Firm-Specific Characteristics and Financial Leverage of Non-Financial Firms Listed at Dar es Salaam Stock Exchange

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Abstract
This study examines the influence of firm-specific characteristics namely profitability, asset tangibility, firm size, and growth opportunities on leverage among non-financial firms listed on the Dar es Salaam Stock Exchange (DSE) in Tanzania. Grounded in the trade-off and pecking order theories, the research explores how these internal firm attributes shape leverage decisions in an underexplored emerging market context. Leverage, the dependent variable, was measured using short-term debt, long-term debt, and total debt ratios. The study employed secondary data obtained from the audited financial statements of 11 non-financial firms listed on the DSE for the period 2016–2023, resulting in a balanced panel dataset of 88 firm-year observations. Hypotheses were tested using a combination of robust random-effects and robust fixed-effects panel regression models. The findings reveal that profitability exerts a significant negative effect on all measures of leverage, while growth opportunities significantly increase total debt. Firm size was found to have no significant impact on leverage, whereas asset tangibility positively affects long-term and total debt but does not significantly influence short-term debt. These results indicate that firm-specific characteristics are critical determinants of leverage in Tanzanian non-financial firms. Based on these findings, the study recommends that managers consider profitability when evaluating financing decisions, and investors prioritize appropriate debt levels to mitigate bankruptcy risk. Additionally, firms should strive for a balanced and sustainable debt structure to enhance shareholder value and investor confidence. The study further suggests that future research investigate other potential determinants of leverage, including tax shields, ownership structure, business risk, liquidity, and dividend payout policies, to deepen understanding of leverage dynamics in emerging markets.

Keywords: *Profitability, Asset tangibility, firm size, growth opportunity, leverage*

1.0 INTRODUCTION

The decision on how firms choose an appropriate debt-equity mix for financing investments and operations has often presented challenges to financial managers (Munawar, 2019). Leverage is described as the level at which a firm relies on debt relative to equity financing. A substantial and swiftly expanding body of literature addresses the possible links between leverage and the agency problem. Agency conflict is expected to exist in the following three critical aspects. Firstly, debts exacerbate agency conflicts between creditors and investors, leading to a wealth-transfer problem, replacing safer projects with riskier ones and rejecting new investments regardless of their profitability (Jensen & Meckling, 1976). Secondly, leverage minimizes agency problems stemming from managerial actions that contradict shareholder interests, resulting to over-investment problem (Jensen, 1986). Lastly, the proportion of debt increases the costs linked to agency problems involving various stakeholders like as consumers and workforces (Savio et al., 2024).

However, firms use leverage when structuring their capital, as it can enhance business performance. This is because the severity of leverage, like any other factor in agency conflict, can be intensified and controlled by various initiatives (Jong & Dijk, 2007). It is argued that leverage provides numerous benefits linked to equity financing, including tax advantages connected with borrowing cost and the likelihood of periodic interest and loan amount repayment (Arhinfu & Radmehr, 2023). Though high leverage also brings significant risk, as failing to repay can lead to ownership shifting from shareholders to lenders (Sahminan, 2021). The right amount of leverage a firm employs to create an optimal capital structure has a major influence on its profitability (Akhtar et al., 2022). Therefore, a comprehensive knowledge of capital structure supports firms in evaluating funding requirements, level of leverage, and strategies to optimize earnings per share and return on equity. This is not only critical for firms to evaluate their debts and financial requirements but also for managers to extend the firm's vision within the framework of the capital structure.

In developing economies with few stock listings, understanding capital structure is critical for determining firm leverage (Alghusin, 2015). Tanzania's stock market, the Dar es Salaam Stock Exchange (DSE), is among the world's smallest capital markets, making it stand out among Sub-Saharan Africa's emerging economies (Ntim, 2012). Financial sustainability of the non-financial sector is imperative. BOT (2022) underscores that non-financial firms in Tanzania rely on retained earnings and capital as their primary financing source. Tanzania has prioritized tremendous reforms in the DSE aimed at building capital market, including strengthening the legal framework, improving disclosure practices and

aligning regulations with international standards to encourage broader and more active participation in the securities market in terms of both products and players (Mrema & Kiunsi, 2025). Despite notable development, liquidity remains quite low compared to more developed stock markets, and the number of listed firms is still limited, which can constrain accessibility for larger firms seeking capital (DSE, 2024).

The firm's over-reliance on internal financing sources has become even more noticeable in the consequences of the COVID-19 pandemic and the global economic turbulence caused by the Ukraine war (BOT, 2022). Apart from the limited listing, financing challenges have persistently compelled firms to depend excessively on internally generated. This is because access to borrowing remains limited which results from increased economic risks and global instability. On the contrary, studies such as Brealey, Myers, Allen, & Mohanty, (2018), through the lens of pecking order theory, underscore the significance of companies to prioritize the use of internal funding sources, a decision to consider debt financing should be a second choice, and finally look for equity financing as a last resort.

