et al. (2024) used financial distress as a mediator to explore the relationship between capital intensity and ROA towards corporate tax avoidance. The study reports that financial distress partially mediated the link between the variables. In comparison, Shahid (2025) conducted a study among quoted non-financial firms listed on the PSX and found that financial distress fully mediates the connection between capital structure and firm value. Dewi et al. (2021) further examined the mediating role of financial distress on the direct effect among profitability, firm value, and liquidity in Indonesian manufacturing companies, and they discovered that financial distress fully mediates the relationship. In addition, Rabiu et al. (2023) researched non-financial firms in Nigeria, and the results showed that financial distress partially mediates how profitability relates to firm value.

Despite various studies supporting the role of financial distress as a mediator, there is limited knowledge on the indirect effect of financial leverage on performance through financial distress. Thus, researchers utilized financial distress as a mediator in the relationship between financial leverage and financial performance in this study. There are several compelling reasons why financial distress serves as a crucial mediator in this relationship. First, trade-off theory postulates that companies consider the tax advantages of borrowed funds alongside the costs associated with financial distress (Kraus & Litzenberger, 1973), which is further supported by Abel (2018). The interest payment on debt is tax-deductible, hence increasing financial performance. However, a leverage increase enhances the chances of financial distress (Ai et al., 2020; Misrah & Arifin, 2024). Higher leverage is marked by a greater reliance on debt financing, which inherently increases a company's fixed financial obligations, primarily in the form of interest payments and principal repayments (Misrah & Arifin, 2024).

Besides financial leverage amplifying returns on equity during favorable economic conditions (Misrah & Arifin, 2024), leverage simultaneously elevates the financial distress risk, particularly when a firm faces operational challenges or adverse economic shocks (Arhinful & Radmehr, 2023). This state of distress, therefore, becomes the mechanism through which high leverage translates into poor financial performance (Farooq et al., 2023). The costs linked with financial distress, such as administrative and legal expenses, loss of customer confidence, and the inability to secure favorable financing terms, directly erode profitability and hinder overall financial performance (Farooq et al., 2023). In light of the previous work reviewed, the researchers noted that the influence of financial leverage on financial performance could be transmitted through the financial distress.

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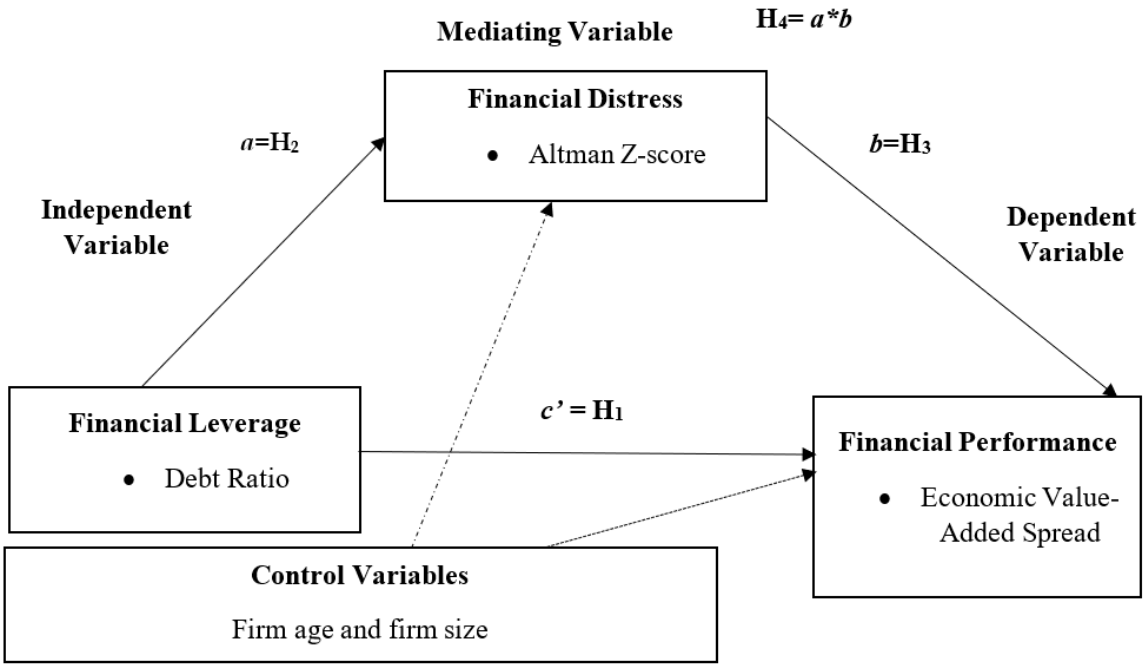


