IMPACT OF CAPITAL STRUCTURE ON FIRM'S FINANCIAL PERFORMANCE; EVIDENCE FROM COLOMBO STOCK EXCHANGE IN SRI LANKA

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ABSTRACT

This research attempts to investigate the impact of capital structure on a firm's financial performance. This study selected 45 companies out of 285 companies as a sample of the study. The study mainly focused on 4 sectors within 19 sectors including consumer durables and apparel, health care and equipment, retailing, and real estate listed in the Colombo Stock Exchange in Sri Lanka from the period 10 years from 2011 to 2020. Capital structure is the independent variable and financial performance is the dependent variable. Short-term debt to total equity, long-term debt to total equity, short-term debt to total asset, and long-term debt to the total asset are the proxies of capital structure and the return on equity, return on asset and the earnings per share are the proxies of financial performance. Firm size and firm age are used as control variables in this study. The study found that there was a significant positive relationship between short-term debt to total asset, firm size, firm age, and return on equity while there was a significant negative relationship between short-term debt to total equity, long-term debt to total equity and return on equity. However, there was an insignificant positive relationship between long-term debt to total assets and return on equity. On the other hand, there was a significant negative relationship between short-term debt to total equity, long-term debt to total asset, firm age, and the return on asset while there was an insignificant positive relationship between long-term debt to total equity, short-term debt to total asset, firm size with return on asset. Furthermore, results also found that all the variables had having insignificant relationship with earnings per share. There was an insignificant negative relationship between short-term debt to total equity, long-term debt to total assets, short-term debt to total assets, and earnings per share, and an insignificant positive relationship between long-term debt to total equity and the control variables. This study provides valuable information to the stakeholders, shareholders, investors, entrepreneurs, students as well as potential researchers.

Keywords: Firm Age, Firm size, Long-term Debt to Total Equity, Long-Term Debt to Total Asset, Return on Asset, Return on Equity, Short-term Debt to Total Asset, Short-term Debt to Total Equity

1. INTRODUCTION

Capital structure is the major corporate decision of the company. According to, Horne & Wachowicz, (2009) "capital structure is the mix of a firm's permanent long-term

financing represented by debt, preferred stock, and common stock equity". Simply capital structure represents the debt and equity of the company. To maximize the firm's value, it is really important to make optimal decisions regarding the capital structure.

The relationship between capital structure and a firm's financial performance is a very argumentative topic in prior literature. Some researchers found that there is a significant relationship between capital structure and a firm's financial performance Yinusa et al, (2019) and some found that it has a negative relationship Salim and Yadav, (2012b) and also some literature revealed that there is no significant relationship between capital structure and firm performance Al-taani, (2013).

This research will address the question "Does capital structure impact on financial performance of the firm?" By addressing the question, research will be focused on examining the impact of capital structure on the firm's financial performance in selected companies under the selected sectors.

This study aims to reveal the impact of capital structure on a firm's financial performance in sectors of consumer durables and apparel, healthcare equipment and services, retailing and real estate listed in the Colombo Stock Exchange from 2011 to 2020. Previously, researchers did not investigate that relationship based on the selected sectors as research. The sectors that will be investigated in this research have different characteristics and are independent of each other. Therefore, in Sri Lanka, there is a lack of research regarding above mention topic and there is limited research conducted in Sri Lanka that analyzed selected sectors and selected variables within the selected time frame. Hence this research fills the gap in previous literature reviews. Also, this research gives a signal to maintain optimum capital structure and debt and asset ratio to boost the overall financial performance of the firm.

2. LITERATURE REVIEW

Theoretical Literature Review

Modigliani and Miller (M & M) theory

As per the past research, Franco Modigliani, (1958) was the first scholar who found the theoretical part of capital structure. He introduced the "M&M theory" to describe the capital structure based on several assumptions such as homogeneous expectations, no taxes, no transaction cost, no bankruptcy cost, no insider information, and no retained earnings. He said that capital structure is irrelevant to the firm's value. However, most scholars criticize his unrealistic assumptions because those assumptions are not practical for real-world companies. Further, he revised his theory Franco Modigliani; Merton H. Miller, (1963) and he suggested that firms should use more debt to gain the tax benefit on tax shield to increase the firm value.