Numerous studies across different contexts have explored theories of capital structure, which include trade-off and the pecking order theories. The theories have been widely used to evaluate financing decisions regarding debt-equity mix through the lens of various factors, including firm profitability, asset tangibility, growth opportunity, and firm size to establish their influence on leverage (Guo et al., 2018; Khan et al., 2024; Stoiljkovic et al., 2022). Most of them have indicated inconsistent findings. For instance, while the pecking order theory emphasizes the use of debt financing in preference to equity, studies by Guo et al. (2018) and Pinillos et al. (2025) find that firms resort to equity financing more frequently than external borrowing to cover financing needs. In contrast, Kakouris & Psychoyios (2025) and Khan et al. (2024) establish that firms align with the perking order theory when issuing or redeeming debts.

Similarly, the trade-off theory assumes that companies with relatively higher tangible assets, strong growth prospects, and larger size are expected to adopt greater leverage than firms that do not have these characteristics. However, research by Pinillos et al. (2025) and Stoiljkovic et al. (2022) reveal partial support for the theory. Their conflicting evidence suggests that the issue of the factors affecting financial leverage remains unsolved, thus warranting further investigation. Nevertheless, in Tanzania, a handful empirical research has examined how these firm-specific variables affect firm's leverage, particularly for non-financial companies listed on the DSE, presenting a critical gap.

Tanzania's financial system and capital market structures differ from those of other countries, which potentially influence how firms make financing decisions. Therefore, this study evaluates the effect of firm-specific determinants on leverage of non-financial firms listed on the DSE. Specifically, the study examines the influence of profitability, asset tangibility, firm size, and growth opportunity on firm leverage.

This study has been structured as follows: The second segment of the study investigates the literature concerning the relationship between profitability, asset tangibility, firm size, growth opportunity and firm leverage. It also formulates hypotheses of the study. The third segment summaries on the research methodology. The fourth segment presents and analyzes the results, while the final segment provides the study's conclusions and recommendations.

2.0 LITERATURE REVIEWS AND HYPOTHESIS DEVELOPMENT

2.1 Literature Review

2.1.1 Financial Leverage

Leverage in the financial markets happens when firms decide to use borrowed funds to acquire assets with the determination that the benefits generated out of debts will surpass the cost of borrowing (Adenugba et al., 2016). Thus, financial leverage is an investment approach that encourages business expansion and growth opportunities. The knowledge of financial leverage supports firms in examining their financial needs, borrowing capacity, and ability to generate returns to maximize performance. Firms need to maintain an optimal debt-equity mix financing to minimize the risk of bankruptcy associated with excessive leverage, as servicing the loan becomes more challenging (Akhtar et al., 2022). Therefore, the insight of financial leverage is significant not only for companies to evaluate their borrowing capacity and financial needs but also for policymakers to extend the strategic directions with regard to the capital structure.

2.1.2 Profitability

Profitability is a key indicator that is extensively used in evaluating a firm's financial performance (Xu et al., 2022). It measures the overall managerial effectiveness through the size of the profits accrued from sales and investment, while also demonstrating a firm's internal financing capacity and availability of retained earnings (Nadyayani & Suarjaya, 2021). Firms are expected to be more pragmatic in determining their leverage decisions by cautiously evaluating profit-earning ability, provided that debt servicing may be costly while at the same time investors seek dividend income and share price appreciation.

2.1.3 Asset Tangibility

Asset tangibility denotes the level at which a firm's asset base comprises fixed assets represented as a proportion of total assets. Fixed assets naturally include property, plant, and equipment that a firm can readily use as collateral in a debt financing arrangement (Hall, 2012). Asset tangibility is considered a very significant concept in capital structure theory, for the reason that tangible assets possess a larger liquidation value and make it easier for creditors to claim in the event of default. Thus, companies with a greater amount of tangible assets face smaller credit risk, decreased information disparity, and lower expected bankruptcy costs, which allows them to borrow more and at better terms (Harris & Raviv, 1991; Titman & Wessels, 1988).

2.1.4 Firm size

Firm size reflects the scale of a business's operations as well as the resources it owns and is extensively used in finance and accounting studies as a key firm-specific characteristic. Firm size provides an understanding of the company's economic strength, market accessibility, and capacity to access internal and external financing sources (Anthony, 2011). In the context of capital structure, firm size is hypothetically linked to leverage choices. Drawing from the trade-off theory, larger companies tend to be more diversified, have smaller bankruptcy risk, and enjoy better access to credit markets, which enables them to employ higher levels of debt at lower cost (Booth et al., 2001; Titman & Wessels, 1988). Also, larger companies benefit from reputational advantages and established relations with lenders, which diminish information asymmetry and borrowing limitations.