Figure 1: Conceptual Framework

Source: Adopted from Andrew Hayes 2022 model 4 with modifications

3. Methodology

3.1 Research philosophy and Designs

The study employed positivism philosophy; based on this philosophy, the researchers seek to evaluate empirical evidence independently of personal values. Mwita (2024) argued that knowledge is derived from observed facts and empirical evidence under the positivism philosophy, and that these facts can be generalized. Explanatory and longitudinal research designs were adopted to inform the study. The explanatory research design was considered appropriate because it explains the cause-and-effect relationship between variables. It also guides researchers who investigate a topic that has not been examined before or has not been appropriately explained, and requires priorities to produce a clear explanation and provide a better-researched model (Ansari et al., 2022). A longitudinal research design was used because the study employed secondary firm-level data observed over multiple years (Wu & Jia, 2021) from 2015 to 2024.

3.2 Target population, Inclusion and Exclusion Criteria

The study focused on 112 publicly quoted corporations trading in EAC exchange markets, which are publicly traded on national stock exchanges like the Nairobi Securities Exchange (NSE) in Kenya, the Uganda Securities Exchange (USE), the Dar es Salaam Stock Exchange (DSE) in Tanzania, Somali Stock Exchange (SSE), and Rwanda Stock Exchange (RSE) (EAC,2025). To ensure precise inclusion and exclusion criteria, the study focused on firms that were active, listed, and operational for 10 years, from 2015 to 2024; thus, firms were retained if they were continuously listed within the study period and had complete annual report data for every study variable in every year. Moreover, the study excluded financial sector firms because their leverage and capital structures operate under fundamentally different regulatory, risk, and reporting

environments compared to non-financial firms (Maina et al., 2018), and the issue of poor financial performance is not predominant. After applying inclusion and exclusion criteria, out of 112 firms, the study focused on 48 firms for 10 years, resulting in 480 observations, as shown in Table 1. This study relied exclusively on secondary data obtained from the EAC Securities Exchanges Markets database, African Exchanges, firms' websites, central banks and the African Financials database.

Table 1: Inclusion and Exclusion Criteria

Exchange Markets	Targeted Firms	Excluded firms	Included Firms
Nairobi Securities Exchange	64	29	35
Dar es Salaam Stock Exchange	22	14	8
Uganda Securities Exchange	11	7	4
Rwanda Stock Exchange	6	5	1
Somali Stock Exchange	9	9	0
Total	**112**	**64**	**48**

3.3 Measurement of Variables

Financial performance, as an endogenous variable, refers to a firm's ability to effectively utilize its resources and manage its operations to generate revenues, profits, and value for its stakeholders over a specified period (Bach, 2024). It remains a critical measure of a company's overall financial health, efficiency, profitability, and sustainability. This study used the Economic Value Added (EVA) spread as an indicator for financial performance. EVA spread is also seen as an economic return or value spread (de Wet, 2005; Fang & Guo, 2025; Huaman-Roque et al., 2025). EVA spread is a financial performance metric used to examine the excess value of economic profit over invested capital. EVA spread, or value spread, is given as Return on Capital Invested (ROIC) minus Weighted Average Cost of Capital (WACC) (Eugster & Wagner, 2020; Huaman-Roque et al., 2025; Leitner & Olofsson, 2025).

