Effects of Capital Structure on Business Profitability of Processing Enterprises Listed on the Dar es Salaam Stock Exchange, Tanzania

Gaston Vedasto Mujwahuzi¹, *, Crispin John Mbogo²

¹Accounting and Finance Department, Faculty of Business Administration, St. Augustine University of Tanzania, Mwanza, Tanzania
²School of Postgraduate Studies, St. Augustine University of Tanzania, Dar es Salaam, Tanzania

Email address:
mjwahuzi@yahoo.com (G. V. Mujwahuzi), selehemu@gmail.com (C. J. Mbogo)
*Corresponding author

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Abstract: This paper examines effects of capital structure on business profitability in seven processing enterprises listed on the Dar es Salaam Stock Exchange (DSE), Tanzania. Capital structure in this study was measured by long-term debt to equity ratio (LTDR) and business profitability was measured by Return on Assets (ROA), Return on Equity (ROE) and Earnings per Share (EPS). The study applied secondary data obtained from the published reports in the DSE website for a duration of ten years from 2009 to 2018. Ordinary Least Squares (OLS) regression analysis and Karl Pearson Coefficient of Correlation were employed to determine the relationship between capital structure and business profitability. Results revealed that the capital structure indicator had a weak and statistically insignificant effect on business profitability measures. The relationship between LTDR and all measures of profitability used in this study were found to be weak and insignificant. Therefore, the study concluded that capital structure is not a major determinant of firm's profitability. These findings generally concur with the predictions of the Pecking Order Theory of capital structure decisions of firms. It is therefore recommended that financial managers should follow a moderate and cautious approach to debt issues despite the benefit of tax shield in order to minimize the risk of operating under financial distress.

Keywords: Capital Structure, Business Profitability, Processing Enterprises, Dar es Salaam Stock Exchange

1. Introduction

The term capital structure refers to the relationship between the various long-term sources of financing such as equity capital, preference share capital and debt capital [1]. The capital structure decision is critical for any firm for maximizing return to the various stakeholders and also enhances firm’s ability to operate in a competitive environment [2]. Therefore, financial managers have a responsibility of determining the optimal mix of long-term debt and equity that will ensure maximization of shareholders wealth [3]. The relationship between capital structure and business profitability can mainly be explained by Capital Structure Irrelevance Proposition, Traditional Trade-off theory and Pecking Order theory. Among these three theories, the assumptions of the Traditional Trade-off theory are found to be more practical in the current world of finance as they consider taxation and its effect on interest rate. Also, the assumptions of the theory take into account the phenomenon of financial distress that result from too much borrowing. Moreover, its assumption of optimal capital structure (leverage) has been the focal point of the finance literature for the past several decades due to contradicting results obtained from various empirical studies after testing the theory [4]. Therefore, this study was guided by the Traditional Trade-off theory. There is a huge collection of empirical evidence that underscores the relationship between capital structure and firm performance, however, results are contradictory and misleading. Scholars in Tanzania have investigated the relationship between capital structure and
commercial banks performance [5-6] while others have concentrated on SMEs [7], Bundala [8] focused on non-financial listed firms and Richard [9] investigated the relationship between capital structure and firm performance in manufacturing firms. During the investigation of the Traditional Trade-off theory; Mwangi et al. [10] established that as a company increases financial leverage, the performance as measured by return on equity (ROE) declines contrary to expectations based on the theory. A statistically significant negative relationship was also found between profitability and long-term debt [11]. Kaaya et al. [5] also found a negative relationship as opposed to the traditional trade-off theory when studying the capital structure effects on banking sector profitability. These mixed empirical findings create a contradiction on the relationship between capital structure and organizational performance and thus the discussion should be extended.