Agency theory

According to the agency theory introduced by Smulowitz et al., (2019), one or more persons (the principal) engage another person (agent) to perform some service on their behalf which involves delegating some decision-making authority to the agent. Optimum capital structure decisions played a key role in agency problems. Simply it is the manner which the executives and managers act in the best interest of owners or the shareholders. He suggested that if the firm financed more from debt it would lead to reduced free cash flow to the managers and as a result that agency problem could be controlled. Also, he revealed that agency problems are also relative to debt in the shape of risk shifting. Therefore, agency theory suggests that the harshness of agency problems can be decreased by more leverage. Finally, agency theory indicates that using more debt in the company's capital structure can be caused to increase the firm performance.

Trade-Off theory

When referring to the trade-off theory introduced by Myers, (1984) the firms that follow the trade-off theory set the target debt-to-value ratio and then gradually move toward the target. While balancing the debt tax shield against the cost of bankruptcy, the target is determined. It can be concluded that as safe firms, firms should engage with more tangible assets and more taxable income while maintaining higher debt ratios. He revealed that the benefit gained by tax shield is equal to the cost of financial distress. Simply trade-off theory explains how much a company should choose debt finance or how much a firm should choose equity finance while balancing the costs and benefits. This theory suggests that a firm should maintain the optimum level of capital structure when determining the debt and equity ratio. By the theory, neither more debt nor more equity is good for the increase of the overall performance of the firm.

Pecking Order Theory

Based on the information asymmetric and no transaction cost, Majluf, (1984) introduced the pecking order theory. He revealed that the firm should use internal funds firstly to finance the firms, and if there is any deficit firm can finance from debt externally. Asymmetric information heavily affects the choices between internal and external financing as well as the issue of debt and equity. Theory believes that, if the firms issue debts, shareholders think that investment is more profitable and the current stock price is undervalued. In contrast, if the firm issues more equity, shareholders believe that, the investment is not profitable and share price is overvalued. Therefore, the pecking order theory explains the inverse relationship between debt and the profitability or the performance.

Empirical Literature Review

Tifow, (2015) investigated the relationship between capital structure and firm performance based on 130 manufacturing firms listed on Borsa Istanbul from 2008 to 2013 by using panel data analysis. The study revealed that short-term debt to total assets has a significant negative relationship with Return on Assets (ROA), Earnings Per Share (EPS), and Tobin's q ratio. Also, long-term debt to total assets has a

significant negative relationship with ROE, EPS and Tobin's q ratio, while it is positively and significantly correlated with ROA.

Also Hasan, (2014) studied the influence of capital structure on a firm's performance by using a sample of 36 Bangladeshi firms listed in the Dhaka Stock Exchange during the period 2007-2012. He found that EPS is significantly positively related to short-term debt while significantly negatively related to long-term debt. There is a significant negative relation between ROA and capital structure. On the other hand, there is no statistically significant relationship exists between capital structure and a firm's performance as measured by ROE and Tobin's q. He concluded that capital structure has a negative impact on a firm's performance. This research suggested that finance managers should use debt as the last alternative in their capital structure.

Cole & Hemley, (2015) studied the relationship between capital structure and the performance of United States firms in the industrial, healthcare, and energy sectors by using 10-year panel data (2004-2013) and using 300 observations per sector. The study revealed that the relationship between capital structure and firm performance can vary from sector to sector, as well as variable-to-variable

Pouraghajan, (2012) also examined the impact of the capital structure on a firm's performance of a sample of 400 companies listed on the Tehran Stock Exchange. Results suggested that there is a significant negative relationship between debt ratio and the financial performance of companies. Results show that by reducing the debt ratio, management can increase the company's profitability and thus the amount of the company's financial performance measures and can also increase shareholder wealth.

Soumadi & Hayajneh, (2012) investigated the effect of capital structure on the performance of the public Jordanian firms listed in the Amana Stock Market. Results concluded that capital structure was associated negatively with firm performance and also there was no significant difference in the impact of the financial leverage between high financial leverage firms and low financial leverage firms on their performance.

Nguyen & Nguyen, (2020) explore the impact of capital structure on a firm's performance in state-owned and non-state enterprises listed on the Vietnam Stock Market with a sample of 488 non-financial listed companies for a period of 6 years from 2013-2018. Results revealed that capital structure has a statistically significant negative effect on the firm performance.

Sorana, (2015) investigated the relationship between capital structure and financial performance in 196 Romanian companies listed on the Bucharest Stock Exchange and operating in the manufacturing sector, throughout eight years from 2003-2010. The study found that performance in Romanian companies is higher when they avoid debt and operate based on equity.