2.1.5 Growth Opportunity

Growth opportunity represents the potential for a firm to expand its operations, increase earnings, and generate higher cash flows resulting from undertaking new investments, market or products. It refers to investment decisions embedded in the company rather than assets that are already in place and are thus closely connected to expectations about the future performance (Myers, 1977). Growth opportunities play a critical role in capital structure decisions. It is assumed that firms with stronger growth prospects often depend less on borrowings because future investments are typically intangible and risky, rendering them poor collateral for debts.

2.2 Theoretical Framework

The study employed the trade-off and pecking order theories as the theoretical foundation for the literature review and hypothesis development in examining the link between firm-specific characteristics and leverage. These theories are

among the most established and extensively tested frameworks in explaining leverage choices based on the internal firm's characteristics, similar to previous studies undertaken by Stoiljkovic et al. (2022) and Pinillos et al.(2025).

2.2.1 Trade-off Theory

The trade-off theory underscores that tax deductibility of interest charges makes debt financing attractive, as firms seek to strike a balance between the tax benefit of debt and the potential cost of financial distress in view of improving profitability (Modigliani & Miller, 1963). Companies that incur borrowing expenses stand a better chance of mitigating tax obligations, which ultimately lowers their profitability. Thus, a rise in debt comes about because of the tax shield effect. On the other hand, trade-off theory highlights the likelihood for a company to find itself drawn into bankruptcy, default, and financial challenges while servicing its obligations linked to unbearable interest charges. Kraus & Litzenberger (1973) argue that as a firm increasingly relies on borrowing, its financial risk increases. Furthermore, trade-off theory emphasizes that larger firms benefit more from economies of scale than smaller ones, as they have more tangible assets to secure debt and possess growth opportunities (Mathew & Kaushal, 2025). This enables them to achieve an optimal balance between the tax benefits of debt and the bankruptcy costs, suggesting that larger firms, which face lower financial distress, are more likely to adopt higher levels of debt.

2.2.2 Perking Order Theory

The perking order theory, as founded by Myers & Majluf (1984), suggests that a firm's financing behavior reflects a response to information asymmetry between managers and shareholders. Managers are expected to have superior information about the firm's intrinsic value and future cash flows, while outside investors face uncertainty, particularly in relation to equity valuation. Because of this information disparity, firms are assumed to follow a specific financing hierarchy, whereby internal financing is preferred to external sources. Firms resort to debt financing when internal sources are depleted or inadequate, and use equity financing as a last resort strategy. Equity issuance is perceived as the most expensive financing source because it may signal overvaluation to the market, resulting in adverse pricing reactions. In the context of leverage choices, the pecking order theory emphasizes that firms do not seek an optimal or target debt ratio. Instead, the levels of leverage reflect the firm's cumulative financing requirement for a specific period of time (Myers, 1984). Thus, firms that are more profitable are expected to generate adequate internal funds and tend to rely on less debt, leading to lower leverage, whereas less profitable firms depend largely on external borrowing, resulting in higher leverage.

2.3 Empirical Literature Review

2.3.1 Profitability and Leverage

Existing literature on profitability and leverage has been widely debated. Its significance is explained by the firm's ability to generate earnings. In some studies, the direction of causality potentially follow reciprocity relationship (Rahayu et al., 2020). Meaning that profitability has an influence on leverage, just like leverage can influence firm profitability. Researchers have also shown an inverse relationship between profitability and leverage (Arhinfu & Radmehr, 2023; Hussain et al., 2016; Ravindran & Kengatharan, 2021). Ayaz et al. (2021) find that the leverage ratio improves the firm performance, indicating that more profitable firms may choose to take on higher leverage. Kebewar (2014) finds an insignificant influence of leverage on corporate profitability, regardless of corporate size. These inconsistencies pose challenges to the theoretical predictions. Predominant theories of debt-equity mix hold dissenting positions about how profitability affects a firm's capital structure. Drawing on the pecking order theory, profitable companies need less debt financing because their own sources of funding are preferred first before resorting to external borrowing. Profitability measures the extent of earnings a firm can keep internally, and when profits are higher, firms can depend more on them in financing their operations. While the pecking order theory presents an inverse association between leverage and profitability, the trade-off theory claims a positive relationship, indicating that profitable firms are less vulnerable to bankruptcy. Studies such as Muyoba & Mahlangu (2025) and Gill, Biger, & Mathur (2011) emphasize that more profitable firms may take advantage of external borrowing, as they possess an extensive capacity to manage large interest payments. Moreover, a high debt level affords them a considerable tax benefit (tax shield). Drawing on the preceding inconsistent results, this study adopts the perspective of the pecking order theory. Therefore, we hypothesize:

H_1: Profitability has a negative influence on leverage

2.3.2 Asset Tangibility and Leverage

Both theories of pecking order and trade-off maintain that the choice of debt-equity mix is largely dependent on the nature of assets a company owns. This is because, in most cases, tangible assets are used as loan collateral (Myers, 1984; Scott, 1976). According to trade-off theory, a firm possessing adequate tangible assets has the advantage of raising more loans, which it derives from the ability of the collateral to service debts in the event of bankruptcy (Harc, 2015). Myers (1984) argues that, following the presence of information disparity among investors and management, when structuring the debt-equity mix, firms adhere to the hierarchical preference of financing. First with internal sources through

retained earnings, followed by external borrowing. Equity is considered as the last source of financing. Conversely, the pecking order theory assumes that a firm's growth potential and leverage are positively linked. Extant literature has explored on the interaction of asset tangibility and capital structure. Gharaibeh & AL-Tahat (2020) contradict previous results as fails to establish any evidence of tangibility's influence on debt level. Mazumder (2025) reveals a weak relationship between asset tangibility and capital structure. Gutiérrez-Ponce (2024), claims that tangible assets have a positive influence on leverage. Vengesai (2023) finds an inverse association between asset tangibility and capital structure. Following these arguments, this study adopts the trade-off theory perspective, which claims that companies owning a greater value of tangible assets are more likely to access debt financing.

H_2: Asset tangibility has a positive influence on leverage

2.3.3 Firm Size and Leverage

Trade-off theory predicts a positive impact of the scale of operations on leverage (Modigliani & Miller, 1958). Large firms often invest in numerous assets and generate more steady cash flow than smaller companies can. Firms with a larger size are expected to have more borrowing capability, that enable them to enjoy the benefits of interest tax shields. Numerous studies confirm the positive influence of firm size on leverage (Chatterjee & Eyigungor, 2023; Deesomsak et al., 2004; Khan et al., 2024), as they maintain that the severity of insolvency and bankruptcy costs is minimal for larger companies, suggesting that such costs exert negligible influence on debt choices for larger firms. Deesomsak et al. (2004) argue that large firms are characterized by minimal agency costs of debts, minimal oversight costs, reduced cash flow volatility, ease of access to the credit market, and uses more external borrowing to optimize the advantage of the tax shield. Thus, managers and investors of large companies typically have equal access to information, unlike those in smaller firms, where higher monitoring costs deny such transparency. Conversely, some researchers like Meilita et al. (2024) reveal that firm size doesn't have a significant influence on leverage. Hover, following the perspective of trade-off theory, companies that have greater sales volume are expected to be more leveraged than smaller ones. Therefore, we hypothesize that:

H_3: Firm size has positive influence on leverage

2.3.4 Growth Opportunities and Leverage

Companies with high growth potential often have intangible assets such as goodwill, R&D, and patent rights. These assets are difficult to use as collateral

for debt. According to Myers (2001), intangible assets are bad collateral for securing a loan, because these assets depend on future investment decisions. Existing research on growth opportunities and leverage has provided inconsistence results. For instance, studies by Kounouwewa & Chao (2024) and Okofo-Dartey (2023) revealed a negative effect of growth opportunity on financial leverage. In contrast, while Mabandla & Marozva (2025) suggest that firms with stronger growth prospects exhibit a positive effect on long-term financing, Suk et al. (2018) found a non-linear effect of growth prospects on a firm's leverage. Trade-off theory argues that companies with high growth potential are less leveraged than firms enriched with assets that are tangible, since growth opportunities (i.e. in terms of intangible assets) cannot be collateralized. The chances for bankruptcy tend to intensify for companies with significant growth potential. Following the above argument, this study adopts the views of trade-off theory, which suggests an inverse association between growth opportunities and leverage.

H_4: Growth opportunity has negative significant influence on leverage

2.4 Conceptual Framework

This study, explores the influence of firm-characteristics on leverage. The explanatory variables include profitability, asset tangibility, firm size, and growth opportunities. The response variable is firm leverage. Operating cash flow is employed as a control variable to represent firm's internal liquidity and funding capacity, which can individualistically impact leverage choices and bias prediction of the relationships if omitted.

