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Capital Structure Influence on Firm's Financial Performance: Differences in Commercial Public and Private Banks, Evidence from Tanzania

Dr. Aniceth Kato Mpanju
Senior Lecturer, Tanzania Institute of Accountancy, Dar-Es-Salaam, Tanzania

***Abstract*—** This study investigates the influence of capital structure on private and public firm's financial performance measured by ROA and ROE in Tanzania. The period of 2000-2022 was chosen for the study as both databases have the capacity to store data up to 22 years and beyond. The study survey was undertaken from 21 private commercial banks and 13 public commercial banks, which are listed at the Dar es Salaam Stock Exchange (DSE), which reached 426 and 286 years of observations, respectively. Capital structure is measured by total debt, long-term debt and short-term debt. Then, the study checks if there is a difference between these relationships. Fixed effect regression was used to investigate the relationship between the independent and dependent variables. Capital structure was found to influence performance positively, except for short-term debts influence on ROA in the case of publicly listed commercial banks and long-term debts influence on ROA in the case of private commercial banks. There was no statistically significant difference found of the influence of the capital structure on performance between public and private commercial banks, except for the influence of the long-term debt.

***Keywords*—** Capital Structure, Financial Performance, ROA, ROE, Commercial Banks.

I. INTRODUCTION

Companies are founded with the goal of increasing their value and that of their shareholders. This can be achieved through dividend payments and investments in profitable projects. Studies conducted in developed and developing countries could not solve the problem of dividend changes (Rafindadi & Bello, 2019). The payment of dividends is one of the most discussed issues in the field of finance amongst scholars, students, researchers, managers, and policy makers.

The firm has to make decisions on its optimal capital structure, in which it determines the portion to be retained for further business expansion and which portion to be distributed to shareholders in the form dividend. Dividend policies adopted by a firm are related to financial performance of those firms (Dogan & Topal, 2014). John Lintner proposed a model in 1959 which stressed that dividend payment increases the value of the firm and the wealth of shareholders.

John Lintner, in 1961, made a survey on what factors constitute dividend payments. Out of his survey, he found the following. The model proposed that most of the firms have got long-run target dividend-payout ratio. Thus, many managers focus on divide changes rather than on absolute levels. The author argues that changes in dividend depends on shifts in long-run workable earnings. So even if circumstances appeared to warrant a large dividend increase, managers are likely to move only partway toward their target. As a result, dividends are much more stable than earnings. Many managers do not want to rescind dividend changes. That is why they do not want to increase more dividend such that they will reach the point of reducing the dividend.

However, Lintner's arguments are not accepted by all. The findings by Modigliani Miller and Franco Modigliani (MM) in 1961 argued that share valuation is a function of the level of corporate earnings, which reflects a company's investment policy, not a function of the part of a firm's earnings distributed as dividends.

They further argued that, given the irrelevancy of a company's capital structure, investment policy or the earning power of the firm's assets were responsible for a company's future profitability and thus the only decisive factors responsible for its market value. Miller and Modigliani concluded that the share valuation is independent of the level of dividend paid by a company.

Diversity in ownership structures is an important explanation for differences in corporate strategy and performance: even within the same institutional and legal structure, companies competing in the same industry, with comparable assets and operating scale may present different ownership structures, corporate governance policies and competitive strategies (Capasso, Rossi, & Simonetti, 2005).

Despite the overriding importance of dividend policy impact on financial performance among Tanzanian financial institutions, only a few studies have been conducted to assess the determining factors of dividend payment in commercial banks in Tanzania (see Kiangi, William, & Milamo, 2022; Lotto, 2020; Raphael, 2018; Karani, 2015) and the impact of on financial performance, market values, and profitability (see Ushahidi, 2018;). This study again seeks to fill the gap by expanding the horizon to incorporate both listed banking institutions on the Dar es Salaam Stock Exchange (DSE) and non-listed banking institutions operating in Tanzania. The purpose of this study is to compare the efficiency of companies that differ under the relevant aspect of their ownership: the stock market listing. Therefore, we compare the performance of listed commercial banks in the stock market against their unlisted counterparts. The aim is to verify whether this difference has an impact on the companies' profitability, financial structure and investment potential. By doing so, this study intends to make a contribution to explain the relationship between ownership structure, corporate governance and performance.

Decisions on dividend payment made by firms is the crucial financial judgment that finance executives have to undertake for firms.

Dividend pay-out decision is considered as the most important financial decision that finance managers come across. Payments of dividends to shareholders from after-tax profit earned and it may be paid twice a year for the case of UK companies or on quarterly basis for USA companies [8]. The decision to pay for final dividends is needs approval of shareholders at the annual general meeting (AGM). Once payment of dividend is declared it becomes a financial liability to the company.

