

## **FACTORS DETERMINING CAPITAL STRUCTURE: AN ANALYSIS OF LISTED COMPANIES IN THE COLOMBO STOCK EXCHANGE IN SRI LANKA**

SithySafeena M.G. Hassan  
Department of Management, South Eastern University of Sri Lanka,  
[ssafeena@seu.ac.lk](mailto:ssafeena@seu.ac.lk)

**ABSTRACT:** Capital structure/ financial leverage describe the combination of debt and equity capital. A business concern can go for different levels of capital structure. It is determined by several factors. the objectives of this study are to investigate the impact of determinants of capital structure on leverage level (Long term debt ratio) and to identify the significant relationship between the determinants of capital structure and Long term debt ratio (LTD) with a sample of 34 listed companies in the Colombo stock exchange (CSE) in Sri Lanka over the period of five years from 2009 to 2013. Companies/firms were selected by using the convenient sampling technique and the availability of the necessary data. Four factors such as profitability, liquidity, tangibility and firm size were taken as an independent variable and Long term debt ratio was used as a dependent variable to measure the leverage level / capital structure. For the purpose of this study, the secondary data was extracted from the annual reports of the selected listed companies from beverage food and tobacco and manufacturing sector. The collected data were analysed using multiple regression and correlation analysis with usage of SPSS -20 versions.

The findings revealed that the determinants of capital structure such as profitability (PROF) and liquidity (LIQ) were significantly negatively correlated with leverage level (Long term debt ratio) while Tangibility (TANG) has a significant positive relationship with level of leverage but Firm size (FSIZE) has no significant relationship with leverage level (LTD). Further determinants of capital structure have a significant impact on leverage level (LTD) in manufacturing and Beverage food and Tobacco sector in the CSE in Sri Lanka.

**Keywords:** Capital structure, Profitability, Firm size, Tangibility, Liquidity.

### **1. INTRODUCTION**

The capital structure decision is one of the most important decisions made by financial management in organizations. One of the main objectives of financial managers is to maximize the wealth of shareholders through the lower cost of capital. And also capital structure is one of the effective tools to manage the cost of capital effectively. But decision making in capital structure is a big issue to all firms. To maximize firm's value as well as minimize the cost of capital, a manager should set up an optimal capital structure. Therefore firms should attempt to determine the optimal capital structure that causes the maximization of firm's value. But no strict theory has been developed yet to determine the exact optimal capital structure. So it concerns managers in identifying some factors influencing capital structure decision by which they can benefit to make an optimal mix of debt and equity to maximize firm's value.

Positive relationship between leverage and value of the firm has been identified in some studies (Champion, 1999; Chowdry, 1993). Capital structure policy is also important in a sense that level of risk and return of a firm is mostly affected by it. Even though there are several factors contribute to the firm's performance, determinants of the capital structure play an important role. Both theoretical and empirical capital structure studies have generated different results that attempt to explain the determinants of capital structure. Some broad categories of capital

structure determinants have emerged (Titman and Wessels, 1998; Harris and Raviv, 1990). However, point out the choice of suitable explanatory variables is potentially contentious.

There are number of studies on capital structure and profitability conducted in Sri Lanka (Samarakoon, 1999; Nimalathasan and Brabete, 2010; Pratheepkanth, 2011; Prahalathan 2010; Velnampy and AloyNireesh, 2012)). Their finding differs in time period of studies and industries. Further analysing different set of variables and indicate different degrees of results some findings indicate positive relationship in between capital structure and profitability. Therefore researchers continuously analysing to determine the most important determinants of capital structure but there are very few studies related with determinants of capital structure in Sri Lanka. In this scenario the researcher interest to find out the factors determining the capital structure in listed companies in the Colombo Stock Exchange in Sri Lanka.

### **STATEMENT OF THE PROBLEMS**

In reality financial manager is to ensure the lower cost of capital employed and maximizing the profitability of their firms. But it is not an easy task to every company and its managers to determine the optimal structure. Identifying the right proportion of debt and equity of capital structure has been much difficult to bring profitable results for the organizations. There are many empirical studies conducted all over the world and moreover still there is a problem to determine suitable proportion of debt capital to equity capital. Further researchers continuously analysing to determine the most important determinants of capital structure but there are very few studies related with determinants of capital structure in Sri Lanka.