Further, financial leverage served as an independent variable in this new research. It involves using debt to fund a firm's assets and operations (Abubakar & Anyonje, 2025). It affects the firm's risk and return. The financial leverage measures help assess a company's extent of using loaned funds in relation to its equity and assets. Thus, researchers utilized the debt ratio as a measure of financial leverage, as used by Iqbal et al. (2022). The debt ratio is a key metric of financial leverage; it shows how much of the firm's assets are funded through debt rather than retained earnings (Zhou et al., 2021). The debt ratio was determined by dividing total liabilities by total assets.

This research utilized financial distress as the mediator. A firm's inability to settle its financial obligations is referred to as financial distress (Abdelkader & Wahba, 2024). Financial distress, therefore, is the degree to which a business enterprise experiences a significant deterioration in its financial health, typically characterized by the inability to settle its obligations. Financial distress

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was measured with the Altman et al. (1995) Z-score for emerging markets, where Z-score = 3.25 + 6.56X_1 + 3.26X_2 + 6.72X_3 + 1.05X_4, where X_1 is working capital/total assets, X_2 is retained earnings/total assets, X_3 is EBIT/total assets, and X_4 is book equity/total liabilities. The constant of +3.25 was added to the Z-score model for non-manufacturers to suit emerging economies (Rashid et al., 2023). It also accommodates various firms, including manufacturing and non-manufacturing companies (Rohim et al., 2024). On the original scale, scores above 5.85 indicate the safe zone, 4.35 to 5.85 the grey zone, and below 4.35 the distress zone (Sánchez-Almeyda et al., 2025).

The study controlled for firm age and size. These variables were controlled because previous studies have confirmed that firm size and firm age have a significant effect on financial performance (Agoraki et al., 2023; Yusuf & Yahaya, 2023), while other studies, such as that of Isayas (2021), have revealed that firm size and age have a statistically significant effect on financial distress. This study adopted a natural log of the number of years to measure firm age (Ahinful et al., 2023; Haykir & Çelik, 2018; Iman et al., 2022), while firm size was measured using a natural log of total assets (Pandey, 2026; Wali Ullah et al., 2026).

3.4 Analytical Procedure

The mediation hypotheses were tested with an observed-variable path analysis in which the mediator and the outcome were modelled simultaneously as shown in the model specification below.

$$FDL_{it} = \alpha_1 + a\, FL_{it} + \gamma_1\, lnFAge_{it} + \gamma_2\, lnFSize_{it} + \varepsilon_{1it}$$

$$FP_{it} = \alpha_2 + c'\, FL_{it} + b\, FDL_{it} + \gamma_3\, lnFAge_{it} + \gamma_4\, lnFSize_{it} + \varepsilon_{2it}$$

where i indexes firms and t years, path a is the relationship between leverage and financial distress (H_2), path b is the relationship between financial distress and performance holding leverage constant (H_3), and path c' is the direct relationship between financial leverage and performance (H_1). The indirect effect is the product $a \times b$ (H_4), and the total effect is ($c' + a \times b$).

For model estimation and fit, the model was estimated by maximum likelihood with the lavaan package (version 0.7-3) in R (Rosseel, 2012). Each construct is represented by a single observed variable, so there is no measurement model, and the analysis is a path analysis within a structural-equation framework. This framework estimates both equations jointly and defines the direct, indirect and total effects as functions of the estimated paths, so that their estimates come from the same resampling procedure. Model adequacy was judged by the explained variance (R^2) of the mediator and outcome.

The observations from the same firm are not independent, and treating the 480 firm-years as independent would understate standard errors. Standard errors and confidence intervals were therefore obtained from a firm-level cluster bootstrap. In each of 5,000 resamples, 48 firms were drawn with replacement from the sample and all ten years of each drawn firm were retained. All paths, the indirect effect and the total effect were re-estimated in each resample. The reported standard errors are the standard deviations of the bootstrap estimates; the 95% confidence intervals are percentile intervals (2.5th and 97.5th percentiles. The effect was treated as statistically significant when its 95% confidence interval excluded zero. Standardized estimates (β) were obtained by standardizing all variables before estimation, within each resample for the intervals. The mediation pattern was classified using the signs and significance of the indirect effect and the direct effect (Zhao et al., 2010). Where both are significant and have the same sign, the mediation

is complementary. Where both are significant and have opposite signs, it is competitive or inconsistent mediation (MacKinnon et al., 2000).