Firms continuously invest because of sustainability and growth, for these reasons; firms’ financing decisions are very important [12]. Since the time of Modigliani and Miller [13], the first authors who developed capital structure theory, many researchers have followed their path in order to develop a new theory on capital structure and also tried to depart from Modigliani and Miller’s assumptions, however; the empirical evidence regarding the alternative theories is still inconclusive [14]. If capital structure decision can affect the value of a firm, then firms would like to have a capital structure which maximizes their value [15]. The prediction of the traditional trade-off theory is that the optimal capital structure exists and is determined by the achievement of balance between tax benefits and costs of debt, considering other variables constant [16]. Despite the prediction of the traditional trade-off theory, controversial and inconclusive results have been provided by various researchers who measured the relationship between capital structure and company profitability in the past; where some revealed positive relationship [12], some negative relationship [14] and others discovered no relationship [17]. This lack of consensus and contradictory findings on the relationship between capital structure and business profitability has motivated this study focusing on the processing firm’s listed in the DSE since most of the studies on capital structure and firm’s profitability in Tanzania have focused on banking sector [6] and Small to Medium Enterprises (SMEs) [9] and few have been carried out without specific industrial focus.

2. Literature Review

The relationship between capital structure and business profitability is well explained by traditional trade-off theory and pecking order theory. While the traditional trade-off theory proposes a positive relationship between profitability and leveraging (gearing), the pecking order theory predicts a negative one [7]. The traditional trade-off theory explains the relationship of the mix of debt and equity with a decrease in the total cost of capital to an optimum level, with subsequent increase of debt in the mix leading to an increase in the overall cost of capital [18]. Optimal level of leverage is achieved by balancing the benefits from interest payments and costs of issuing debt, hence the trade-off theory predicts the cost and benefit analysis of debt financing to achieve optimal capital structure [19]. In response to this perspective, the traditional trade-off theory was used in tracking the relationship of the capital structure with the business profitability in this research.

The Traditional trade-off theory of Capital Structure states that when the weighted average cost of capital (WACC) is minimized, and the market value of assets is maximized, an optimal capital structure exists [20]. The theory proposes that all firms have an optimal leverage (debt ratio) which is a point where the advantages of tax shield gets offset by costs of financial distress [21]. This is achieved by utilizing a mix of both equity and debt capital. It implies that a blend of equity and debt financing leads to a firm’s optimal capital structure within certain limits. Thus the firm’s value increases to a certain level with debt capital, after which it tends to remain constant and eventually begins to fall if there is too much borrowing [1]. This theory discusses the limitations of 100% debt oriented capital structure where the weighted average cost of capital is minimum and the market value of a firm is maximum. This limitation is due to personal tax on interest income, cost of financial distress and the agency cost [20]. The Traditional trade-off theory supports moderate use of debt by a tax paying firm and argues that firms choose how much debt and how much equity to use by balancing the benefits and costs of debt. Traditional Trade Theory is based on the assumptions that there are only two sources of funds for capital financing used by the firm which are debt and equity [1]. The other assumption is that the firm pays 100% of its earnings as dividend, so there are no retained earnings. It also assumes that the total assets are given and do not change; and the total finance do not change as well. The business risk and operating profit (EBIT) are assumed to remain constant throughout the business life. The last assumption is that there are no corporate taxes or personal taxes and the firm has a perpetual life.

2.1. Long-term Debt and Equity Financing for the Processing Enterprises in Tanzania

Ndulu et al. [22] when delivering the Bank of Tanzania financial stability survey report on non-financial corporate sector in the country identified that the foreign currency loan to equity leverage ratio was at 50%; where the domestic currency loan to equity ratio was at 62%. They also reported that in the same year, the general business performance was at 80% and the overall business profitability was at 70%. While commenting on the results, they forecasted for both foreign and domestic currency denominated leverage ratios to decrease, driven by the gradual shift from domestic and foreign debt financing to retained earnings and equity.

Edson [16] carried out an investigation on the relationship between the financial leverage and commercial bank’s
profitability in Tanzania. A survey on the publicly listed banks in Tanzania was carried out and regression analysis of the secondary data between the dependent and independent variables performed. The results revealed that the commercial banks were firms with high financial leverage averaging at 86% (debt to equity) and also found out that the change of debt amount in the capital structure had a negative effect on the return of an asset.