Muritala, (2012) examined the optimum level of capital structure in which the firm can increase its performance based on 10 listed non-financial firms in Nigeria

throughout 2006-2010. Results indicated that there was a negative relationship between ROA and ROE and financial performance.

Salim & Yadav, (2012b) also investigated the relationship between capital structure and firm performance by investigating the panel data for a sample of 237 Malaysian listed companies on the Bursa Malaysia Stock Exchange for the period from 1995 to 2011. Results revealed that capital structure impacts were negatively measured by ROE and there was a negative significant impact on capital structure and the ROA.

Ahmed Rafiuddin, (2020) examines the relationship between the capital structure and the firm performance of the service sector firms of the Australian Stock Market for the period of 11 years from 2009 to 2019 using 1001 firm-year observations. They revealed that there was a significant association between ROE and leverage levels, leverage affects performance at a statistically significant level.

In the Sri Lankan context, Pratheepkanth, (2011) studied the impact of capital structure on companies' performance over 5 years from 2005-2009 by using selected business companies listed in the Colombo Stock Exchange. Debt to equity ratio and debt to total funds ratio are used to measure the capital structure. Gross profit margin, net profit margin, return on and return on equity over return on capital employed are used to measure the financial performance. Results show that there was a negative relationship between capital structure and the firm's performance.

Furthermore, Manawaduge et al. (2011) investigated the impact of capital structure on a firm's performance by using 155 industrial companies excluding bank, finance, and insurance sectors listed in the Colombo Stock Exchange from 2002-2008. Return on asset and Tobin's q were used as the measure of performance as well as leverage ratio, growth of sales, total sales, risk, tax/earnings before interest and tax, and tangibility used as the measure of capital structure. They found that Sri Lankan firms were negatively affected by the use of debt capital against equity capital for performance.

3. METHODOLOGY

This research was conducted in Sri Lanka in which a total of 45 companies out of 53 were involved from the 4 sectors out of 19 sectors listed in the Colombo Stock Exchange such as consumer durables and apparel, health care and equipment, retailing and real state for the 10 years from 2011-2020. Secondary data sources were used to gather the data such as financial reports of each company.

Financial performance is the dependent variable and capital structure is the independent variable. To determine the capital structure, short-term debt to equity ratio, long-term debt to equity ratio, short-term debt to total assets ratio, and long-term debt to total asset ratio were used. As well as to measure the financial performance, ROA, ROE, and EPS were used. Moreover, the control variable firm size and the firm age were used in this research.

While considering these variables, three models were developed to test the hypothesis in this research.

$$ROE = \pm\beta_0 \pm \beta_1 STDTE_{it} \pm \beta_2 LTDTE_{it} \pm \beta_3 STDTA_{it} \pm \beta_4 LTDTA_{it} \pm \beta_5 fz_{it} \pm \beta_6 fa_{it} + \varepsilon \quad (1)$$

$$ROA = \pm\beta_0 \pm \beta_1 STDTE_{it} \pm \beta_2 LTDTE_{it} \pm \beta_3 STDTA_{it} \pm \beta_4 LTDTA_{it} \pm \beta_5 fz_{it} \pm \beta_6 fa_{it} + \varepsilon \quad (2)$$

$$EPS = \pm\beta_0 \pm \beta_1 STDTE_{it} \pm \beta_2 LTDTE_{it} \pm \beta_3 STDTA_{it} \pm \beta_4 LTDTA_{it} \pm \beta_5 fz_{it} \pm \beta_6 fa_{it} + \varepsilon \quad (3)$$

Where,

ROE = return on equity
ROA = return on asset
EPS = earnings per share
STDTE = short-term debt to total equity ratio
LTDTE = long-term debt to total equity ratio
STDTA = short debt to total asset ratio
LTDTA = long debt to total asset ratio
fz = firm size
fa = firm age
ε = error term
β0 = constant
β1, β2, β3, β4, β5, β6 = co-efficient
By referring to this model it was supposed to achieve the ultimate goal of the research. In other words, results were measured by using this model to check whether there is a significant impact on the capital structure on a firm's financial performance. To achieve that, hypotheses were developed for each model.

H1: there is a significant impact of capital structure and firm's financial performance.