4. Results

4.1 Descriptive Statistics

Table 2 summarizes the study variables for the balanced panel of 48 firms observed over 2015 to 2024. All 480 observations were complete for every variable. Financial performance (FP) is the EVA spread, defined as ROIC minus WACC and expressed as a decimal ratio, so a value of -0.0305 means ROIC fell 3.05 percentage points below the cost of capital. FP averaged -0.0305, ranging from -0.3462 to 0.2894 (-34.62 to 28.94 percentage points). A negative mean implies that, on average, firm-years earned less than their cost of capital (Huaman-Roque et al., 2025), although the wide range indicates large differences across firms and years. Financial leverage (FL) averaged 0.5320 with a range of 0.1409 to 1.2124, indicating significant variation in the degree to which firms are dependent on liabilities, with some firms having liabilities higher than their asset base, resulting in negative book equity, with a debt ratio greater than one. Financial distress (FD), measured by the Altman Z-score, is a unitless index. The mean of financial distress was 5.3408, with the range of -2.6096 to 14.4151, evidencing that there was considerable heterogeneity in the financial conditions of firms, with most of the firms within the grey zone of 4.35 to 5.85. The values of the logarithm of firm age (InFAge) ranged from 2.9444 to 4.7274. The values of firm size (InFSize) ranged from 20.7691 to 26.9203. The total variation observed indicates substantial differences among the sampled firms in terms of leverage level, financial condition, age, size, and performance that provide sufficient variability for subsequent empirical analysis.

Table 2: Descriptive Statistics Results

Variables	N	Mean	SD	Min	Max
FP	480	-0.0305	0.1063	-0.3462	0.2894
FL	480	0.5320	0.2861	0.1409	1.2124
FD	480	5.3408	5.0328	-2.6096	14.4151
InFAge	480	4.0088	0.5007	2.9444	4.7274
InFSize	480	23.7406	1.9067	20.7691	26.9203

4.2 Correlation results

Table 3 results establish that financial leverage had a negative but significant relationship with financial performance ($r = -0.2474$, $p < 0.05$). This reveals that higher financial leverage levels are associated with lower financial performance of the firms listed in the EAC exchange markets. The findings support the concept that excessive reliance on leverage financing raises financial obligations and financial risk, consequently lowering overall performance. Recent studies have produced concurring evidence (Abubakar & Anyonje, 2025; Marozva, 2026; Odhiambo et al., 2025) investigating the association between financial leverage and financial performance in

developing markets. There was a negative and significant association between financial distress and financial performance ($r = -0.3048$, $p < 0.05$). Hence, firms with a higher financial distress tend to have inferior financial performance. This concurs with evidence by Mpora et al. (2025), who argued that heightened financial distress erodes firms' financial performance. Table 3 results are indicative of the positive correlation between financial performance and firm size ($r = 0.4299$, $p < 0.05$), suggesting that larger enterprises tend to record better financial performance. Thus, the results establish that bigger firms listed on the East African Community exchange markets can take advantage of economies of scale, stronger market positions, and better access to financial resources (Mutumanikam & Adelin, 2024), which bolster financial performance quantified by the economic value-added spread. The result is coherent with the arguments of Karugu et al. (2020) and Mutumanikam and Adelin (2024) that the size of a firm is the main contributing factor to the firm's financial performance. On the other hand, firm age had an insignificant association with financial performance, suggesting that the age of a firm does not reveal high performance.