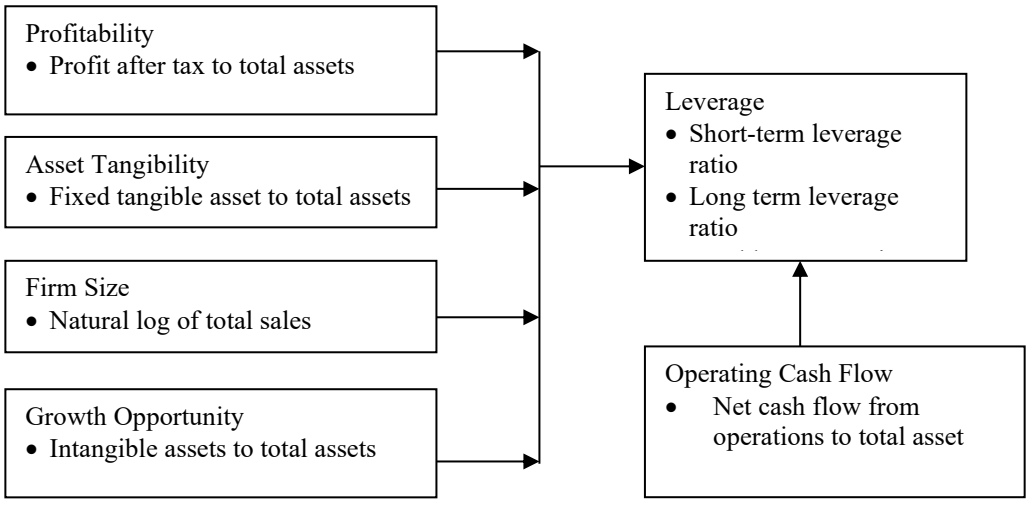

Figure 1: Conceptual Framework

3.0 METHODOLOGY

3.1 Data Source and Sample

The study employed a quantitative research design using archival panel data collected from audited financial statements of non-financial firms listed on the Dar Es Salaam Stock Exchange (DSE). The initial population comprised fifteen (15) non-financial listed firms, selected due to their obligation to publish reliable, consistent, and objective financial information. Financial institutions were excluded to avoid distortions arising from their unique regulatory and capital requirements. Of the fifteen firms, eleven (11) met the inclusion criteria of continuous listing and active trading on the DSE over the period 2016 to 2023, from which secondary data were gathered. This sample represented 73.3% of the population, which was sufficient for analysis, following Gay, Mills, & Airasian's (2012) guidance that a minimum of 20% is adequate for small populations. A census approach was used to include all qualifying firms.

Table 1: Study Variable Measurement and Operationalization

Variables	Acronym	Variable type	Measurement	Previous studies	Source
Leverage	LV	Response (RV)	Short term liabilities to total assets	(Akhtar et al., 2022; Stoiljkovic et al., 2022)	Financial statements
			Long-term liabilities to total assets	(Akhtar et al., 2022; Stoiljkovic et al., 2022)	Financial statements
			Total liabilities to total assets	(Akhtar et al., 2022; Stoiljkovic et al., 2022)	Financial statements
Profitability	PROF	Explanatory (EV)	Profit after tax to total assets	(Nguyen, 2024; Tailab, 2014; Wairimu, 2023)	Financial statements
Asset Tangibility	TANG	Explanatory (EV)	Fixed tangible assets to total assets	(Booth et al., 2001; Frank & Goyal, 2009; Nguyen, 2024; Wairimu, 2023)	Financial statements
Firm Size	SIZE	Explanatory (EV)	Natural log of sales	(Tailab, 2014; Wairimu, 2023)	Financial statements
Growth opportunities	GROWTH	Explanatory (EV)	Intangible assets to total assets	(Intara & Suwansin, 2024; Quddus et al., 2022; Stoiljkovic et al., 2022)	Financial statements
Operating cash flow	OCF	Control (CV)	Net cash flow from operations to total assets	(Wairimu, 2023)	Financial statements

3.2 Model Specification

The study employed a linear regression model to examine the link between a firm's specific characteristics and leverage. The effect of the predictor variables was investigated through the application of panel regression models. Data were analyzed and processed using the R program version 2025. Three capital structure models representing components of leverage were used to determine the impact of profitability, asset tangibility, firm size, growth opportunity, and operating cash flow on firm leverage, as indicated below

$$SLR_{it} = \beta_0 + \beta_1 PROF_{it} + \beta_2 TANG_{it} + \beta_3 SIZE_{it} + \beta_4 GROWTH_{it} + \beta_5 OCF_{it} + \varepsilon_{it} \quad \text{.....(1)}$$

$$LLR_{it} = \beta_0 + \beta_1 PROF_{it} + \beta_2 TANG_{it} + \beta_3 SIZE_{it} + \beta_4 GROWTH_{it} + \beta_5 OCF_{it} + \varepsilon_{it} \quad \text{.....(2)}$$

$$TLR_{it} = \beta_0 + \beta_1 PROF_{it} + \beta_2 TANG_{it} + \beta_3 SIZE_{it} + \beta_4 GROWTH_{it} + \beta_5 OCF_{it} + \varepsilon_{it} \quad \text{.....(3)}$$

Where SLR_{it} represents the short-term leverage ratio, LLR_{it} represents the long-term leverage ratio, TLR_{it} represents the total leverage ratio, and the time-varying error term (ε_{it}).

4.0 FINDINGS AND DISCUSSIONS

4.1 Descriptive Statistics

On assessing the link between firm-specific factors and leverage, a descriptive analysis was undertaken to provide a comprehensive overview of the study variables. Table 1 shows the summarized statistics of the variables under study. The total leverage ratio (TLR) has a mean of 62.166 with a substantial standard deviation of 38.788%. This signifies significant fluctuations in leverage of listed firms in the industry; revealing that while some firms operate with minimal debts, others rely more heavily on borrowings. The findings are considerably higher compared to those of Mwambuli (2015), who reported that the mean debt and equity financing for all East African companies stood at 49.19 and 50.81, respectively. Although this leverage of 62.166 still looks higher in relation to the Kenyan market with an average of 22 (Wairimu, 2023), but it is significantly lower than 118.19 reported by Chindengwike (2023), in the Tanzanian market. This suggests that most firms involved in the current study exercised more controls over their borrowing practices. The wide range between the maximum leverage of 117.066 and the minimum of 25.901 underscores the significant standard deviation revealed in the dataset. This alarming disparity is attributed to differences in financial strength among firms, with the most heavily indebted firms possibly fall into increased bankruptcy risk.