### **RESEARCH QUESTIONS**

In this research the researcher is going to answer the following research questions.

- What is the impact of determinants of capital structure on leverage level of listed companies on the Colombo Stock Exchange in Sri Lanka?
- What type of significant relationship exists between the determinants of capital structure and leverage level?

### **SIGNIFICANCE OF THE STUDY**

As a developing country Sri Lanka has become an emerging market with lot of potential of investment that gets an attention for investors and managers to think about the influencing factors of using debt and their extend of influence over firms. Most of the empirical researches on determinants of firm's capital structure have been directed largely towards companies listed in developed countries (Ooi, 1999; Ozkan, 2001; Rajan and Zingales, 1995; Wald, 1999). Although there have been less researches focusing on the determinants of capital structure in Sri Lanka (Sangeetha and Sivatharsan, 2013; Samarakoon, 1999; Ajanthan, 2013). There is still disagreement regarding which factors have significant impact in determining a firm's capital structure. Nevertheless, important factors affecting capital structure determinants of a firm in one sector may not be equally important to a firm in another sector. This study will help the managers to take the

financing decision for their firms. The creditors can also take the benefit to minimize their risk in funding in listed companies.

## **OBJECTIVE OF THE STUDY**

- To investigate the impact of determinants of capital structure on leverage level (Long term debt ratio) of the listed companies in Colombo Stock Exchange.
- To identify the significant relationship between the determinants of capital structure and leverage level.

## **LITERATURE REVIEW**

Capital structure as the mix of long-term debt and equity financing. The choice will ultimately relate to company preferences, as well as the nature of the asset being financed (Brealey, Myers and Marcus, 2009). Several researchers have tried to determine what factors contribute to companies' financing decision. Overall this has resulted in two main theories, the pecking order theory and the trade-off theory (Myers, 1984). The capital structure of the firm is influenced by many factors such as capital intensity, tangibility, expected growth, firm size, profitability, non-debt tax shields, liquidity, volatility, uniqueness and industry classification (Titman and Wessels, 1998; Ajanthan, 2013; Samarakoon, 1999; Sangeetha and Sivathaasan, 2013).

Frank and Goyal (2009) found that company size is positively related to leverage. But Rajan and Zingales (1995) found that it has a negative relationship with capital structure in Germany. However, Marsh (1982), Titman and Wessels (1998), Ooi (1999) and Chen (2003) findings indicated a contrary negative relationship between debt ratios and firm size. Several empirical studies also reported that there is a negative relationship between profitability and leverage (Toy, Stonehill, Remmer and Beekhuisen, 1974; Titman and Wessels, 1988). Rajan and Zingales (1995) and Harris and Raviv (1991) explained that the greater the proportion of tangible assets on the balance sheet the more willing lenders should be to supply loans, and leverage should be higher. Firms with higher proportion of tangible assets are more likely to belong to an industry with lower risks, the tangible assets will eventually have an impact on the borrowing decisions of firms, and in the case of a bankruptcy tangible assets create more value than firms with greater dependence on intangibles.

The trade off theory suggests that companies with higher liquidity ratios should borrow more due to their ability to meet contractual obligations on time. Thus, this theory predicts a positive linkage between liquidity and leverage. Brealey and Myers and Marcus (2009) indicated that the trade off theory is especially helpful in explaining different capital structures across industries. On the other hand, the pecking order theory predicts a negative relationship between liquidity and leverage level, because a firm with greater liquidities prefers to use internally generated funds while financing new investments. As suggested by pecking-order theory, firms prefer internal financing to external financing. Hence liquidity is expected to be negatively related to leverage.