Several studies about dividend policy have been carried out on the effect of dividend policy on financial performance of banks globally and particularly in Tanzania and came out with different results (see Dogan & Topal, 2014; Karani, 2015; Ali, Khurshid, & Chaudhary, 2021; Kiangi, William, & Milamo, 2022).

In Tanzania, studies on dividend policy have been limited to the determining factors of dividend pay-out ratios of listed commercial banks (see Lotto, 2020; and Kiangi, William and Milamo,2022); effects of earnings on dividend policy of firms listed at Dar es Salaam Stock Exchange (see Mchomvu, 2014); examining the relationship between company's performance and stock returns of firms listed at Dar es Salaam Stock Exchange (see Miraji, 2020), and dividend policy and bank performance (see Ushahidi, 2018). Nonetheless, none of these researchers devoted his study to both listed banks at DSE and non-listed banks operating in Tanzania. This study sought to fill the gap by expanding the period to the most recent ten-year period as this can influence the results of earlier studies conducted and contribute to existing literature.

The General Objective

The general objective of the study to establish and examine listed firms' financial performance versus unlisted firms, in Tanzania.

Specific Objectives

To address the main objective of the study, we conducted this study specifically to:

1. to establish whether there is difference in performance (ROE) between listed banks and private/unlisted banks in Tanzania.
2. to establish whether there is difference in performance (ROA) between listed banks and private/unlisted banks in Tanzania

The goal of this study is to analyze the influence of capital structure on the performance of unlisted/private and public commercial bank and investigate if there is a difference in the impact of capital structure on the banks' performance. Therefore, the major research question and minor research questions are as following:

The major research question was developed as follows:

What is the influence of the capital structure on the performance of public and private Tanzanian commercial banks and is there a difference between them?

The minor research questions were developed as follows:

1. What is the influence of the capital structure on the financial performance of public commercial banks?
2. What is the influence of the capital structure on the financial performance of private/unlisted commercial banks?
3. Is there a difference between the two impacts?

In order to assess the impact of capital structure on the performance both in private and public firms, a dataset, obtained from several sources, was created. The data on public commercial banks were obtained from DSE

database, whereas data on private commercial banks were obtained from Bank of Tanzania (BOT) database. From this dataset sample of the Tanzanian publicly listed firms was acquired. BOT is a database that contains information on almost all Tanzanian banks, including private banks, from which our sample was obtained.

The period of 2000-2022 was chosen for the study as both databases have the capacity to store data up to 22 years and beyond. Both samples sought to find methods of data retrieval. First, it must be those that are listed for the nominal banking sector, or Listed in the public sector. Second, they did not see government finances, because the systems and provision of accounting information are completely different from other sectors, moreover, their capital sector is controlled by the government through the Control and Auditor General of Government Accounts (CAG).

This resulted in 21 private commercial banks and 13 public commercial banks, which reached 426 and 286 years of observations, respectively.

For answering the third research question a matched sample of public and private commercial banks was constructed for the sake of comparability. Each publicly listed banks were matched to private commercial banks.

The importance and significance of this study are two-fold. Firstly, it has undeniable academic importance because it will shed more light in the form of empirical evidence onto the obscure nature of private firms.

It will take the challenge of explaining the previously observed differences in performance with the variances in the capital structure.

Secondly, the practical relevance of this research will be grounded in the support to managers and firm owners in their capital structure decisions.

If there is indeed a significant relationship between the capital structure of private firms and their performance, then this information has definitive practical relevance.

II. LITERATURE REVIEW

This section examines the literature related to the study. This was done by reviewing the existing theoretical and empirical literature. This section is also a conceptual framework that guided research in the financial sector performance in Tanzania.

Theoretical Literature Review

Capital Structure

Capital structure determines how a company finances its operations and financial investments. The capital structure involves various securities, such as equity, debt and hybrid securities (Bortych, 2017). Equity is defined as a security that represents an ownership interest, such as common stock. Debt is defined as anything else that belongs to another. Debts are classified according to maturity: if the maturity of the debt is more than 12 months, then it is classified as long-term, such as a bond or loan agreement, otherwise, it is classified as short-term, for a period such as a note. or in some bank loans. Hybrid securities exhibit both debt and equity characteristics, for example, convertible or preferred stock. This study will focus on debt to measure the capital structure, specifically total debt, short-term debt and long-term debt in the business.

Modigliani-Miller Theory

The discussion on the theory of capital structure is the contribution and basic work of two masters in the financial sector, Modigliani & Miller in 1958. Theories are based on ideas: first, markets exist but without friction, which means there are no procurement costs; second, markets are competitive among all competitors, and individuals and businesses are price takers; third, individuals and entering into income transactions at the same price (e.g., borrowing at the same rate; fourth, all participants in the market have the same information; finally, there is no tax.

These ideas partially led to the popular "irrelevance of the capital structure" where debt has no influence on the value of the company under the efficient market hypothesis. Modigliani & Miller's proposal shows that by taking the career policy as given, in an ideal market, excluding taxes, transaction costs and with all information, the capital structure has no effect on the value of careers.

