

## **The Nexus between Capital Structure and Financial Performance of Banks: The Influence of COVID 19 in Tanzania**

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**Abstract:** *The purpose of this study was to examine the nexus between capital structure and financial performance of commercial banks in Tanzania. Panel data were used to conduct the empirical study which was extracted from the annual reports of 25 selected commercial banks for the period from 2016 to 2020. Descriptive statistics, correlations, fixed effect, and random effect models were used for the data analysis. Then, with the results of the Hausman Specification Test, the fixed effect model was considered as the most suitable model to examine the relationship between capital structure and ROA. Random effect model was considered as the most suitable model to examine the relationship between capital structure and ROE. This study was one of the very few studies which have investigated the nexus between capital structure and financial performance of commercial banks in Tanzania under COVID 19 impacts which gives the contribution to the existing finance literature.*

**Keywords:** Growth in banks deposit, Capital structure, Bank size, Return on Assets, and Return on equity.

### **INTRODUCTION**

The bank plays a critical role in transmitting monetary policy impulses to the entire economic system. Capital structure plays a significant role in the success of an enterprise. A good capital structure enables a banking company to go ahead successfully on its path and attain gradual growth (Allahham, 2015). The COVID-19 pandemic caused the worst crisis in the global economy since the 2007–2009 global financial crisis. It slowed down, and temporarily froze, the functioning of both the real and financial sectors, including banks (Kozak, 2021). The bank's performance is the capacity to generate sustainable profitability (Ferrouhi, 2018). The most common measure of bank performance is profitability. Profitability is measured using the following criteria: Return on Assets (ROA), the ratio is important as it shows the ability of management to acquire deposits at a reasonable cost and invest them in profitable investments (Ahmed, 2009). ROE is the most important indicator of a bank's profitability and growth potential. It is the rate of return to shareholders or the percentage return on each of equity invested in the bank (Kumbirai and Webb, 2010). The European Central Bank BCE defined three traditional measures of performance: Return on Assets ROA, Return on Equity ROE, and Net Interest Margin NIM. ROE and ROA are important components in banking for measuring corporate performance. Return on equity (ROE) helps investors gauge how their investments are generating income, while return on assets (ROA) helps investors measure how management is using its assets or resources to generate more income.

These ratios are defined as follows:  $ROA = (\text{Net income} / \text{Total assets}) \times 100$ , this ratio measures the profitability relative to the bank's assets and therefore the overall bank performance. This ratio is the most important for comparing profits efficiency and banks performance;  $ROE = (\text{Net Income} / \text{Equity}) \times 100$ . The higher the value, the greater the effectiveness of the bank. The capital structure consists of debt and equity used to finance the firm. Combinations of equity and debt in firms' capital structures have been identified by scholars (San and Heng, 2011), and (Chakraborty, 2010) to affect the current and future financial operations of the firm. The decision on the ratio of total debt to equity is considered as a strategic one for managers i.e., future-oriented, and has a long-term effect (Watson and Head, 2010). Capital structure decision directly affects an entity's profit. This makes it an important decision in corporate finance, so it must not be taken lightly. Bank consolidation increased banks' equity capital against debt in the short run with an increasing level of debt after the Central Bank of Nigeria's bailouts soon after the consolidated exercise. Therefore, this study aims to determine the relationship between capital structure variables and corporate performances of quoted banks in Nigeria. Data for this study, equity, debt, will be from the published financial statements of the sampled banks and the least square regression analysis will be used for data analysis. The study concludes that bank management in Nigeria should consistently use debt in the capital structure to enhance bank financial performance.

This study adds to existing knowledge in these ways; firstly, when considering the capital structure affects the performance of the banking sector, it has some impacts on the performance. Therefore, the capital structure of the banking sector influences the performance of the banking sector. From the studies on the relationship between capital structure and financial performance which have been carried out in the past, some studies concluded that there is a positive relationship between capital structure and firm performance (San and Heng, 2011) some of the studies concluded that there is a negative relationship between capital structure and firm performance (e.g: (Khan, 2012)) and some of the studies concluded that there is no significant relationship between capital structure and firm performance (e.g: (Ebaid, 2009)). Secondly, (Ajibola et al., 2018), (Singh, 2013) and (Sheikh and Wang, 2013) all previous studies have focused on the impact of capital structure on the manufacturing industry, and the findings of this study are of importance since it provides recommendations to a very sensitive sector of the economy. Therefore, there is no clear evidence on the relationship capital structure and firm's financial performance. Thus, this study attempts to fill this gap by investigating the influence of COVID 19 on the nexus between capital structure and financial performance of banks in Tanzania using banks' post-consolidation published financial statements covering 2016 to 2020. The rest of the paper is divided into Section 2 review of the literature; section 3 data and methodology; section 4 data analysis and 5 discussions of findings; and section 6 conclusions and recommendation.