The average short and long-term leverage ratios within the sampled firms are presented by the means of 37.926 and 24.18, respectively, suggesting that most firms in Tanzania rely on short-term debts to finance their operations. These study findings are consistent with Mwambuli & Kimani (2024), who found that Tanzanian listed companies rely on short-term than long-term leverage in financing their activities. This pattern could be largely attributed to the underdevelopment of capital markets in the country, which impedes firms' access to long-term financing decisions. This view is also echoed by Nyabakora, Abderaman, & Rwezimula (2018), who maintain that, since Tanzania is an emerging economy, its capital market is at its infant stage, characterized by the use of bank loans to finance operations. Such loans are often short-term, indicating that long-term leverage is either unavailable or too expensive. Investigating the range of the short-term debt ratio, which spans from 11.952 to 154.526, confirms a considerable variability across the sampled firms. Particularly, the lowest value of 11.952 implies that some firms have relatively low reliance on short-term debt, possibly indicating strong liquidity positions or conservative financial management, while the highest value of 154.526% indicates that some firms depend heavily on short-term debt, which could lead to liquidity issues if these obligations cannot be met promptly. The use of debt financing requires the ability of the firms to generate enough earnings to pay for their debt service obligations (interest and principal).

Profitability showed a mean score of 5.883. This implies that on average firms generated shillings 5.883 profit after tax from every shilling 100 they invested in assets. The lowest and highest profits are -2.926 and 30.322, respectively. These statistics suggest that while other firms operate under significant loss, others record huge profits. Such losses experienced by some firms confirm the presence of the observed large short-term debts for the firms, demonstrating financial challenges in funding their operations. Operating under loss, exposes firms to serious liquidity risk, which can amount to financial distress or bankruptcy. This result aligns with Mwambuli & Kimani (2024), who claim that over-reliance on short-term debt by Tanzanian firms leads to profitability volatility. Furthermore, firms that record losses are often considered riskier by lenders, leading into deleverage decisions or else secure loans at unbearable high borrowing cost.

The average asset tangibility over the period was 50.20, indicating that firms would not have adequate assets to provide collateral for long term leverage. This result confirms the reason for most of the firms to excessively depend on short-term leverage. This result is consistent with Msangi & Kasambala (2025) who observed that asset tangibility requirements significantly limit SMEs' access to bank loans, with many applicants find themselves unable to meet these

requirements. This view is also aligned with Ellis, Kinnan, McMillan, & Shaukat (2023), who maintain that companies with significant growth of loans have greater values of collateral, signifying that collateral value is one of the predictors of loan growth. The average firm size was 18.53, and the standard deviation was 1.57. The lowest and highest firm size averaged 15.73 and 20.96, respectively, with a wide spread of about 5.23 in market-based growth potential. These statistics imply that while most firms exhibit sluggish sales growth, others enjoy economies of scale over the period under study.

The average growth opportunity as represented by intangible assets is 4.67. This implies that the growth of most firms depends more on tangible assets than intangible ones, with a high variation across firms as accounted for by a standard deviation of 9.96. The minimum and maximum values of 0 and 50.32, respectively, confirm the significant growth disparity among the firms. The lowest value of 0 indicates that some firms had a negligible value of intangible assets; they conceivably do not often invest in R&D and brand-based growth potential, leading to limited growth and certainly excessive operating losses. Operating cash flow averaged at 17.012 with a minimum and maximum ranging from -12.939 and maximum to 44.5, respectively. This shows that, on average, firms generate 17 cents available to finance assets for every shilling of revenue earned, with a huge chunk used for financing operating activities. The presence of negative values indicates that some of the firms were struggling to cover their operating expenses from internally generated funds and, therefore, were relying heavily on debt financing.