Model 1

H2: there is a significant impact of short-term debt to total equity ratio and ROE.

H3: there is a significant impact of long-term debt to total equity ratio and ROE.

H4: there is a significant impact of short-term debt to total asset ratio and ROE.

H5: there is a significant impact of long-term debt to total asset ratio and ROE.

Model 2

H6: there is a significant impact of short-term debt to total equity ratio and ROA.

H7: there is a significant impact of long-term debt to total equity ratio and ROA.

H8: there is a significant impact of short-term debt to total asset ratio and ROA.

H9: there is a significant impact of long-term debt to total asset ratio and ROA.

Model 3

H10: there is a significant impact of short-term debt to total equity ratio and EPS.

H11: there is a significant impact of long-term debt to total equity ratio and EPS.

H12: there is a significant impact of short-term debt to total asset ratio and EPS.

H13: there is a significant impact of long-term debt to total asset ratio and EPS.

4. FINDINGS AND DISCUSSION

Analysis was done by using a descriptive statistic table and multiple regression analysis with a random effect GLS model. The research used mainly 3 variables to develop the model such as ROE, ROA and EPS.

Descriptive Statistics
The following table shows the summary of descriptive statistics for all the variables taken into the model. It mainly shows the mean, median, maximum, minimum, standard deviation, skewness, kurtosis and the count of observations.

Table 1: Summary of Descriptive statistics

Stats	ROE	ROA	EPS	STDTE	LTDTE	LTDTA	STDTA	fz	Fa
Mean	0.0669	0.0468	16.2962	0.7300	0.3294	0.1434	0.2463	19.7150	3.5640
Median	0.0708	0.0418	2.01	0.2708	0.1210	0.0809	0.1792	20.9859	3.5264
Maximum	2.514	1.246	775.97	24.800	5.7637	1.3743	1.3532	24.9896	4.7185
Minimum	-4.4217	-0.6534	-240.16	-7.871	-10.96	0	0	0	1.7918
Standard Deviation	0.3184	0.1103	66.4471	1.8224	0.863	0.1882	0.2409	3.6849	0.5382
Skewness	-5.2578	1.972	6.7548	5.8785	-3.472	2.7849	1.5472	-1.4365	-0.008
Kurtosis	99.9872	39.3653	62.9437	74.027	72.2939	12.5225	7.7871	6.3085	3.0343
N	450	450	450	450	450	449	449	450	450

As per the table, all the variables have a positive mean. Also, it revealed that there was a very poor return on performance on ROE, ROA and EPS. This means that on average the selected companies do not utilize well their asset to generate profit for their shareholders. Also, selected companies are highly leveraged within the sample period. It can be seen that selected companies used to have more short-term debt than equity financing. Furthermore, selected companies were also found to be highly financed by debts but not more than equity financing.

Multiple Regression Analysis

To analyze the results, this research used multiple regression analysis techniques. Using the panel root test of Levin Lin Chu, check whether those variables are stationary or not.

Table 2: Unit root test on Levin Lin Chu

Variables	Probability	Results
ROE	0.0000	Stationery
ROA	0.0000	Stationery
EPS	0.0000	Stationery
LTDTE	0.0286	Stationery
STDTE	0.0091	Stationery
LTDTA	0.0003	Stationery
STDTA	0.0001	Stationery
Fz	0.0000	Stationery
Fa	0.0000	Stationery

Then Hausman test and Breusch-Pagan Lagrangian Multiplier test were used to select the most appropriate model among the pooled Ordinary Least Square model, random effect model and fixed effect model. The below table shows the summarized test results.

Table 3: Hausman test results and Breusch-Pagan Lagrangian Multiplier test results

Variable	Hausman test results	Breusch-Pagan Lagrangian Multiplier test	Conclusion
ROE	-	0.0000	Random Effect model used
ROA	0.6944	0.0000	Random Effect model used
EPS	0.9712	0.0000	Random Effect model used

Based on the Hausman test results, it was suggested that research should apply a random effect model over the other model since the probability of Hausman test results greater than 0.05. Also after rejecting the fixed effect model Breusch-Pagan lagrangian multiplier test was also done to check whether the random effect model or pooled OLS model should be applied for this study. Also, the probability of the Breusch-Pagan lagrangian multiplier test was below 0.05. Therefore it was selected to apply all the regression results based on the random effect GLS model. Hausman test results were unable to apply for the ROE. So after running both the fixed effect and random effect model, the random effect GLS model selected for the ROE model was also compared with both results generated from each model. So while considering the goodness of the model and the significance of the variables, the random effect GLS model was selected to analyze the results.