Table 3: Correlation Results

	FP	FL	FDL	Firm Size	Firm Age
Financial Performance	1.0000				
Financial Leverage	-0.2474*	1.0000			
Financial Distress	-0.3048*	-0.5794*	1.0000		
Firm Size	0.4299*	0.1791*	-0.4149*	1.0000	
Firm Age	-0.0078	-0.4273*	0.3808*	-0.2138*	1.0000

Note *p < 0.05

4.3 Regression Results

The findings in Table 4 report the estimates of the path model, with standard errors and 95% confidence intervals from the firm-level cluster bootstrap. Overall, the direct effect of financial leverage, firm age and firm size in Path *a* explained 44.6% ($R^2 = 0.446$) of the variability in financial distress. Thus, 55.4% of the variance is explained by various factors not considered for inclusion in the model. Similarly, the model informing path *c'* and *b* accounted for 44.9% of the variability in financial performance ($R^2 = 0.449$). These results indicated that financial distress, financial leverage, firm size, and firm age explain about 45% of the financial performance variance of listed firms, while 55.1% is explained by other determinants outside the study's scope.

The results further demonstrate that financial leverage had a significant effect on financial Performance (b= -0.226, 95% CI [-0.293, -0.175], $p < .001$; $\beta = -0.608$) (H_1). Financial leverage also had a significant effect, and financial distress ($b = 8.390$, 95% CI [4.468, 11.214], $p < .001$; $\beta = 0.477$) (H_2), indicating that higher levels of financial leverage escalate financial distress. Financial distress indicated a significant effect on financial performance ($b = 0.011$, 95% CI [0.008, 0.015], $p < .001$; $\beta = 0.524$) (H_3).

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Additionally, the study examined the mediating effect of financial distress on the relationship between financial leverage and financial performance. The findings suggest that the indirect effect was positive and statistically significant ($a \times b$ = 0.093, 95% CI [0.044, 0.146], $p < .001$; β = 0.250). The results indicate that the confidence interval has no zero, as noted by other scholars (Schoemann et al., 2025; Tibbe & Montoya, 2022); hence, H_4 was accepted. Additionally, the total effect remained negative and significant (b=-0.133, 95% CI [-0.211, -0.073]; β = -0.358). These results established that the negative direct effect exceeds the positive indirect effect transmitted via financial distress, which resulted from the product of coefficients. Therefore, maintaining optimal financial leverage helps firms to gain benefits from tax shields placed on interest and increase the firm's growth and valuation. However, elevated levels of financial leverage increase the chances of financial distress (Ai et al., 2020).

The findings establish statistical significance between the indirect and direct effects but point in different directions, revealing the presence of a competitive mediation rather than a complementary, direct, or indirect-only mediation. This aligns with the argument of Hair et al. (2021) and Zhao et al. (2010) on different categories of mediation. Thus, the results demonstrate that financial leverage directly and indirectly affects financial performance via its effect on financial distress. These results are consistent with the study by Zhao et al. (2010), who criticized Baron and Kenny's 1986 work by proposing the distribution of the product of coefficients technique, in which the coefficient of indirect effect (a = 8.390 x b = 0.011=0.093) is obtained by determining *(a x b).*

Lastly, Firm size was positively linked to both financial distress (b = 0.806, 95% CI [0.246, 1.411], p = .004) and financial performance (b = 0.018, 95% CI [0.008, 0.027], $p < .001$), implying that larger firms are more distressed than young firms. Firm age was not significantly related to financial distress (b = -1.123, 95% CI [-3.773, 0.810], p = .234) or with performance (b = 0.000, 95% CI [-0.040, 0.037], p = .974).

Table 4: Results for Direct, Total and Mediation

Path	Hyp.	*b*	Boot *SE*	95% CI	*p*	*β*	95% CI (*β*)
Structural paths							
FL - FD (*a*)	H_2	8.390	1.722	[4.468, 11.214]	< .001	0.477	[0.245, 0.648]
FD -FP (*b*)	H_3	0.011	0.002	[0.008, 0.015]	< .001	0.524	[0.369, 0.700]
FL - FP, direct (*c′*)	H_1	-0.226	0.030	[-0.293, -0.175]	< .001	-0.608	[-0.780, -0.453]
Mediation effects							
Indirect effect ($a \times b$)	H_4	0.093	0.026	[0.044, 0.146]	< .001	0.250	[0.110, 0.411]
Total effect($c' + a \times b$)		-0.133	0.036	[-0.211, -0.073]	< .001	-0.358	[-0.551, -0.199]
Control variables							
lnFAge -FD		-1.123	1.137	[-3.773, 0.810]	.234	-0.112	[-0.341, 0.080]