Table 2: Descriptive Statistics

Variable		Mean	Std. dev.	Min	Max	Observations
TLR	Overall	62.166	38.788	25.901	177.066	N = 88
	Between		37.641	29.957	132.781	n = 11
	Within		14.198	10.598	107.948	T = 8
SLR	Overall	37.926	23.177	11.952	154.526	N = 88
	Between		20.275	21.376	88.087	n = 11
	Within		12.616	6.897	104.365	T = 8
LLR	Overall	24.180	26.273	0.125	106.600	N = 88
	Between		22.909	2.522	68.715	n = 11
	Within		14.411	-37.539	67.959	T = 8
PROF	Overall	5.883	11.957	-27.926	30.322	N = 88
	Between		10.790	-12.488	20.106	n = 11
	Within		5.991	-12.656	25.041	T = 8
TANG	Overall	50.201	19.403	10.368	97.448	N = 88
	Between		17.038	18.635	77.080	n = 11
	Within		10.465	24.025	91.095	T = 8
SIZE	Overall	18.532	1.574	15.734	20.964	N = 88
	Between		1.629	15.961	20.798	n = 11
	Within		0.200	17.888	19.106	T = 8
GROWTH	Overall	4.678	9.968	0.000	50.326	N = 88
	Between		9.872	0.000	33.911	n = 11
	Within		3.122	-9.181	21.093	T = 8
OCF	Overall	17.012	11.540	-12.939	44.500	N = 88
	Between		9.344	-0.643	30.073	n = 11
	Within		7.273	1.045	41.096	T = 8

Source: R Studio Output (2025)

4.2 Correlation analysis on the influence of firm-specific characteristics on leverage

Table 3 presents the correlation analysis in relation to the variables under study. The results indicate that profitability has a p-value of 0.00 in all components of leverage. This shows that there is a negative influence of profitability on both short-term, long-term, and total leverage ratios. In addition, the R for the three leverage ratios is -0.544, -0.598, and -0.734, respectively. These findings are consistent with Arhinfu & Radmehr (2023) and Ravindran & Kengatharan (2021), who found a significant inverse association between debt service obligations and profitability. Furthermore, the results align with pecking order theory, which holds that profitable companies are expected to have a lower leverage ratio, as they don't depend much on external borrowing. Growth

opportunity has a p-value above 0.05 in all the components of leverage, suggesting no evidence of their influence on leverage. These results contradict Okofo-Dartey (2023), who revealed an inverse significant link between growth opportunities and leverage.

Asset tangibility has P-values of 0.001 and 0.012 for long-term and total leverage, respectively. This shows a moderate positive influence of asset tangibility on long-term leverage and total leverage. However, the results fail to provide evidence of the influence of asset tangibility on short-term leverage as depicted by its p-value of 0.58. This finding aligns with Mazumder (2025), who revealed a weak association between tangible assets and leverage. Firm size has p-values greater than 0.05, indicating to not influence leverage. Conversely, net operating cash flow has a negative moderate effect on all components of loans, as its p-value is less than 0.05. The study's finding is consistent with Oranefo & Egbunike (2023), who observed a modest negative influence of operating cash flow on financial leverage.

Table 3: Correlation Analysis

		PROF	GROWTH	TANG	SIZE	SLR	LLR	TLR	OCF
PROF	R	1							
	P Value								
GROWTH	R	0.228	1						
	P Value	0.033							
TANG	R	-0.214	-0.314	1					
	P Value	0.045	0.003						
SIZE	R	0.287	-0.124	0.147	1				
	P Value	0.007	0.249	0.172					
SLR	R	-0.544	-0.154	0.060	-0.196	1			
	P Value	0.000	0.152	0.580	0.067				
LLR	R	-0.598	-0.174	0.340	-0.115	0.220	1		
	P Value	0.000	0.106	0.001	0.285	0.039			
TLR	R	-0.734	-0.210	0.266	-0.196	0.748	0.812	1	
	P Value	0.000	0.049	0.012	0.067	0.000	0.000		
OCF	R	0.525	0.189	-0.043	0.369	-0.365	-0.325	-0.439	1
	P Value	0.000	0.078	0.694	0.000	0.001	0.002	0.000	

4.3 Robust Test

The study conducted robust tests to evaluate the main model's output. It mainly, addressed the potential endogeneity between firm specific characteristics and leverage.

4.3.1 Robust Random Effect Analysis for Short Term Liability Ratio (SLR)

The overall robust random effect panel regression model shows Wald chi2 (5) = 43.01, Prob > chi2 = 0.0000, which suggests that the explanatory variables have a significant impact on short-term leverage. Profitability had β = -0.6163, p= 0.040, and has a significant effect on short-term leverage. This implies that short-term leverage decreases with increases in the firm's profitability. Growth opportunity indicates a positive significant impact on short-term leverage for which β = 0 .475, p = 0.002. Tangible assets, firm size, and operating cash flow do not reveal any evidence of a significant impact on leverage.

Table 4: Robust Random Effect Analysis for Short Term Leverage (SLR)

SLR	Coefficient	Robust std. err.	Z	P>z	[95% conf.	interval]
PROF	-0.616	0.300	2.05	0.04	-1.205	-0.027
GROWTH	0.475	0.151	3.15	0.002	0.180	0.771
TANG	0.032	0.152	0.21	0.831	-0.265	0.330
SIZE	0.519	1.339	0.39	0.698	-2.105	3.143
OCF	0.073	0.252	0.29	0.773	-0.421	0.566
_cons	26.849	32.130	0.84	0.403	-36.126	89.823
sigma_u	18.856					
sigma_e	13.344					
rho	0.666	(fraction variance due to u_i)				

4.3.2 Robust Random Effect for Long Term Liability Ratio (LLR)

The overall robust random effect panel regression model does not reveal a significant influence on long-term debts with Wald chi2 (5) = 9.24, prob > chi2 = 0.0999. This indicates that the joint effect of explanatory variables cannot determine the long-term leverage decision. However, profitability is close to a significant effect on long-term liability as indicated with β= -0.910, p = 0.060. The rest of the variables under study do not show evidence of their significant effect on long term leverage.