However, each of these assumptions is not true in the "real world". Modigliani and Miller later recognized the limitations of the previous model and decided to include taxes in the equation.

This led to the false suggestion that it was financed with 99.99% of the debt to increase its value. Just by "resting" with thought, it is obvious that the capital structure is important to the value of the company. In the case when all the assumptions are true, the capital structure has an influence on the value of the company.

Agency cost theory

The theory of agency costs was developed by Jensen and Meckling in 1976. Agency costs are defined as the sum of monitoring costs by the principal, agency costs by the agent, and residual losses. Agency problems arise because of conflicts between managers and the firm's owners (equity agency costs) or between the firm's owners and debt holders (debt agency costs). According to agency theory, there are several problems that are associated with debt. The first is known as the overinvestment problem or the "free cash flow theory". Because of the separation of ownership and control, managers tend to maximize their own spending, rather than acting in the best interests of the firm. As Jensen (1986) noted, "the problem is how to motivate managers to part with funds rather than investing them below the cost of capital or wasting them through corporate negligence." Debt capital is discussed as a way to control agency costs (Bortych, 2017). In this case, the leverage will act as a management mechanism for the organization and will force managers to pay the interest payments required to execute and issue cash. Debt serves as a means to encourage managers to align their actions with the interests of shareholders by constraining managers. Thus, interest payments will reduce the amount of cash flow available for managers to use in empire building or other projects with negative NPV Jensen 1986). Another implication of high financial leverage is that it can influence managers and reduce agency costs through the threat of bankruptcy, which causes personal losses to managers in terms of wages, reputation, and demand. Therefore, the theory argues that high levels of debt contribute to reducing the agency costs of the firm and provide a reduction in agency conflicts.

The second problem is known as the risk-shifting problem. This problem arises in situations where managers have an incentive to take on too much risk. Since the maximum rate of return available to debt holders is set by the interest rate on debt and the maximum rate of return to equity holders is almost unlimited, managers tend to take on riskier projects and strive to earn higher returns. Debtors are deprived of this abnormal return and bear the cost of risk. This leads to another meaning of the agency cost of debt, investment in risky projects by equity holders at the expense of debt holders.

The final problem is the situation of underinvestment. Managers or owners of firms may choose not to invest at all in projects that provide returns to debt holders. When investments are financed with debt, an incentive problem arises because the proceeds of a project must be shared between the owners and bondholders. Whenever shareholders do not receive the desired return, then projects with a positive NPV may not be taken, which leads to a decrease in overall performance.

Performance

There is no consensus on what financial performances. However, it can be defined as the overall financial health of the business/firm (Blackline, 2024). All businesses take financial assets and utilize them to generate revenue and hence, profits. The metrics that are used to assess financial performance include inventory turnover, total asset turnover, return on equity (ROE), and return on assets (ROA).

Unlisted/Private and Public Commercial Banks

In this study, public commercial banks are defined as commercial banks, that have shares quoted or listed on stock exchange and unlisted/private commercial banks are the commercial banks that are not having shares listed on a stock markets. This is a fundamental difference between private and public commercial banks (Bortych, 2017). The ownership of private firms is more concentrated, compared to public commercial banks, therefore, the owners of the unlisted/private commercial banks have a higher degree of control over the bank's operations.

Empirical Literature Review

Through a paired survey study on a sample of 30 listed companies and 30 unlisted companies, Capasso, Rossi, and Simonetti (2005) found that listed companies tend to be faster, use less financial leverage, invest less in tangible assets and earn less return on equity compared to non-listed companies.

A study by Akguc, Choi, and Kim (2015) on the financial performance of listed public firms and unlisted private firms in the U.K. over the period 2003-2012 revealed that private firms outperform public firms due to a number of factors, including greater operational efficiency stemming from managerial flexibility, higher R&D investment due to longer time horizon, and an increase in controlling ownership ceteris paribus.

Similarly, a study on the relationship between listing and firm performance among 48 listed and unlisted Vietnamese firms by Tan and Trung (2019, p. 363), indicated that: listed companies only can improve their post-listing sales and reduce their re-investment rate, but that there is no evidence for firm improvement in terms

of profitability, operating efficiency and leverage. This result explains why firms do not need to urgently participate in listing although the Government of Vietnam has issued clear regulations on listing time for firms after equitization.

The study results by Bortych (2017) indicated a positive relationship between capital structure and the financial performance of private firms, except for the long-term debt on return on assets. In the case of public firms, the findings also indicated a positive relationship between the variables, except for short-term debt, which was found to influence ROA negatively due the fact that it induces myopic behavior. Bortych (2017, p. 9) further points out that:

When comparing the regressions of the two samples, only short-term debts influence on ROA was found to be statistically significantly different between the two types of companies. It is assumed that it is due to higher cost of accessing the long-term debt market by private firms.