Nadeem A. S. & Zongjun W. (2011) conducted a study on Determinants of capital structure: An empirical study of firms in manufacturing industry of Pakistan. The results showed that profitability, liquidity, earnings volatility, and tangibility are related negatively to the leverage, whereas firm size is positively linked to the debt ratio. Non-debt tax shields and growth opportunities have no significant relationship with debt ratio. Jean J. C. (2004) conducted a study on Determinants

of capital structure of Chinese-listed companies. The results showed that certain firm-specific factors that are relevant for explaining capital structure further financial distress such as earning volatility, bankruptcy costs were not significant. Jagsnaand Ashok kumar (2010) conducted study on Determinants of capital structure: An empirical study of Indian companies. The results reveals that companies mostly prefer equity funds as compared to debts funds and also found that capital structure and the determinants of capital structure vary from industries to industries and nature of the industry which the firm belongs to, its size, age and location plays a major role in the determination of the capital structure of the firms of Indian corporate.

Ajanthan (2013) conducted a study on Determinants of capital structure: Evidence from Hotel and Restaurant Companies in Sri Lanka his findings revealed that there is a positive association among leverage (long term debt, short term debt and total debt) and tangibility and growth whereas negative association reveals between leverage and profitability and size of the firm While Sangeetha&Sivatharsan (2013) conducted a study on factors determining capital structure: A case study of listed companies in Sri Lanka. The results revealed that the use of debt financing by Sri Lankan firm is significantly low and this is largely due to the use of less long term debt. Further tangibility, firm size, growth, profitability, liquidity and dividend payout, and growth are statistically significant determinants of capital structure in Sri Lanka. Moreover they found that firm size, growth rate and profitability play a major role in determination of the mix of capital structure in Sri Lankan firms.

## 2. METHODOLOGY

### DATA COLLECTION

This study based on the secondary data. These required data were collected from annual report of the selected companies during the study period from 2009 to 2013.

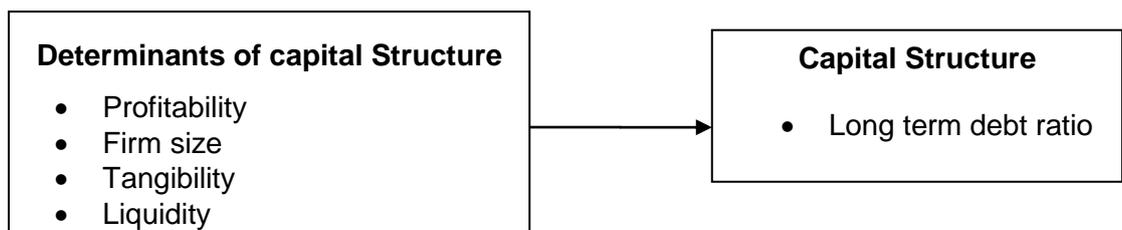
### SAMPLE SELECTION

34 companies were selected by using the convenient sampling technique from two sectors; Beverage food and Tobacco sector and the manufacturing sector in the Colombo Stock Exchange in Sri Lanka. Firms are selected based on availability of the required firm specific data for a consecutive period of five years from 2009 to 2013. Finally 14 listed companies were selected from Beverage food and Tobacco sector and 20 companies were selected from manufacturing sector.

### CONCEPTUAL FRAMEWORK

Independent Variables

Dependent Variables



*Figure 1. Conceptual Framework*

## VARIABLES

The data used in this analysis divided into two groups. The firm specific factors such as Profitability (PROF), Firm size (FSIZE), Tangibility (TANG) and Liquidity (LIQ) were used as determining capital structure as an independent variables and the variable used to measure the leverage level (LTD) is a dependent variables. Based on the variables the researcher developed the following multiple regression model.

$$LTD = a + \beta_1 PROF + \beta_2 FSIZE + \beta_3 TANG + \beta_4 LIQ + e_i$$

Where, a, is constant,  $\beta_1$ ,  $\beta_2$ ,  $\beta_3$ ,  $\beta_4$ , are coefficients of independent variables, and  $e_i$ , is residual term.

## OPERATIONALIZATION

Table 1. concept, Variables and Measurement

Concept	variables	Measurement
Capital structure/ Leverage level	Long term debt ratio(LTD)	<u>Long term debt</u> Total Equity
Determinants of Capital structure	Profitability(PROF)	<u>Profit before interest and tax</u> Total Assets
	Firm size(FSIZE)	Log of sales
	Tangibility(TANG)	<u>Total gross fixed assets</u> Total Assets
	Liquidity(LIQ)	<u>Current assets</u> Current Liabilities

## DEVELOPMENT OF HYPOTHESES

For the analysis 5 null hypotheses and 5 Alternative hypotheses were developed.