Table 5: Robust Random Effect for LLR

LLR	Coefficient	Robust std. err.	z	P>z	[95% conf.	interval]
PROF	-0.910	0.484	1.88	0.06	-1.859	0.038
GROWTH	0.130	0.202	0.64	0.52	-0.266	0.526
TANG	-0.237	0.275	0.86	0.388	-0.776	0.302
SIZE	3.311	3.987	0.83	0.406	-4.503	11.125
OCF	0.051	0.195	0.26	0.795	-0.331	0.433
_cons	-21.373	68.325	0.31	0.754	-155.289	112.542
sigma_u	17.168					
sigma_e	13.967					
rho	0.602	(fraction variance due to u_i)				

4.3.3 Robust Fixed Effect Regression for Total Liability Ratio (TLR)

The overall robust fixed effect model of panel regression suggests a statistically significant impact on total leverage ratio with Wald chi2 (5) = 56.74, Prob > chi2 = 0.0000. Of the indicators, profitability hurts total leverage as depicted by a β of -1.440 and a p-value of 0.000. These findings indicate that an increase in profitability can possibly influence a decrease in total liabilities. Furthermore, growth opportunity measured in intangible assets has a positive impact on total debts (β = 0.862, p = 0.000), where an increase in intangible assets leads to an increase in total debts, and firm size is close to positive significance as indicated by a β and p-value of 9.326 and 0.055, respectively. The other variables in the study do not show any evidence of a significant effect on the total leverage.

Table 6: Robust Random Effect for Total Leverage Ratio (TLR)

TLR	Coefficient	Robust std. err.	z	P>z	[95% conf. interval]	
PROF	-1.440	0.290	4.96	0	-2.009	-0.871
GROWTH	0.862	0.184	4.69	0	0.502	1.222
TANG	-0.328	0.295	1.11	0.266	-0.906	0.250
SIZE	9.326	4.853	1.92	0.055	-0.186	18.838
OCF	0.185	0.245	0.76	0.45	-0.296	0.666
_cons	-92.918	85.083	1.09	0.275	-259.678	73.842
sigma_u	28.431					
sigma_e	11.750					
Rho	0.854	(fraction variance due to u_i)				

5.0 CONCLUSION AND RECOMMENDATION

5.1 Conclusion

The study evaluated the influence of firm-specific factors on leverage of non-financial firms listed at the Dar es Salaam Stock Exchange (DSE) spanning from 2016 to 2023. The findings reveal that profitability has a negative effect on both components of leverage, i.e., long-term and total leverage. The findings are consisted pecking order theory. Both growth opportunity and firm size had a positive and significant impact on total leverage. However, there is no evidence for their influence on short-term and long-term leverage. Further, while the findings for growth opportunity align with trade-off theory, conversely, firm size contradicts. The study concludes that a combination of profitability, asset tangibility, growth opportunity, and firm size is central for the determination of total debts of non-financial firms in Tanzania. However, the effect of asset tangibility did not confirm any significant difference in the short-term debts. In addition, none of the study variables was revealed to be a significant determinant of long-term debts.

5.2 Recommendation

This study underscores the significance of vigilant debt management by managers in maintaining financial stability. Managers should prioritize profitability of their activities when formulating their firm's plans for growth, since profitability is revealed to influence all the components of leverage, i.e., long-term and total leverage. For shareholders, the findings inform the need to consider appropriate debt levels when making decisions, as higher debt can lead to increased bankruptcy risk. Non-financial listed firms should aim for a balanced and sustainable debt structure to enhance shareholder value and investor confidence. For the government, this study recommends the significance of sound fiscal policies that support increased access to capital markets and expand non-financial firms in Tanzania.

5.3 Limitations of the Study and Areas for Future Studies

The study has some shortcomings. It draws its conclusion based on the test of the data set gathered from a sample of 11 firms. This might pose challenges if we generalize these results for a large population. Furthermore, the relationship between firm-specific characteristics can reveal varied outcomes across different economies and different types of businesses. In addition, developing countries, including Tanzania, have relatively small capital stock markets, which may be associated with challenges that are different from those in developed economies. These disparities can further be investigated in future research. By taking on an appropriate methodology, upcoming research may possibly evaluate how firm-specific characteristics could be linked to leverage in groups of firms that operate under comparable business environments. Also, further studies may consider incorporating other factors such as tax shield, business risk, operating experience, ownership structure, and liquidity in assessing their influence on the leverage of non-financial firms.

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