Conceptual model

From the above review of literature, our study developed dependent variable and independent variable for our study, and hence developing Conceptual model as depicted in Figure I. For the study purpose, dependent variables that were used to measure performance were ROE and ROA while for independent variable capital structure was operationalized as short-term debt, long-term debt and total debt.

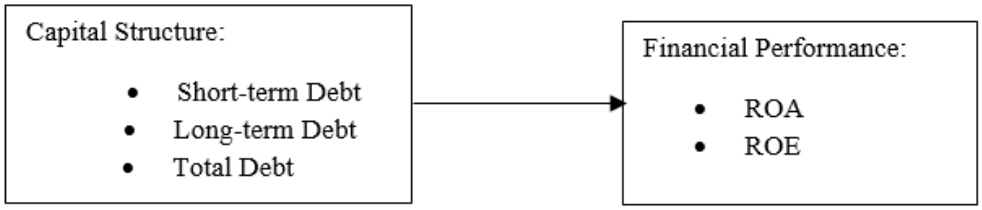

Figure I: *Conceptual model*
Source: Based on Researcher's conceptualization

III. RESEARCH METHODS

Variables.

In this study the dependent variables that were used to measure performance were ROE and ROA. Capital structure was operationalized as short-term debt, long-term debt and total debt. In order to provide significant results, five control variables were identified. These variables have the highest influence on financial performance. These included size, growth, asset, sales growth, risk and efficiency.

Performance variables: ROE and ROA

Financial performance is a measure of how well a company is using its assets to generate the most revenue possible. Often in the Return on Assets and Return on Equity research was used as an indicator of the performance of the company in question. Therefore, ROA was calculated as net income divided by total assets whereas for ROE, was calculated as net income divided by total equity.

Explanatory variables: short-term debt and long-term debt.

The financial leverage was measured as short-term debt, long-term debt and total debt. Book values of profits were used for the variables, since market values of private companies are not available. The use of book values for public companies is important for comparison purposes. Efficiency in this study is defined as: short-term: book value of short-term debt to total assets; long-term debt: book value of long-term debt to total assets; total debt: total debt to total assets. To avoid possible endogeneity problems, the explanatory variables were lagged by one year.

Control variables: size, growth in sales, growth in assets, efficiency and risk.

The five variables that have been identified as being most frequently used in these types of studies and most likely to affect performance are included in this study as controls. Size were measured as the logarithm of total assets. Asset growth measured as the annual growth rate of total assets. Sales growth is measured as the growth in operating income from time t-1 to time t. Efficiency is measured as asset sales and is measured as operating income over total assets. Risk was measured as the standard deviation of the return on assets over 4 years.

Model

In order to explain and understand the influence of the capital structure on public commercial banks and private commercial bank's performance, cross-sectional time-series data analysis were used; this is also called panel data. The panel method was used, because the sample

has data across different firms and over twenty-two years. The regression model was specified as follows:

$$y_{i,t} = \beta_0 + x'_{i,t-1}\beta + z'_{i,t}\beta + e_{i,t}, i = 1 \dots N \text{ and } t = 1 \dots 22$$

Where:

$x_i t-1$ is a K-dimensional vector of independent variables;

$z_{i,t}$ is a K-dimensional vector of control variables, which does not contain an intercept term;

$y_{i,t}$ represents the dependent variables and can be either ROE or ROA, depending on the model; independent variables consists of capital structure, which can be either total debt, either long-term debt, either short-term debt.

The models were run separately for the samples of private and public commercial banks.

To answer the third minor research question and check as whether there is statistical differences among the coefficients in the two linear regressions compared the coefficients of two regressions as suggested by Gregory Chow in 1960.

Correlation matrixes has been presented in Table I. It was found that most cross-correlation values for the independent and control variables were fairly small, which indicated absence of the multicollinearity problem among the variables.

The the values of public commercial banks' dataset are represented on left side of the matrix, whereas the values for private commercial banks' dataset are represented on the right side.