## **Literature Review**

Taub (1975); Nerlove (1968); Bakar (1973); Dickson et al (2013) Petersen and Rajan (1994) and Nikoo (2015) also found a positive relationship between capital structure and profitability/financial performance of the firms. In addition, Roden and Lewellen (1995) found a positive relationship between profitability and total debt. Champion (1999) described that the use of leverage is one way to improve the performance of the firm. Hadlock and James, (2002) argued that companies prefer debt financing because they anticipate higher returns. Abor, (2005) examined the effect of capital structure on the corporate profitability of the listed firms in Ghana using a panel regression model. His measures of the capital structure included short-term debt ratio, long-term debt ratio,

and total debt ratio. Abor (2005) findings showed a significantly positive relationship between the short-term debt ratio and profitability. Nguyen and Nguyen, (2020) investigated the relationship between capital structure and the firm's profitability of the banking industry in Kenya, using panel data that were extracted from the financial statements of the companies listed on the Nairobi Stock Exchange for the nine years from 2004. Findings were reported that short-term debt had a significant positive relationship with profitability. Fama and French, (1998) argued that the use of excessive debt creates agency problems among shareholders and creditors, in turn, leads to a negative relationship between leverage and profitability. Majumdar and Chhibber, (1999) found a negative effect of leverage on corporate profitability. Jensen (1986) reported that profitable firms might signal quality by leveraging up, resulting in a positive relationship between leverage and profitability. Abor (2005) reported a significant positive relationship between short-term debt and profitability and a negative association between long-term debt and profitability. This implies that an increase in the long-term debt position is associated with a decrease in profitability. Saeed and Amjad, (2013) assessed the impact of capital structure on the performance of banks in Pakistan for the 5 years from 2007. They have found out a positive relationship between determinants of capital structure and the performance of the banking industry.

Renoh and Ntoiti, (2015) studied the effect of capital structure on the financial performance of listed commercial banks in Kenya and found out that there was a negative effect of capital structure on the financial performance of commercial banks. Ramadan and Ramadan, (2015) examined the effect of capital structure and financial performance on Jordanian companies and their findings suggested that negative effects of capital structure on return on assets were observed in their study. This finding was contradicted with the findings of Al-Taani's study. Al-Taani, (2013) conducted a study to investigate the relationship between capital structure and profitability. However, results illustrated that there was no relationship between debt ratio and return on assets. Anyhow, this finding was consistent with the Ebaid (2009) study which evaluated the relationship between capital structure and performance based on the 64 firms in Egyptian companies during the period from 1997 - 2005. Siddik et al., (2017) conducted a study to examine the impact of capital structure and financial performance of banks in Bangladesh. They focused on 22 banks for 10 years period from 2005. Return on assets, return on equity, and earnings per share were considered as the performance measures. Results of their study illustrated that capital structure inversely affected the bank's performance. Therefore, mixed results on the relationship between capital structure and financial performance have been reported in the literature. Brabete and Nimalathasan, (2010) conducted a study to examine the impact of capital structure on the profitability of 13 listed manufacturing companies in Sri Lanka for the period from 2003 to 2007. The findings of their study revealed that the debt-equity ratio was significantly and positively related to gross profit ratio, operating profit ratio, and net profit ratio. Therefore, they have suggested that there was a significant positive relationship between capital structure and profitability. However, the findings of Prahalathan and Ranjani, (2011) indicated that neither short-term debt to total asset ratio, long-term debt to total debt ratio nor total debt to total asset ratio had a significant impact on firm's performance measured by return on equity and return on assets respectively. These results were contradicted with findings of a previous study carried out in 2010. Pratheepkanth, (2011) found out that there was no significant relationship between capital structure and gross profit but there was a negative significant relationship between capital structure and net profit, return on equity, return on investment and return on assets. Lingsiya and Premkanth, (2011) conducted a study to