During a financial sector assessment program (FSAP) update, Oppers et al. [23] identified that the financial sector in Tanzania had undergone substantial structural change since the 2003 FSAP; financial sector assets had expanded rapidly, led by growth in private credit and yet the banking system which was the main source of finance; remained small and relatively inefficient, and access to finance remained very low. They advised Tanzania on regionalization of the East African Community (EAC) capital market that would enable investors to diversify their portfolios, better manage risks, generate economies of scale and issue access to deeper pool of long-term resources to finance their investments.

On the assessment of the micro-financial issues, Raman et al. [24] as representatives of the IMF, reported that the stock exchange had grown rapidly in recent years with a market capitalization of about 24 percent of GDP. However, they identified that the sector needed to be stepped up due to lack of foreign participation in debt markets and the size that existed was small relative to other middle-income countries. They advised the central Bank of Tanzania to develop financial markets by increasing its emphasis on the improvement of interest rates.

Bird et al. [25] in the World Bank economic update report on Tanzania, identified that interest rates had remained very high and access to credit very restricted, as evidenced by the low ratio of credit to the private sector over GDP at 15% when compared to Kenya, which is at 36%. They also showed that lack of credit particularly long-term credit to invest in real capital assets had limited productivity increases. They advised Tanzania to expand access to credit by making affordable credit available to businesses as a tool to achieve economic growth.

Mori and Olomi [12] in their exploratory study on equity financing in Tanzania identified that the equity market was gradually developing in Tanzania. However, local investments in equity were largely confined to starting companies, in which a principal shareholder took the lead and invited friends or acquaintances. Also, second stage external equity was still very much a preserve of foreign owned equity firms where some of those had social mission driven sector focus such as renewable energy, microfinance and community enterprises. They recommended the government to establish supporting policies that would raise the capacity and awareness of investors on equity financing.

In reference to the above literature, the indication is that there is a growth on long-term and equity financing in Tanzania; however the extent is not sufficient to cover the current investment requirements in the country. Again the existing literature does not cover matters specific to processing enterprises and also lacks detailed quantitative measures.

2.2. Capital Structure and Profitability of Processing Enterprises in Tanzania

Kipesha and Moshi [6] carried out a study to assess the impact of capital structure on banks performance in Tanzania. The study used panel data for the period of 5 years and 38 banks operating in the country. The study used fixed effect regression model to estimate the relationship between the firm leverage and firm performance. Their findings showed that banks in Tanzania used more debts as their source of finance than equity. However, they identified the presence of negative trade-off between the use of debts and firm performance and also pointed out that banks in Tanzania preferred the use of more short term debts in the form of deposits other than long-term debts. They advised that as firm leverage depends on the estimation variables, hence it should be critically assessed before making generalization.

Salamba [7] investigated the impact of capital structure on the performance of small to medium enterprises (SMEs) carried out in Dodoma municipal of Tanzania. Using 100 SMEs, simple regression analysis and Karl Pearson Coefficient of Correlation were used to determine the relationship between the independent and dependent variables. The results indicated that the capital structure had a negative impact on SME’s profitability but discovered a positive and significant impact on SME’s liquidity. He advised that firms to avoid situations where they are highly leveraged in order to prevent the possibility of bankruptcy in cases of debts payment inability.

While investigating on whether capital structure influenced working capital intensity and growth opportunity of a firm, Bundala [8] carried out a survey on ten listed companies on the Dar es Salaam stock exchange (DSE). The multivariate regression model was used to analyze the data. The results indicated no significant relation of capital structure, working capital and growth opportunity of Tanzanian listed companies. The researcher advised that companies aiming for growth to adhere to investment opportunity available within and should prefer internal financing to external financing.

Maila [26] studied the impact of capital structure on financial performance with a focus on CRDB bank, Mwanza branch. The financial statements of CRDB for fifteen consecutive years were surveyed and statistical method of regression analysis was used to analyze the data. Results of the study indicated that the capital structure of CRDB bank had insignificant impact on the financial performance of the bank. He advised the company to improve performance standards, attract more customers and therefore raise the ability to use internal reserves instead of external funds (loans and equity).