Table I. *Correlation matrix*

	Privately held Variables	**ROA NI**	**ROE NI**	**ROA EB**	**ROE EB**	**TD**	**LTD**	**STD**	**SIZE**	**GS**	**GA**	**EFF**	**RSK**
	ROA NI	**1.00**	0.56	0.81	0.55	0.19	-0.18	0.05	0.08	0.13	0.08	0.16	0.15
	ROE NI	0.19	**1.00**	0.55	0.88	0.18	0.00	0.22	0.11	0.13	0.08	0.20	0.13
	ROA EB	0.85	0.25	**1.00**	0.67	-0.10	-0.15	-0.00	0.11	0.14	0.08	0.19	0.11
Publicaly held	ROE EB	0.14	0.86	0.23	**1.00**	0.24	0.02	0.24	0.13	0.13	0.07	0.21	0.09
	TD	0.02	0.02	0.08	0.08	**1.00**	0.54	0.66	0.09	0.03	-0.02	0.22	-0.08
	LTD	0.04	0.03	0.02	0.01	0.56	**1.00**	0.43	0.21	-0.04	-0.04	-.032	-0.01
	STD	0.03	0.01	0.10	0.08	0.55	-0.10	**1.00**	0.05	0.10	0.01	0.44	0.01
	SIZE	0.29	0.03	0.31	0.05	0.29	0.10	0.28	**1.00**	0.10	0.04	0.37	-0.11
	GS	0.03	-0.01	0.04	-0.01	-0.10	-0.08	0.01	0.15	**1.00**	0.30	0.11	-0.05
	GA	0.13	-0.00	0.04	-0.02	-0.04	-0.03	0.01	0.47	0.01	**1.00**	-0.03	-0.01
	EFF	0.10	0.17	0.16	0.19	0.45	0.33	0.15	0.41	-0.04	-0.12	**1.00**	-0.02
Publicaly held	RISK	0.47	-0.12	-0.49	-0.14	-0.27	-0.01	0.41	0.25	0.05	0.02	-0.02	**1.00**

IV. RESULTS

Descriptive statistics

The full descriptive statistics can be seen in the Table II. The mean of ROA of Public commercial banks is weakly positive being 0.4%, while measuring with net income (NI) and 3.0%, while measuring with EBIT. The mean of ROE of Public firms is highly positive being 21% and 35%, while measuring with NI and EBIT respectively. This conclusion can be reached by looking at the lower medians of 10% and 16% and high standard deviations of 35% and 48% respectively. However, the ROE in this sample is higher, compared to theirs. As for Total debt, Public commercial banks are highly leveraged, having on average 59% of their capital structure consisting of debt. This result is not skewed since the median is 56%. Long Term Debt is 39%, which is also not skewed. Short Term Debt is 28%, which is lower than LTD. As for private commercial banks, the mean of ROA of private companies is 5% and 7% for NI and EBIT respectively. ROE is again higher compared to ROA, being 19% and 27% for NI and EBIT respectively. Private firms hold 67% of their total assets in debt. Long-term debt is 24% of the total assets and short-term debt represents 39% of the assets.

For comparison between private and public commercial banks matched sample was used and a t-test for mean comparison was done. Private commercial banks were found to have higher ROA by 5% and 4% measured by Net Income and EBIT than public commercial banks in matched sample. The situation with the difference in ROE measured by Net Income and by EBIT, however, is diametrically opposite. Public commercial banks perform better than the private commercial banks, 7% difference measured by EBIT. This difference between ROA and ROE can be explained by the fact that public

commercial banks' equity is dependent on the market, therefore, when the company performs worse, the equity is worth less and the ROE gets higher. In contrast, private commercial banks do not have such a problem and their equity is not dependent on the market value. TD is higher in private commercial banks by 5%, which is supported by the fact that equity is more expensive for private commercial banks. LTD, however, is by 16% higher in the public commercial banks, compared to the private commercial banks and STD is higher by 18% in the private commercial banks, which could be explained by the fact that private commercial banks have harder access to long-maturity debt markets. As for the difference in control variables, even in matched sample public commercial banks are on average 20% bigger than private commercial banks. In the unmatched sample, that difference amounts to 69%. Private commercial banks are more efficient by 71% and are riskier by 3% than public commercial banks.