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lnFSize -FD	0.806	0.294	[0.246, 1.411]	.004	0.306	[0.099, 0.513]
lnFAge – FP	0.000	0.020	[-0.040, 0.037]	.974	0.001	[-0.189, 0.177]
lnFSize – FP	0.018	0.005	[0.008, 0.027]	< .001	0.322	[0.140, 0.472]
Explained variance						
R^2 (FD)	.446 (44.6% of the variance in FDL explained)					
R^2 (FP)	.449 (44.9% of the variance in FP explained)					

Note. N = 480 firm-years (48 firms × 10 years). b = unstandardized estimate; β = standardized estimate. Standard errors (Boot *SE*) and 95% percentile confidence intervals are from a firm-level cluster bootstrap (5,000 resamples of whole firms drawn with replacement); p-values are two-sided bootstrap values. FD = financial distress, FP = financial performance (EVA spread, in decimals); FL = financial leverage, lnFAge = natural log of firm age; lnFSize = natural log of total assets. Hyp. = hypothesis. Direct effect = c'; total effect = $c' + a \times b$.

5. Discussion

The findings suggested a statistically significant effect of financial leverage on financial performance *(b* =- .226, p <.001), implying that financial performance decreases with an increase in financial distress. The results agree with the trade-off theory developed by Kraus and Litzenberger (1973), which argued that excess reliance on leverage might result in tax benefits outweighing the cost of financial distress affecting the firm's valuation. The findings are further similar to the work of previous scholars (Abid et al., 2024; Chen, 2020; Kalash, 2023; Kamau et al., 2021; Kijkasiwat et al., 2022; Towo, 2023). However, this contrasts with the work of Ben Moussa and El Feidi (2023), Alabri et al. (2021), and Gathara (2019), who reported a positive effect of financial leverage on financial performance.

Financial leverage revealed a positive and statistically significant relationship with financial distress (b=8.390, p <.001). The alternative hypothesis (H_2) was accepted, and it was established that financial leverage impacts financial distress among listed companies on the EAC exchange markets. These findings reinforce the view that moderate use of financial leverage leads to financial stability, attributed to the interest tax shield. However, overreliance on financial leverage elevates the risk of financial distress, underscoring the firm's need to maintain leverage within prudent limits to lower the risk of distress and safeguard long-term financial performance. Hence, the results agree with those of other scholars (Lucky & Michael, 2019; Maiyo et al., 2025; Wangsih et al., 2021; Yegon & Koske, 2018), who discovered that financial leverage significantly and positively affects financial distress. Moreover, Hermuningsih et al. (2022) outlined that leverage increases catalyze the firm's probability of financial distress. However, the results contradict with the evidence from various studies documenting a significant negative relationship between financial leverage and financial distress (Erawati et al., 2025; Luspratama et al., 2023; Setyadhy & Yolanda, 2024).

The research further recorded that financial distress positively but significantly affected financial performance (b = 0.011, p < .001), showing the acceptance of the alternative hypothesis (H_3). These results agree with the work of Jahan and Kabir (2019) and Boachie (2025), who discovered that financial distress positively and significantly affects financial performance. However, disagree

with the work of Ahmad et al. (2020), De Mel and Buddhika (2025), and Kabishka and Vijayakumaran (2023), who found negative and significant relationship between these variables.

The results showed that financial distress had a significant competitive mediation effect on the relationship between financial leverage and financial performance ($a \times b$ = 0.093, 95% CI [0.044, 0.146], $p < .001$). Hence, the findings indicate that a percentage of the potential negative effects of financial leverage on financial performance is transmitted through financial distress. Recent empirical evidence aligns with trade-off theory's core proposition that financial leverage simultaneously yields tax-shield benefits and distress risk. As financial leverage rises, financial distress increases, eroding financial performance, even when the direct effect of financial leverage remains negative. Therefore, firms should balance the benefits of financial leverage against the costs of financial distress when making financing decisions (Misrah & Arifin, 2024). The existing empirical evidence by various scholars (Muhmad et al., 2024; Rabiu et al., 2023; Shahid, 2025) have used financial distress as a mediator; however, little is known about its mediating effect on the relationship between financial leverage and financial performance among listed firms in East African Community Exchange markets. Therefore, these results contribute new knowledge that interlinks financial leverage, financial distress, and financial performance.