2.3. Conceptual Framework

A conceptual framework is a structure which the
researcher believes can best explain the natural progression of the phenomenon to be studied [27]. This study was guided by the Traditional trade-off theory of capital structure which was pioneered by Solomon in 1963. The theory proposes that all firms have an optimal leverage (debt ratio) which is a point where the advantages of tax shield gets offset by costs of financial distress [21]. The study focused on examining the effects of the changes on capital structure as measured by leverage ratio to the firm’s profitability as measured by return on assets, return on equity and earnings per share.

3. Research Methodology

A case study design was used in this research to narrow down a broad field of research into few easily researchable fields [7], whereby the processing enterprises listed in the DSE were the unit of analysis. Moreover, the study applied quantitative approach as it focuses on the manipulation of numerical data to reveal the effect of capital structure on firms’ profitability. In this approach the data collected computed the correlations of the components of capital structure with the measures of firm’s profitability. The focus was on the ratio of debt to equity financing that result in a minimum cost of capital; measured as a long-term debt to equity ratio. The firms’ profitability was measured in terms of return on assets (ROA), return on equity (ROE) and earnings per share (EPS). The targeted population in this study involved all the enterprises listed in the Dar es Salaam Stock Exchange (DSE) in Tanzania and by the end of 2019 a total of 28 companies were listed in that stock market. However, this study purposively concentrated on only seven processing companies which are publicly listed in the category of ‘industrial and allies’ in the DSE. Data was collected through survey of the audited financial statements of 10 years extending from 2009 to 2018. Through this method, the annual and quarterly reports of the listed companies were reviewed and the financial statements surveyed were analyzed and used for statistical analysis.

4. Model Specification

Under this section, long-term debt to equity ratio for each company was established and it formed the independent variable of the study. Then the relationship of the long-term debt to equity ratio with profitability (the dependent variable) as measured by return on assets (ROA), return on equity (ROE), and earnings per share (EPS) was calculated by applying statistical techniques. The study used correlation analysis and regression analysis to analyze effects of capital structure on firm’s profitability. The relationship was estimated by using the following regression model:

\[ Y_{it} = \alpha + X_{it}\beta + \epsilon_{it} \]

Here, \( Y_{it} \) is the dependent variable (firm’s profitability) of firm \( i \) in period \( t \). \( X_{it} \) is the independent variable (capital structure) of firm \( i \) in period \( t \). \( \beta \) is the regression coefficient and \( \epsilon_{it} \) is the error term. Using the following regression models the study examined the influence of capital structure on firm’s profitability:

\begin{align*}
\text{ROA} &= \alpha + (LTDR)_{it}\beta_0 + \epsilon_{it} \\
\text{ROE} &= \alpha + (LTDR)_{it}\beta_0 + \epsilon_{it} \\
\text{EPS} &= \alpha + (LTDR)_{it}\beta_0 + \epsilon_{it}
\end{align*}

Where ROA is the return on assets (ROA), ROE is the return on equity; EPS is the earnings per share and \( \alpha \) is the intercept.

5. Empirical Results and Discussion

The descriptive statistics of the enterprises profitability and capital structure was conducted in order to support the empirical analysis findings. The quantitative analysis of ten years data from 2009 to 2018 was carried out and resulting features thereof are summarized in Table 1.

<table>
<thead>
<tr>
<th>Statistic</th>
<th>N</th>
<th>Range</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Variance</th>
<th>Skewness</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>LTDR</td>
<td>70</td>
<td>5.11</td>
<td>-2.21</td>
<td>2.90</td>
<td>0.4241</td>
<td>0.94677</td>
<td>0.896</td>
<td>0.261</td>
<td>0.287</td>
</tr>
<tr>
<td>ROA</td>
<td>70</td>
<td>139.50</td>
<td>-25.20</td>
<td>114.30</td>
<td>15.9457</td>
<td>17.84105</td>
<td>318.303</td>
<td>2.064</td>
<td>12.690</td>
</tr>
<tr>
<td>ROE</td>
<td>70</td>
<td>194.70</td>
<td>-66.36</td>
<td>128.34</td>
<td>29.0064</td>
<td>27.10825</td>
<td>734.857</td>
<td>0.454</td>
<td>4.201</td>
</tr>
<tr>
<td>EPS</td>
<td>70</td>
<td>1277.00</td>
<td>-418.00</td>
<td>859.00</td>
<td>273.14</td>
<td>283.09075</td>
<td>80140.372</td>
<td>0.183</td>
<td>-0.685</td>
</tr>
</tbody>
</table>

Table 1. Descriptive Statistics.