examine the impact of capital structure on the financial performance of listed manufacturing companies in Sri Lanka. The outcome of their study revealed that there was a significant negative impact of capital structure on the financial performance of listed manufacturing companies in Sri Lanka. The findings of Velampy and Nires, (2012) revealed that there was a significant negative relationship between the capital structure and profitability of banks in Sri Lanka from 2002 to 2009. Nirajini and Priya, (2013) conducted a study to examine the impact of capital structure on the financial performance of the listed manufacturing companies for the period from 2006 to 2010. The findings of their study suggested that there was a positive significant relationship between capital structure and financial performance of listed trading companies in Sri Lanka. Further, (Nadeesha and Pieris, 2014) conducted a study to investigate the impact of capital structure choice on firm performance in Sri Lanka with 82 listed non-financial firms during 2011/2012. They found out that there was a positive relationship between debt to total assets and return on capital employed. Sivalingam and Kengatharan, (2018) completed a study on debt capital and financial performance which was a comparative analysis of South African and Sri Lankan listed companies. Their findings of the study were, in the case of Sri Lanka, debt financing in terms of short-term debt hurt firm performance while long-term debt had a positive impact.

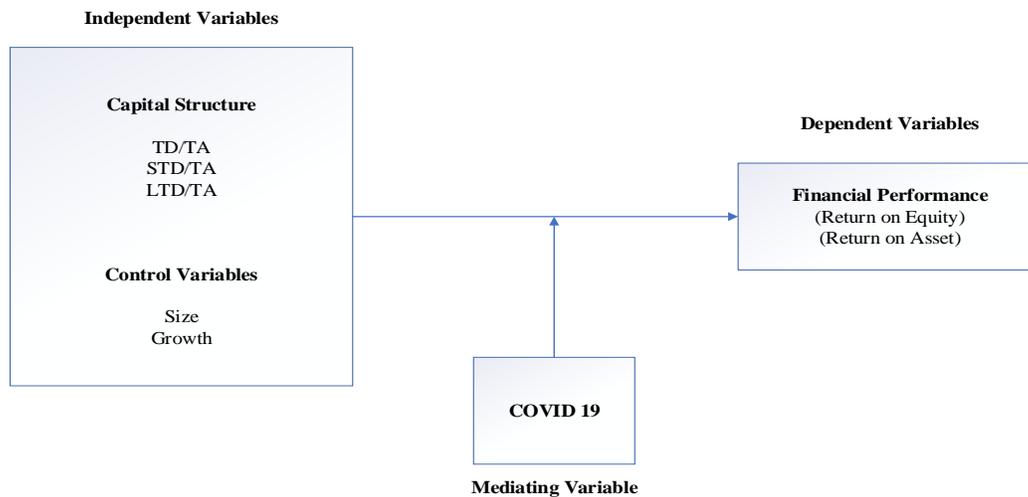
The COVID-19 pandemic caused a significant global economic shock, triggering the deepest global economic recession in nearly a century (Weiss et al., 2020). Although the global economy is on the journey to recovery, the rebound is expected to be uneven across countries, with strong growth in major economies even as many developing economies lag (Aktar et al., 2021). Sub-Saharan African countries are among the most severely affected by the pandemic and are expected to have suffered serious setbacks in development and per capita income gains by at least a decade (Anyanwu and Salami, 2021). Ongoing implementation of large-scale containment measures by governments and uncertainty regarding the duration of the COVID 19 pandemic continue to adversely affect economic and financial conditions in developing countries, making the recovery more varied, difficult, and uncertain. The African financial sector has not been spared from the pandemic, which exposed financial institutions to extraordinary operational and financial challenges. The COVID-19 pandemic contributed to a sharp rise in defaults of corporate and household debt, adversely affecting the financial performance of banks and their ability to intermediate credit and support an economic recovery (Sokol and Pataccini, 2020)