6. Conclusion

The study investigated whether financial distress mediates the relationship between financial leverage and financial performance among firms listed on East African Community exchange markets. Financial leverage was negatively related to financial performance directly (b= -0.226, 95% CI [-0.293, -0.175]) and positively related to financial distress (b = 8.390, 95% CI [4.468, 11.214]). However, financial distress was positively but not negatively related to performance (b = 0.011, 95% CI [0.008, 0.015]). The indirect effect was thus positive (0.093, 95% CI [0.044, 0.146]) and opposite in sign to the direct effect, indicating competitive (inconsistent) mediation. The distress pathway did not carry the negative leverage to performance relationship; it ran against it and offset the impact of the direct effect. As the direct effect was larger than the indirect effect, the total effect ($c' + a \times b$) remained negative (-0.133, 95% CI [-0.211, -0.073]). Thus, higher leverage was linked to worse financial performance of firms listed on the EAC exchange markets.

7 Recommendation

7.1 Policy Implications

Therefore, based on these results, the Capital Markets Authorities (CMAs) in the East African Community should strengthen listing and continuing disclosure requirements regarding gearing ratios and financial distress early-warning indicators. Such disclosure would improve market transparency, enhance investor protection, and enable regulators to detect financially vulnerable firms before the commencement of financial distress. Furthermore, the East African States Securities Regulatory Authorities (EASRA) should harmonize these disclosure requirements across EAC member states to ensure regulatory consistency, facilitate cross-border supervision and facilitate comparability of financial information among firms listed on regional securities exchanges.

Additionally, given that EAC corporate leverage markets remain underdeveloped and dominated by financial institutions' lending, the EAC Secretariat should develop regional policies, in collaboration with national governments, CMAs, EASRA, and development partners, to accelerate the development of domestic and regional corporate bond markets and provide diverse sources of

funds. Expanding alternative sources of long-term finance would provide listed firms with heightened financial flexibility, reduce their dependence on relatively expensive institutional borrowing, lower refinancing risks, and ultimately diminish the diverse total effect of financial leverage on financial performance.

7.2 Practical Implications

The findings of this study bring attention to management on redirecting their focus to financial leverage by maintaining adequate liquidity buffers, proactive covenant and refinancing management, and continuous internal monitoring of the firm's asset-to-debt ratio, which can cushion the mechanism through which excessive financial leverage adversely affects financial performance, rather than waiting to respond only after financial distress has become evident in their financial reports. Additionally, managers should weigh the cost of additional leverage against the returns it generates, especially where liabilities already approach total assets. Investors and lenders can also use the debt ratio as a simple screen for weaker financial performance.

7.3 Recommendations for Future Studies

The present study only focused on listed firms in the East African Community exchange markets. Therefore, these findings are most directly applicable to publicly listed, relatively large and closely regulated firms, which are subjected to stricter disclosure requirements and governance standards, which may produce financial behaviour different from that of unlisted firms, small and medium enterprises, and family-owned businesses, which dominate the private sector in the region. Hence, the extent to which the observed interrelationships among variables under investigation extend to unlisted firms calls for further investigation. Therefore, for future studies to fill the above contextual knowledge gap, they need to extend the analysis to non-listed firms in developing economies, compare listed firms in developed and emerging economies, and compare the EAC exchange markets and other regional markets in Africa to ascertain if the established relationships vary across firms with different disclosure requirements, financial leverage and ownership structure in a current or different context. Such a comparison would make the findings more generalizable in emerging economies. Moreover, future studies should introduce other mediators or moderators in the relationship between variables in the research or use a mixed-methods approach by combining both primary and secondary data to examine the phenomenon under study.

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