Table II. *Descriptive statistics*

Panel A. Full sample															
	Private						**Public**						**Differences**		
Variable	**#Obs**	**Mean**	**S.D.**	**Med**	**Min**	**Max**	**#Obs**	**Mean**	**S.D.**	**Med**	**Min**	**Max**	$\overline{Prv} - \overline{Pub}$	**t-statistic**	**Δ in median**
ROA NI	426	0.055	0.083	0.042	-0.182	0.470	286	0.004	0.176	0.021	-1.420	0.217	0.051***	20.471	0.020***
ROE NI	426	0.191	0.262	0.138	-0.367	0.987	286	0.218	0.354	0.100	-0.214	0.830	-0.005	-0.642	0.028***
ROA EB	426	0.073	0.120	0.060	-0.181	0.519	286	0.030	0.127	0.042	-0.569	0.260	0.047***	15.454	0.017***
ROE EB	426	0.270	0.337	0.188	-0.326	1.311	286	0.352	0.483	0.163	-0.103	1.267	-0.071***	-6.771	0.027
TD	426	0.664	0.259	0.680	0.014	0.971	286	0.591	0.261	0.553	0.008	0.966	0.063***	7.207	0.103***
LTD	426	0.241	0.239	0.181	0.009	0.829	286	0.391	0.237	0.380	0.007	0.827	-0.116***	-20.380	-0.206***
STD	426	0.392	0.252	0.404	0.001	0.881	286	0.284	0.248	0.303	0.000	0.994	0.102***	10.710	0.107***
SZ	426	4.454	0.522	4.201	3.731	5.755	286	5.620	0.982	5.636	3.641	7.419	-0.684***	-32.054	-1.344***
GS	426	0.039	0.178	0.017	-0.361	0.720	286	0.082	0.260	0.025	-0.336	1.268	-0.028***	-5.320	-0.007**
GA	426	0.047	0.163	0.014	-.252	0.803	286	0.067	0.240	0.016	-0.335	1.329	-0.012***	-2.245	-0.003
EFF	426	2.184	1.443	1.832	0.066	5.862	286	1.042	0.737	0.916	0.007	3.086	1.140***	24.454	1.007***
RSK	426	0.041	0.038	0.028	0.003	0.219	286	0.056	0.065	0.028	0.004	0.518	-0.021***	-14.017	0.007
						Pan	el B. Matched firms								
Variable	#Obs	Mean	S.D.	Med	Min	Max	#Obs	Mean	S.D.	Med	Min Max		$\overline{Prv} - \overline{Pub}$	t-statistic	Δ in median
ROA NI	426	0.057	0.082	0.051	-0.174	0.244	286	0.001	0.143	0.023	-1.330	0.217	0.052***	6.408	0.019***
ROE NI	426	0.220	0.284	0.146	-0.359	0.897	286	0.220	0.412	0.101	-0.214	0.840	-0.000	-0.014	0.046***
ROA EB	426	0.075	0.103	0.065	-0.141	0.378	286	0.031	0.116	0.041	-0.209	0.250	0.041***	5.214	0.014***
ROE EB	426	0.306	0.379	0.204	-0.317	1.221	286	0.382	0.531	0.147	-0.102	1.257	-0.072**	-2.165	0.038
TD	426	0.650	0.253	0.653	0.003	0.881	286	0.612	0.186	0.615	0.014	0.967	0.049***	5.403	0.028***
LTD	426	0.210	0.173	0.207	0.001	0739	286	0.385	0.210	0.372	0.012	0.916	-0.163***	-13.764	-0.106***
STD	426	0.419	0.251	0.440	0.001	0.881	286	0.240	0.216	0.216	0.000	0.904	0.182***	8.668	0.224***
SZ	426	4.828	0.582	4.905	3.721	6.003	286	5.115	0.821	5.206	3.643	7.307	-0.204**	-3.402	-0.274
GS	426	0.056	0181	0.028	-0.360	0.720	286	0.053	0.206	0.025	-0.308	1.258	-0.005	-0.311	0.007
GA	426	0.064	0.182	0.039	-.241	0.701	286	0.060	0.218	0.021	-0.325	1.319	0.003	0.200	0.012
EFF	426	2.046	1.367	1.863	0.055	5.761	286	1.324	0.711	1.241	0.031	3.076	0.712***	7.112	0.612***
RSK	426	0.044	0.035	0.028	0.002	0.129	286	0.072	0.100	0.036	0.003	0.677	-0.034***	-3.656	-0.005

*****, **, * represent significance at 1%, 5% and 10% levels, respectively. Differences are calculated as Private-Public. Inferences about the differences in means are taken out via t test and inferences about differences in medians via Two-sample Wilcoxon rank-sum test.**

Regression results

Firstly, the discussion of public commercial bank's regression was conducted, which was followed by the discussion of *private* commercial bank's regressions and lastly, the matched sample regressions compared them, using Chow test. All of the regression results can be found in table II and IV.