COVID-19 has had major impacts on banking, COVID-19 came as a shock to the financial markets all over the world, and as a consequence, the markets became extremely volatile and more corporate bankruptcies were observed within a short period. The demand for external funds increases in the presence of a cash-flow shortage arising from COVID-19 as almost all business activities are forced to cease to stop the spread of the virus. As a result, firms have been negatively impacted by the pandemic shock and seeking more funds to manage their liquidity shortage. Halling et al., (2020) find that the bond market has become more active since the outbreak of COVID-19, and Li et al., (2020) and Acharya and Steffen, (2020) further document that the pandemic has increased bank lending and credit line drawdowns, respectively. Neukirchen et al., (2021) find that firms with high financial flexibility lose less market value than those with low financial flexibility as a result of COVID-19. The estimates of the International Monetary Fund (IMF) analysts indicate that the pandemic reduced the value of global GDP in 2020 by 3.2%. GDP fell the most in advanced economies (AE)-by 4.6%, while in emerging market (EM) countries, it fell by 2.1%, including the Emerging and Developing Europe (EDE) countries by 2% as well

(IMF,2021). Therefore, there was a need for the study to examine the nexus between capital structure and financial performance of banks in Tanzania because there were contradictions among the findings of the studies which were carried out previously. Specifically, very few studies have been reported for commercial banks in Tanzania. Thus, the current study was an attempt to examine the influence of COVID 19 impact on the nexus between capital structures on the financial performance of Tanzania commercial banks.

### Conceptualization

With the evidence of empirical review carried out in the current study, the following conceptual framework was framed to answer the research question.



**Figure 4: Conceptual Framework**

### Hypotheses

Based on the research problem and objective of this study, the following hypotheses have been formulated to carry out the empirical study:

- H1: There is a significant connection between total debt to total assets and the financial performance of commercial banks.
- H2: There is a significant connection between long-term debt to total assets and the financial performance of commercial banks.
- H3: There is a significant connection between short-term debt to total assets and the financial performance of commercial banks.
- H4: There is a significant connection between COVID-19 impact and capital structure on the financial performance of commercial banks.

## **Methodology**

### **Research Design**

The research design which used in this study is Structural Equation Modeling (SEM). According to DeVault (2018), Structural Equation Modeling is a quantitative research technique that can also incorporate qualitative methods. SEM is used to show the causal relationships between variables. That is to say that a researcher of this study is interested in the strength of the relationships between variables in a hypothesis, and SEM is a way to examine those variables.

### **Data Collection**

The researcher used annual audited financial statements data from the commercial banks published on their website as per the Bank of Tanzania regulations forming a fixed balanced fixed panel data. Data was considered from twenty-five (25) commercial banks from 2016 to 2020. The data forms 100 observations. Bank Size was measured by the natural log of total assets ratio (Yinusa, Adelopo, Rodianova, and Luqmon, 2019). Data collected were subject to various correlation tests.

### **Data Analysis**

From the acquired secondary data, different comparable ratios which are normally used as a basis for performance measurement were calculated. Also, the capital structure as measured by the debt-equity ratio was determined for respective financial years, thereby being correlated with the financial performance to find the relationship between capital structure and commercial bank financial performance. Data were analyzed using a computerized data analysis package known as Statistical Package for the Social Sciences (SPSS).

### **Test on Variable Inflation Factor**

A Variable Inflation Factor test was conducted to examine whether multicollinearity exists amongst independent variables. Results of the VIF test are presented in Table 1. Nachane (2006) suggested that  $VIF < 10.0$  was acceptable. According to table 1, the highest variance inflation factor (VIF) was 4.140 therefore, there was a low level of multicollinearity, and as such multicollinearity did not seem to be an issue in this study.

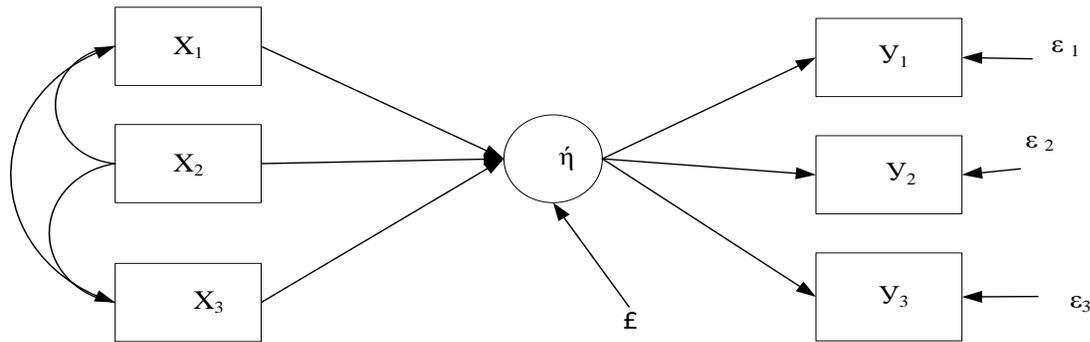
**Table 1: Values of Variance Inflation Factors**