Table 1 shows that the mean value of return on assets was 15.95% with a standard deviation of 17.84%. The ROA minimum and maximum values were found to be -25.2% and 114.30% respectively. The positive sign on the maximum value of return on assets indicates that some companies were generating profit while negative sign on the minimum value
is an indication of loss for some companies. Results revealed a return on equity mean value of 29.01% at a standard deviation of 27.11%. The maximum value indicated by return on equity was 128.34% whereas the minimum value for the ROE was -66.36%. The positive value of the return on equity show that the processing enterprises were making profit while the negative minimum value indicates that some enterprises were operating at loss. Table 1 indicates a mean value of the earnings per share of 273.14 Tshs with a maximum value of 859.00 Tshs; and a minimum value of -418.00 Tshs; whereby the positive and negative signs on the values represent profit and loss for the shareholders respectively. The standard deviation of the distribution was found to be 283.09 which indicated that the data points were spread out over a wider range of values. The range value for the EPS distribution was found to be 1277.00 Tshs per share outstanding. The mean value for the long-term debt to equity ratio was found to be 0.42 which is an indication that the enterprises in the survey were borrowing on the long-term basis. The maximum value was found to be 2.90 and the minimum value was -2.21. The value -2.21 suggests that some of the enterprises were operating at a very high loss to the extent that their equities had been converted into debts.

The range of the LTDR distribution is 5.11 which suggests that some firms had higher borrowing rate while others had lower borrowing rate.

### 5.1. Analysis of the Long-term Debt to Equity Ratio with Return on Assets

Results indicated that the coefficient of determination (R-Squared) for the regression of LTDR with ROA is at an average of 2.1% (see Table 2). This suggests a low variation on return on assets is explained by the resulting linear model. This indicates that the capital structure leverage has a weak relationship with the enterprise profitability. The average value for the standard error is high at 17.8 and far from the desired value that should be as close as possible to zero; and this indicates that the accuracy of prediction is also low which consequently infers a weak relationship between capital structure and profitability. The Durbin-Watson statistic value of 2.041 indicates that the ROA is slightly negatively autocorrelated with the LTDR. The significance value of 0.228 is an indication that the model is a weak presentation of the variability of return on assets as predicted by the long-term debt to equity ratio. This opposes the traditional trade-off theory which proposes the increase in the firm’s capital structure as measured by gearing (leverage) to strongly increase the firm’s profitability up to an optimum value and ultimately the profit to decrease if there is too much borrowing beyond the optimum value.

#### Table 2. Regression Analysis Results of LTDR with ROA.

<table>
<thead>
<tr>
<th>Model Summary</th>
<th>Adjusted R</th>
<th>Std. Error of Estimate</th>
<th>Durbin-Watson</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>R R Square</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>.146</td>
<td>0.021</td>
<td>17.77958</td>
</tr>
</tbody>
</table>

a. Predictors (Constant), LTDR  
b. Dependent Variable: ROA

<table>
<thead>
<tr>
<th>Coefficients</th>
<th>Standardized Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>Unstandardized Coefficients</td>
</tr>
<tr>
<td>(Constant)</td>
<td>14.780</td>
</tr>
<tr>
<td>LTDR</td>
<td>2.748</td>
</tr>
</tbody>
</table>

#### 5.2. Analysis of the Long-term Debt to Equity Ratio with Return on Equity

Results revealed a coefficient of determination of 1.9% which indicates that there is a weak proportion of variance in ROE that can be explained by capital structure leverage measured by long-term debt to equity ratio (see Table 3). This is an indication that there is weak relationship between LTDR and the ROE. This disagrees with the traditional trade-off theory which suggests a strong positive relationship between capital structure leverage and the firm’s profitability. The Durbin-Watson statistic value of 1.69 indicates that the ROA is slightly positively autocorrelated with the LTDR when compared to a value of 2 which has a zero autocorrelation. The t-test value averaging at 1.14 has an absolute value which infers that LTDR and ROE have a notable relationship.