Table III. *Results of the fixed effect regression model*

Panel A. Results for full sample												
	Private firms						Public firms					
Dependent variable	ROA (NI)			ROE (NI)			ROA (NI)			ROE (NI)		
Independent variable	TD	LTD	STD	TD	LTD	STD	TD	LTD	STD	TD	LTD	STD
	0.039**	-0.022	0.039***	0.215***	0.055	0.179***	0.053*	0.158***	-0.079**	0.109*	0.130*	0.091
	(2.60)	(-1.97)	(2.89)	(5.10)	(0.51)	(4.30)	(1.82)	(4.39)	(-2.43)	(1.78)	(1.74)	(0.02)
Control variables												
	0.020***	0.009	0.039***	0.119***	0.080	0.132***	0.025	0.030	0.035	-0.169**	-0.101	-0.113
Size												
	(2.60)	(2.69)	(2.70)	(3.02)	(1.32)	(3.22)	(0.65)	(1.12)	(1.01)	(-2.29)	(-1.50)	(-0.34)
Growth in	0.031***	0.050***	0.023**	0.100***	0.120***	0.106***	-0.008	-0.002	-0.026	0.083**	0.079**	-0.065
sales	(3.59)	(3.60)	(3.61)	(4.09)	(2.45)	(4.19)	(-0.35)	(-0.43)	(-1.32)	(2.05)	(2.09)	(-0.51)
Growth in	0.310***	0.019*	0.308***	0.048**	0.050	0.050***	0.145***	0.139***	0.170***	0.164**	0.050	0.120
assets	(3.28)	(5.70)	(3.20)	(2.19)	(1.18)	(1.89)	(4.19)	(5.70)	(6.20)	(2.50)	(1.02)	(0.90)
	0.0142***	0.004*	0.012***	0.012	0.011	0.008	-0.150***	-0.110***	-0.051***	0.077	0.024	0.060
Efficiency												
	(3.90)	(3.63)	(3.63)	(1.29)	(0.59)	(0.78)	(-5.50)	(-5.22)	(-2.49)	(1.59)	(0.63)	(0.51)
	0.661***	0.580***	0.651	1.558***	1.548***	1.549***	-4.388***	-0.279***	-0.280***	-0.3430**	0.059**	0.399
Risk												
	(13.93)	(10.60)	(13.59)	(11.99)	(7.97)	(11.95)	(-5.38)	(-4.51)	(-4.00)	(-2.29)	(0.49)	(1.30)
constant	-0.218***	-0.221**	-0.221**	-0.599**	-0.463*	-0.555**	0.019	-0.129	-0.79	0.971**	0.640**	0.49
	(-3.08)	(-2.20)	(-1.81)	(-3.27)	(-1.09)	(-3.10)	(0.09)	(-0.69)	(-0.35)	(2.42)	(1.69)	(0.22)
Within R^2	0.117	0.191	0.149	0.139	0.180	0.129	0.249	0.179	0.20	0.111	0.091	0.066
F statistic	54.00***	42.40***	53.97***	42.50***	14.11***	41.16***	21.81***	22.69***	19.29***	4.30***	2.37**	2.14*
N	21	21	21	21	21	21	13	13	13	13	13	13
p-values are given in parenthesis. ***, **, * represent significance at 1%, 5% and 10% levels, respectively												

Public Commercial Banks

Table 4. *Results for matched sample*

	Private firms						Public						Difference?					
Dependent variable	ROA (NI)			ROE (NI)			ROA (NI)			ROE (NI)			ROA			ROE		
	TD	LTD	STD	TD	LTD	STD	TD	LTD	STD	TD	LTD	STD	TD	LTD	STD	TD	LTD	STD
Independent variable	0.069* (2.13)	-0.002 (-0.04)	0.100* (1.83)	0.321** (2.44)	0.219 (0.71)	0.421** (3.19)	-0.154 (-0.61)	0.220** (2.59)	-0.110 (-1.66)	0.230* (1.70)	0.440*** (2.60)	0.090 (0.70)	-	-	+	-	-	-
Control variables																		
Size	-0.053 (-1.20)	-0.088 (-1.22)	-0.060 (-1.33)	-0.451** (-2.18)	-0.357 (-1.70)	-0.289** (-3.01)	-0.098* (-1.75)	-0.141*** (-2.75)	-0.085 (-1.57)	-0.180** (-2.01)	-0.187** (-1.85)	-0.154 (-1.39)	-	-	-	+		+
Growth in sales	0.085* (1.90)	0.187*** (2.71)	0.082** (1.88)	0.240** (2.20)	0.577*** (2.85)	0.260** (2.33)	-0.098* (-1.83)	-0.092* (-1.75)	-0.122** (-2.32)	-0.113 (-1.25)	-0.070 (-0.70)	-0.119 (0.88)	+	+	+	+		+
Growth in assets	0.030 (0.55)	0.130** (3.12)	0.032 (0.62)	0.145 (1.31)	0.302 (1.29)	0.215 (1.41)	0.361*** (5.10)	0.366*** (5.90)	0.312*** (4.81)	0.411*** (3.70)	0.444*** (3.66)	0.371*** (3.30)	+	+	+	-	-	-
Efficiency	0.003 (0.41)	0.009 (0.51)	0.000 (0.25)	0.017 (0.40)	-0.040 (-0.70)	0.008 (0.830)	0.057 (0.95)	0.060 (0.89)	0.057 (1.24)	0.050 (0.65)	0.182** (1.99)	0.171** (2.06)	-	-	-	-	+	-
Risk constant	0.053 (0.20)	-0.320 (-0.93)	0.050 (0.20)	0.035 (0.08)	-0.370 (-0.40)	0.043 (0.19)	-0.377** (-2.51)	-0.257** (-1.82)	-0.181 (-1.38)	0.002 (0.00) 0.890**	0.195 (0.79) 0.700	0.199 (0.78)	-	-	-	-	-	-
Within R2	0.593	0.600	0.331	1.770**	2.300*	1.540**	0.54=58**	0.559**	0.388	(2.30)	(1.45)	0.695						
F statistic	(1.32)	(1.42)	(1.20)	(2.33)	(1.87)	(2.09)	(2.09)	(2.72)	(1.63) 0.223	0.146 2.70***	0.157 3.89***	(1.55) 0.098						
N										13	13	1.82*						