| <b>Variables</b> | <b>VIF</b> | <b>1/VIF</b> |
|------------------|------------|--------------|
| <b>SDTA</b>      | 1.274      | 0.785        |
| <b>LDTA</b>      | 1.469      | 0.681        |
| <b>TDTA</b>      | 1.364      | 0.733        |
| <b>SIZE</b>      | 4.140      | 0.242        |
| <b>GRO</b>       | 3.850      | 0.259        |

## **Models**

The current study was performed on the balanced panel data analysis from 25 selected commercial banks that have measurements on selected variables in all 5 years study periods (2016-2020). Therefore, panel data might have individual/ group effects, time effects, or both, which could be analyzed by fixed-effect or random-effect model. Therefore, the present study considered the fixed and random effect models to carry out the analysis. In analyzing the nexus between capital

structure and financial performance of banks, the researcher made use of a multiple-indicators-multiple-causes (MIMIC) structural equation modeling (SEM). Figure 2 presents the path diagram that depicts a simplified MIMIC model in which variables in a rectangular box denote observable variables, while variables in the oval box are latent variables.



**Figure 5: Path Diagram of a Simplified MIMIC Model**

Source: Chang et al., (2009).

In the figure above  $X_1$ ,  $X_2$ , and  $X_3$  are factors that cause the latent variable  $\hat{\eta}$ ; and  $Y_1$ ,  $Y_2$ , and  $Y_3$  are indicators of  $\hat{\eta}$ . In the context of this study,  $X$  is determinants of capital structure ( $\hat{\eta}$ ), which are further measured by  $Y$  is.

$$\hat{\eta} = AX + \xi$$

$$Y = B_y \hat{\eta} + \varepsilon$$

Where,

$Y$  is a vector of indicators of the latent variable  $\hat{\eta}$ , and  $X$  is a vector of causes of  $\hat{\eta}$ . The latent variable  $\hat{\eta}$  is linearly determined by a set of observable exogenous causes,  $X = (X_1, X_2, \dots, X_j)$ , and disturbance term  $\xi$ . The latent variable  $\hat{\eta}$ , in turn, linearly determines a set of observable endogenous indicators,  $Y = (Y_1, Y_2, \dots, Y_k)$ , and a corresponding set of disturbance,  $\varepsilon = (\varepsilon_1, \varepsilon_2, \dots, \varepsilon_l)$ .

The MIMIC model was used to determine values of latent variables whereby data input applies a linear regression model to find a significance among tested variables. The linear model was applied to test five determinants of a capital structure against the financial performance of commercial banks for 5 periods of study. The Variable in the model are short term debt divided by total assets of bank  $i$  at time  $t$ , long term debt divided by total assets of bank  $i$  at time  $t$ , total debt divided by total assets of bank  $i$  at time  $t$ , Size for bank  $i$  in time  $t$ , and Growth changes in banks deposit.

The estimated Fixed Effect Model reads as follows:

$$ROA_{it} = \alpha_0 + \alpha_1SDTA_{it} + \alpha_2LDTA_{it} + \alpha_3TDTA_{it} + \alpha_4SIZE_{it} + \alpha_5GRO_{it} + \epsilon_{it} \dots\dots\dots(1)$$

$$ROE_{it} = \alpha_0 + \alpha_1SDTA_{it} + \alpha_2LDTA_{it} + \alpha_3TDTA_{it} + \alpha_4SIZE_{it} + \alpha_5GRO_{it} + \epsilon_{it} \dots\dots\dots(2)$$

And the Random Effect Model reads as follows:

$$ROA_{it} = \alpha_0 + \alpha_1SDTA_{it} + \alpha_2LDTA_{it} + \alpha_3TDTA_{it} + \alpha_4SIZE_{it} + \alpha_5GRO_{it} + u_{it} + \epsilon_{it} \dots\dots\dots (3)$$

$$ROE_{it} = \alpha_0 + \alpha_1SDTA_{it} + \alpha_2LDTA_{it} + \alpha_3TDTA_{it} + \alpha_4SIZE_{it} + \alpha_5GRO_{it} + u_{it} + \epsilon_{it} \dots\dots\dots (4)$$

In the equation,

ROA<sub>it</sub> is calculated as net profits divided by total assets of bank i at time t.