#### Table 3. Regression Analysis Results of LTDR with ROE.

<table>
<thead>
<tr>
<th>Model Summary</th>
<th>Adjusted R</th>
<th>Std. Error of Estimate</th>
<th>Durbin-Watson</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>R R Square</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>.137</td>
<td>0.019</td>
<td>27.05029</td>
</tr>
</tbody>
</table>

a. Predictors (Constant), LTDR  
b. Dependent Variable: ROE
5.3. Analysis of the Long-term Debt to Equity Ratio with EPS

Results of the econometric analysis revealed a coefficient of determination of 3.9% which indicates a weak proportion of variance in EPS that can be explained by LTDR (see Table 4). This indicates a weak relationship between capital structure measured by the long-term debt to equity ratio and the firm’s profitability which is measured by the earnings per share. The Durbin-Watson statistic value of 2.09 indicates that the ROA is slightly negatively autocorrelated with the LTDR when compared to a value of 2 which has a zero autocorrelation. Lastly, the t-value of -1.66 has a slightly higher absolute value but still an evidence of the existing notable relationship between capital structure leverage and the firm’s profitability. In summary, a weak relationship was found between capital structure and business profitability. Similar results were obtained by Uremadu et al., [28] thus conclude that capital structure is not a major determinant of firm profitability.

<table>
<thead>
<tr>
<th>Model</th>
<th>B</th>
<th>Std. Error</th>
<th>Beta</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>(Constant)</td>
<td>27.346</td>
<td>3.547</td>
<td>7.709</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>LTDR</td>
<td>3.916</td>
<td>3.440</td>
<td>0.137</td>
<td>1.138</td>
</tr>
</tbody>
</table>

Table 4. Regression Analysis Results of LTDR with EPS.

6. Conclusions and Recommendations

The main objective of this study was to examine effects of capital structure on business profitability among processing firms in Tanzania by identifying and analyzing the relationship between long-term debt to equity ratio and firms’ measures of profitability. The investigated processing enterprises were found to be making a significant amount of profit at various degrees of profitability ratios with an average of 15.95%, 29.01% and 273.14% for ROA, ROE and EPS respectively; and the trends indicated a decline in the past three years from 2016 to 2018. Evaluation on the capital structure confirmed that the enterprises were borrowing to run the business with various levels of long-term debt to equity ratio (LTDR) from firm to firm at an average of 0.42 long-term to equity ratio. The relationship between capital structure and business profitability was confirmed in this study to be weak and insignificant based on a low coefficient of determination (below 4%) as found during regression analysis, a p-value > 0.05 and the low correlation coefficient (less than 20%) on all measures of profitability. Thus, the capital structure has weak and insignificant effect on the business profitability.

Therefore, financial managers should follow a moderate and cautious approach to debt issues despite the benefit of tax shield in order to minimize the risk of operating under financial distress. Results indicated that the limits for the optimum leverage are not discrete but continuous thus financial managers should raise their firm’s debt ratio gradually and take time to operate at a given ratio so as to maximize the value of the firm with time. A sudden increase in debt ratio may surpass the optimum leverage which could lead the firm into failure to realize the best operating leverage. Processing firms should follow the pecking order theory suggestion in raising capital by first utilizing internal sources such as retained earnings, then debt and equity should be the last resort. It is also recommended that managers of listed processing enterprises should reduce the reliance on long-term debt as a source of finance. Future studies can expand the scope of the survey to add more data and use other determinants of capital structure such as firm’s size, capital condition and the nature of the business to develop a model that will combine all determinants and relate them to the profitability measures.

References