Summary of the Results

By analyzing the three models, it was generated the different results of each model. The summary output of the results can be shown in the following table.

Table 4: Summary of the beta coefficient of variables

Variables	ROE	ROA	EPS
STDTE	-0.1149*	-0.0088*	-0.1073
LTDTE	-0.0659*	0.0127**	0.1805
LTDTA	0.1196	-0.1155*	-24.2217
STDTA	0.4211*	0.0173	-10.0805
Fz	0.0085*	0.0013	1.0438
Fa	-0.0842*	-0.0342*	19.1628

*Significant under 5% significant level **Significant under 10% significant level.

So, results indicated that the impact on capital structure on firm performance varied from the variables and indicators that are used to measure the capital structure and the firm performance. As per the results, it was clear that the STDTE ratio has a significant and negative impact on firm performance. But LTDTE ratio has a significant negative impact on ROE and a positive impact on ROA. However, there is an insignificant positive impact on LTDTE and the EPS. LTDTA has a negative impact on ROA and EPS while there is a positive impact on ROE. STDTA has a positive impact on firm performance except for EPS. Firm size positively impacts firm performance and the firm age negatively affects the firm performance except from EPS.

H1: there is a significant impact of capital structure and firm's financial performance.

So, it was clear that the relationship between the capital structure on firm performance depends on the variables taken to the model as well as the techniques that are used to analyze. Based on the results of the study, it can be said that there was a significant impact on capital structure on firm's financial performance. Further, it revealed that using more debt than equity causes to decrease in the financial performance of the firms. However, based on the model and variables, results can be different.

Furthermore, it was found that, an increase in short-term debt over equity caused to decrease in the firm's financial performance, and an increase of long-term debt over equity caused to boost in the performance of the firm. Moreover an increase in long-term debt over assets caused to decrease in the firm performance while an increase in short-term debt over assets caused to increase in the performance of the firm.

5. CONCLUSION

This research aims to examine the impact of capital structure on a firm's financial performance in selected companies under the selected sectors. To examine that, this study used 4 sectors listed in CSE in Sri Lanka such as consumer durables and apparel, health care and equipment, retail and real estate. The study used panel data

for the period of 10 years from 2011 to 2020 for a sample of 45 companies within the 4 sectors. To estimate the relationship between capital structures on a firm's financial performance, the study used the random effect GLS model.

The findings of the study revealed that selected companies used more short-term debt than equity as their main source of finance. Also based on the 95% confidence level, the estimated model explained that short-term debt to total equity and long-term debt to total equity have a significant negative relationship with return on equity. There is a significant positive relationship between short-term debt to total assets and control variables including firm size and firm age and the return on equity. Apart from that, there was an insignificant positive relationship between long-term debt to total assets and the return on equity. This model found that capital structure with more debt caused to decline in the firm's financial performance and these results are consistent with the Manawaduge at Al. (2011) and Salim & Yadav, (2012b).

Furthermore second model explained that there was a negative significant relationship between short-term debt to total equity, long-term debt to total assets and the firm age and the return on assets. Also, there was an insignificant positive relationship between long-term debt to total equity, short-term debt to total asset and the firm size and return on asset. Even though these results were based on a 95% confidence level, there was a significant positive relationship between long-term debt to total equity and return on asset.

Moreover, the third model discussed the relationship between earnings per share and the proxies of capital structure under a 95% confidence level. Results indicated that there was an insignificant negative relationship between the short-term debt to total equity, long-term debt to total asset and the short-term debt to total asset. As well as there was also an insignificant positive relationship between long-term debt to total equity and the control variables such as firm size and the firm age.

Finally, it was concluded that depending on the variables and the indicators, the impact of capital structure on firm performance can be different. it consist of the result of Cole & Hemley,(2015) who indicated the same result. Long-term debt over equity on firm performance and short-term debt over equity have a negative impact on firm performance. It means that if the firm uses more debts in its capital structure, it can be caused to reduce its financial performance. These results were also founded by Pratheepkanth,(2011). As well as short-term debt over asset has a positive impact on firm performance while long-term debt over asset has a negative impact. So firm should maintain optimum debt and asset ratio to boost the overall financial performance of the company.

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