ROE<sub>it</sub> is calculated as net profits divided by shareholder equity of bank i at time t.

SDTA<sub>it</sub> is short-term debt divided by total assets of bank i at time t.

LDTA<sub>it</sub> is long-term debt divided by total assets of bank i at time t.

TDTA<sub>it</sub> is total debt divided by total assets of bank i at time t.

SIZE<sub>it</sub> is the log of total assets for firm i in time t;

GRO<sub>it</sub> is changes in banks deposit

ε<sub>it</sub>: Stochastic error term of firm i at time t

u<sub>it</sub>: error term of firm i at time

## Results

### Correlation Analysis

Table 1 provides the results of correlations analysis between capital structure and financial performance of the selected commercial bank in Tanzania from 2016 to 2020.

*Table 1: Correlations Analysis Between Capital Structure and Financial Performance*

|      | SDTA  | LDTA  | TDTA  | GROW  | SIZE  | ROE   | ROA   |
|------|-------|-------|-------|-------|-------|-------|-------|
| SDTA | 1.000 |       |       |       |       |       |       |
| LDTA | .365  | 1.000 |       |       |       |       |       |
| TDTA | -.034 | .250  | 1.000 |       |       |       |       |
| GROW | -.382 | -.376 | -.208 | 1.000 |       |       |       |
| SIZE | -.452 | -.009 | .571  | .750  | 1.000 |       |       |
| ROE  | -.037 | .765  | -.367 | -.054 | -.009 | 1.000 |       |
| ROA  | .534  | .924  | -.071 | -.380 | -.075 | .917  | 1.000 |

As per the results presented in Table 2, there was a significant positive association between short term debt to total assets ratio and ROA ( $\alpha = 0.534$ ,  $p = 0.620$ ) but short-term debt to total assets ratio shows negative significant association with ROE ( $\alpha = -0.037$ ,  $p = 0.782$ ). Anyhow, long term debt to total assets ratio had a positive significantly associated with financial performance measure in terms of ROE ( $\alpha = 0.765$ ,  $p = 0.127$ ) and ROA ( $\alpha = 0.924$ ,  $p = 0.138$ ). Total debt to total assets ratio significantly negatively associated with ROA ( $\alpha = -0.071$ ,  $p = 0.920$ ) but there was negative significant association between total debt to total assets ratio and ROE ( $\alpha = -0.367$ ,  $p = 0.570$ ).

There was negative significant association between growth and financial performance measures (ROA:  $\alpha = -.380$ ,  $p = 0.862$ , ROE:  $\alpha = -.054$ ,  $p = 0.621$ ). Size was significantly positively associated with ROE ( $\alpha = -.009$ ,  $p = 0.438$ ). However, there was significantly positively association between size and ROA ( $\alpha = -.075$ ,  $p = 0.325$ ).

**Nexus between Capital Structure and ROA**

In the first equation, the relationship of short-term debt, long-term debt, and total debt with the financial performance (ROA) was studied keeping size and growth as a controlling variable.

$$ROA_{it} = \alpha_0 + \alpha_1SDTA_{it} + \alpha_2LDTA_{it} + \alpha_3TDTA_{it} + \alpha_4SIZE_{it} + \alpha_5GRO_{it} + \epsilon_{it} \dots\dots\dots(1)$$

$$ROA_{it} = \alpha_0 + \alpha_1SDTA_{it} + \alpha_2LDTA_{it} + \alpha_3TDTA_{it} + \alpha_4SIZE_{it} + \alpha_5GRO_{it} + u_{it} + \epsilon_{it} \dots\dots\dots (3)$$