	0.126 2.38** 21	0.2322 3.52*** 21	0.059 2.04* 21	0.088 2.60** 21	0.184 2.90*** 21	0.108 2.89** 21	0.331 8.21*** 13	0.281 8.47*** 13	6.60*** 13	13		13							

p-values are given in parenthesis. *, **, * represent significance at 1%, 5% and 10% levels, respectively. The difference columns in matched sample show the results of the Chow test. + represents difference of at least 10% level of significance. – represents no difference.**

In the public commercial bank's regression, one can observe the F statistic and see that all models are statistically significant at least at the 5% level. The models overall R-squared

varies from 18% to 23% explained the difference. In the model of ROA use the overall average parameter R-square of 22% to be considered. This means that one fifth of the variation in ROA can be explained using these models. Long-term debt and total debt show a statistically positive influence on performance, which means that whenever a company has more debt, the better it performs. This finding confirms our hypothesis that we formulated above. However, Short Term debt shows a significant influence especially in terms of ROA. STD can be explained by the fact that short-term debt stimulates myopic behavior in public treatment. Since public organizations have less asymmetry of information, they are at risk of not being able to refinance themselves or the risk of bankruptcy by the lender if they do not meet short-term revenue targets. This fear of bankruptcy may mean not to choose projects that have a high NPV value but are accrued more in the future. With the technology in the new technology can be rejected, quick payment will be given, which is a poor interpretation. Regarding the control variables, Resource Growth has a positive effect on diversity in all models. Risk and efficiency have a significant influence on ROA in all models. In general, the results of the regression of public opinion confirm that the debt public trust is good. However, due to the low comparability of public information and the general myopia of the public, STD affects ROA negatively.

Private Commercial Banks

Regarding the shape of private firms, all models are statistically significant at least at the 1% level and have total R-squares ranging from 12% to 18%. In the ROA models, Total Liabilities and Short Term Liabilities confirm the assumption by showing positive results. Long Term Debt, however, defies the concept with serious negative consequences. This can be explained by the high floating costs that trust companies incurred in order to obtain debt with a higher maturity. Because of the long-term popularity of the part of the profit that is the example of the search they will get for the search, for the search for more profit in less investment. This has an influence on the total sales of the company, however, it does not affect the return, as seen in the case of ROE. ROE is significantly and significantly affected by TD and STD, which confirms our hypothesis. Regarding the winning variables, size, sales growth, asset growth, efficiency and risk, all have a positive effect on both dependent variables in multiple models.

Comparison

The regression results on the matched samples are shown in table 4. First the ROA was compared and then the ROE models. The regression found that short-term debt has a positive effect on firm firms, but no significant effect on firm firms. The results also show that there is a difference in the influence of short-term debt on ROA between trust and public trust. All the other variables found are not different between the belief of the faith and the public. The results showed that none of the ROE models had a statistically significant difference in the dependent variables. Therefore, the third hypothesis was confirmed by concluding that there is no difference between the influence of the capital structure on the performance between the beliefs of the teaching and the public.

Robustness testing

Regarding robustness testing, a few methods were adopted. First, the dependent variable was measured, by other agents, that is, instead of using actual consumption, EBIT to. When the regressions were run again, no differences from the main model results were found. As for the second robustness test, OLS regression and analysis of the means of a series of variances were performed. The effect on performance in these models was controlled for by the industry dummy (two-digit SIC code). These models did not show any strong connection from the main model either.

V. CONCLUSION AND RECOMMENDATIONS

This research investigated the relationship between capital structure and firm performance employing fixed effect regression model for the analysis of private and

public commercial banks in Tanzania. The results confirmed the hypotheses and stated that capital structure influences the financial performance of private commercial banks positively, except for the case of the influence of long-term debt on return on assets, which was explained by increased impact of underinvestment problem and great floatation costs. In the case of public commercial banks, the prediction of the hypothesis held true, excluding the case of short-term debt, which is found to influence ROA negatively. Short-term debt's deviation from the prediction was explained by the fact that it induces myopic behavior. When comparing the regressions of the two samples, only short-term debts influence on ROA was found to be statistically significantly different between the two types of companies. It is assumed that it is due to higher cost of accessing the long-term debt market by private firms. As for the future research it would be interesting to investigate it by including cost of debt and different floatation costs into the model. All in all, influence of debt on the firm's performance was found not to be significantly different between private and public commercial banks.

This study contributes to the group of research on the influence of the structure of stable financial capital and the relationship between debt and the performance of commercial banks, which has never been done before in Tanzania. It also adds to the research on public commercial banks. It compares the results and finds that the influence of capital structure on performance is not different for commercial and public banks. This would increase the power of generalization to research on public commercial banks only. Regarding the practical aspects of the research, the managers of commercial banks can be confident to rely on debt in their capital structure and talk about the part of short-term debt to increase performance.

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