**Table 2: Nexus between Capital Structure and ROA**

| <b>Variable</b>                   | <b>Fixed Effect Model</b> | <b>Random Effect Model</b> |
|-----------------------------------|---------------------------|----------------------------|
| <b>C</b>                          | 0.345                     | 0.5134                     |
| <b>SDTA</b>                       | -0.336                    | -0.1764                    |
| <b>LDTA</b>                       | -0.6643                   | -0.2376                    |
| <b>TDTA</b>                       | -0.4231*                  | -0.5549**                  |
| <b>SIZE</b>                       | -0.3824                   | 0.3634                     |
| <b>GRO</b>                        | 0.1008                    | 0.0987*                    |
| <b>No. of observations</b>        | 100                       | 100                        |
| <b>R-Square</b>                   | 0.5220                    | 0.5308                     |
| <b>F-statistic(p-value)</b>       | 6.432(0.033)              | 10.765(0.031)              |
| <b>Hausman Specification Test</b> | 0.78(0.8231)              |                            |

Table 2, presented the results of panel data multiple regression analysis to examine the nexus between capital structure and financial performance of banks in Tanzania. The F-statistics value for the fixed effect model (6.432 ( $p < 0.05$ )) and random effect model (10.765 ( $p < 0.05$ )) indicated that the independent variables were jointly statistically significant in the fixed and random estimates in explaining variations in ROA. The R-square statistics value of 0.5220 and 0.5308 revealed that the independent variables jointly account for about 52.20%, and 53.08% variation in ROA in the fixed and random effects models respectively. Going by the Hausman test statistics of (0.78,  $P < 0.10$ ) it was rejected the null hypothesis that differences in coefficient of the fixed and random estimates were systematic, thus fixed effect model was accepted and interpreted. Therefore, the fixed-effect model was considered as most suitable to explain the nexus between capital structure and ROA in this study.

**Nexus between Capital Structure and ROE**

In the second equation, the relationship of short-term debt, long-term debt, and total debt with the financial performance (ROE) was studied keeping size and growth controlling variables.

$$ROE_{it} = \alpha_0 + \alpha_1SDTA_{it} + \alpha_2LDTA_{it} + \alpha_3TDTA_{it} + \alpha_4SIZE_{it} + \alpha_5GRO_{it} + \epsilon_{it} \dots \dots \dots (2)$$

$$ROE_{it} = \alpha_0 + \alpha_1SDTA_{it} + \alpha_2LDTA_{it} + \alpha_3TDTA_{it} + \alpha_4SIZE_{it} + \alpha_5GRO_{it} + u_{it} + \epsilon_{it} \dots \dots \dots (4)$$

Table 3, present the results of panel data multiple regression analysis to examine the relationship between capital structure and ROE of banks in Sri Lanka. The F-statistics value for the fixed effect model was 4.723 (p<0.05) and the random effect model was 7.434 (p<0.05) which illustrated that the independent variables were jointly statistically significant in the fixed and random estimates in explaining variations in ROE. The R-square statistics value of 0.563 and 0.623 showed that the independent variables jointly accounted for about 56.30%, and 62.30% variation in ROE in the fixed and random effects models respectively. Going by the Hausman test statistics of (0.57, P > 0.05) we accepted the null hypothesis that differences in coefficient of the fixed and random estimates were not systematic, thus it accepted and interpreted the random effect model. In this case, the random effect model was the best model to explain the relationship between capital structure and ROE.

**Table 3. Nexus between Capital Structure and ROE**

| <b>Variable</b>                   | <b>Fixed Effect Model</b> | <b>Random Effect Model</b> |
|-----------------------------------|---------------------------|----------------------------|
| <b>C</b>                          | 0.520                     | 0.3304                     |
| <b>SDTA</b>                       | 0.423                     | 0.4876                     |
| <b>LDTA</b>                       | -0.543                    | -0.5645**                  |
| <b>TDTA</b>                       | -0.354*                   | -0.5549**                  |
| <b>SIZE</b>                       | 0.425                     | 0.348                      |
| <b>GRO</b>                        | 0.206*                    | 0.378**                    |
| <b>No. of observations</b>        | 100                       | 100                        |
| <b>R-Square</b>                   | 0.563                     | 0.623                      |
| <b>F-statistic(p-value)</b>       | 4.723 (0.002)             | 7.434(0.005)               |
| <b>Hausman Specification Test</b> | 0.57 (0.0892)             |                            |

From the results of the Fixed effect model presented in table 4, there was a significant positive association between short-term debt to total assets ratio. This showed positive significant association with ROE ( $\alpha = 0.423$ ,  $p = 0.538$ ), long term debt to total assets ratio had a negative sign associated with financial performance measure in terms of ROE ( $\alpha = -0.543$ ,  $p = 0.253$ ). There was a negative significant association between total debt to total assets ratio and ROE ( $\alpha = -0.354$ ,  $p = 0.430$ ). Size was significantly positively associated with ROE ( $\alpha = 0.425$ ,  $p = 0.358$ ).

**Discussion of Findings**

From the results presented below in the fixed-effect model, there was a significant negative relationship of total debt to total assets ratio ( $\alpha = -0.4231$ ,  $P < 0.10$ ) with ROA. Short-term debt to total assets ratio, long-term debt to total assets ratio, and size was not significantly related to ROA. However, Growth of banks ( $\alpha = 0.1008$ ,  $P < 0.05$ ) had significant positive relationship with ROA. Therefore, as per the fixed-effect model presented in Table 2, H1 had been supported with the results of the study that there was a significant relationship between total debt to total assets ratio and ROA. H2 was not supported with the results of the study that long-term debt to total assets

ratio had not significantly related to ROA. Further, the results of the study were not supported with the H3 as well that there was no significant relationship between short-term debt to total assets ratio and ROA. From the results of the random effect model presented in Table 3, H1 was not supported by the results of the study that there was a significant negative connection between total debt to total assets ratio and ROE. H2 was supported with the results of the study that there was a positive significant connection between long-term debt to total assets ratio and ROE. Further, H3 was also not supported by the results of the study that there was no significant connection between short-term debt to total assets ratio and ROE. The findings of the study were consistent with the studies of Ramadan and Ramadan (2015) and Abewardhana and Magoro (2017). There was a significant connection between COVID-19 impact and capital structure on the financial performance of commercial banks. From the noticeable results from data analyzed of this study, the COVID-19 pandemic had significant effects on return on equity and returns on assets, and the growth rate which affects the financial performance of commercial banks in Tanzania. This was because when the economy of the country slows down, banks face the challenge of keeping up with demand and raising additional resources to balance the situation.

### **Conclusions**

By considering the panel data from selected commercial banks in Tanzania for the period from 2016 to 2020, this study empirically examined the nexus between capital structure choice (TDTA, LDTA, and SDTA) and financial performance of banks (ROA and ROE). Based on findings, it was documented that short-term debt had no significant relationship with financial performance in terms of ROA and ROE. Further, ong-term debt had also no significant relationship with the financial performance in terms of ROA and ROE in this study. Most importantly, the total debt to total assets ratio had a significant negative relationship with ROA and ROE. These findings envisage that debts were relatively more expensive due to certain direct and indirect costs. Therefore, employing high proportions of debt in financial structure results in low financial performance. Growth had a significant positive relationship with ROA and ROE. However, the size of banks did not show any significant relationship with ROA and ROE. Empirical results indicated a negative significant relationship between total debt to total assets and financial performance. This study suggests that financial managers should try to finance from retained earnings rather than relying heavily on debt capital in their capital structure.

However, they can employ debt capital as the last resort. To maximize the performance of banks, the managers should try to attain an optimal level of capital structure and endeavor to uphold it as much as possible. These negative impacts also suggested that the legislative rules and policies have to be designed in such a way to assist banks in sharply reducing the reliance on too much use of debt. Although it observed significant negative impacts of capital structure choice on the financial performance of the sampled banks, this investigation still suffers from a comprehensive and systematic database for all banks in Tanzania. As more systematic datasets become available, we suggest that further research can be conducted on the same issue by employing data from a larger sample and more control variables for a longer period to confirm this finding. Under the COVID 19 impacts on the financial performance of commercial banks were apparent. COVID-19 has dramatically changed the economic conditions in Tanzania. Add-on that was an increase in the risk of bank failures due to the impacts on the financial services industry both from direct COVID-19 effects on borrowers, banks, and the global markets but also from government regulatory and policy changes envisioned to combat the impact on the Tanzania citizens and businesses.

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