### Null hypotheses

H<sub>01</sub>: There is no significant impact of determinants of capital structure on leverage level

H<sub>02</sub>: There is no significant relationship between profitability and leverage level

H<sub>03</sub>: There is no significant relationship between firm's size and leverage level

H<sub>04</sub>: There is no significant relationship between tangibility and leverage level

H<sub>05</sub>: There is no significant relationship between liquidity and leverage level

### Alternative hypotheses;

H<sub>a1</sub>: There is a significant impact of determinants of capital structure on leverage level

H<sub>a2</sub>: There is a significant relationship between profitability and leverage level

H<sub>a3</sub>: There is a significant relationship between firm's size and leverage level

H<sub>a4</sub>: There is a significant relationship between tangibility and leverage level

H<sub>a5</sub>: There is a significant relationship between liquidity and leverage level

## ANALYSIS

The data collected were analyzed with the use of Statistical Package for Social Science (SPSS) 20 version under which descriptive Statistics, correlation analysis and regression Analysis

*Table.2 result of Descriptive Statistics*

	N	Minimum	Maximum	Mean	Std. Deviation
LTD	170	.01	.85	.1430	.16189
PROF	170	-.55	1.01	.1418	.18882
FSIZE	170	4.94	9.90	7.6853	1.54525
TAN	170	.05	1.00	.5146	.22909
LIQ	170	.02	14.22	1.7942	1.78804
Valid N (listwise)	170				

Table 2 describe that companies have an average mean of long term debt 14.3 percent (0.1430) and maximum long term debt is 85% from and minimum is 1 percent in any of the year in the study period. The average rate of profitability is 14.18 percent and maximum profitability is 101 percent from Ceylon tobacco company ltd in the 2012/13 period while minimum profitability is -55 percent from Keels food product plc in 2009/10 period. The average size of the firm is 7.6853 and maximum is 9.9 while minimum is 4.94. Tangibility mean is 51.46 percent and maximum is 100 percent from Ceylon beverage holding plc from the period of 2010/11 to 2011/12. Minimum is 05 percent. Average Liquidity is 1.79 and maximum liquidity is 14.22 from while minimum is 0.02.

## CORRELATION ANALYSIS

*Table 3. Coefficient of correlation*

		LTD	PROF	FSIZE	TANG	LIQ
PROF	Pearson Correlation	-.284**	1			
	Sig. (2-tailed)	.000				
FSIZE	Pearson Correlation	-.010	.153*	1		
	Sig. (2-tailed)	.900	.047			

TANG	Pearson Correlation	.222**	-.289**	.537**	1	
	Sig. (2-tailed)	.004	.000	.000		
LIQ	Pearson Correlation	.198**	.063	-.008	-.302**	1
	Sig. (2-tailed)	.010	.413	.916	.000	

\*\* . Correlation is significant at the 0.01 level (2-tailed).

Table 3 revealed the result of the Pearson correlation of coefficient between long term debt ratio / Leverage level (LTD) and profitability (PROF) is -0.284 and the p value is 0.000 which is less than alpha value of 0.05 which explain that there is a significant negative relationship between profitability and Leverage level and also correlation of coefficient between long term debt ratio (LTD) and liquidity is -0.198 and the  $p < 0.05$  (0.010) which indicates there is a significant negative relationship between liquidity and long term debt ratio but tangibility and the capital structure has a positive significant relationship since the coefficient of correlation between liquidity and long term debt ratio is .222 with a significant value of 0.004 which is less than 0.05. Moreover the correlation of coefficient between firm size (FSZE) and long term debt is -0.010 but the  $P > 0.005$  which indicates there is insignificant negative relationship between firm size and leverage level.

Table 4 summarised the SPSS output of multiple regression analysis .ANOVA table of this model indicate that the overall model is significant since the p-value is (0.000) which is less than the p value= 0.05, which is indicates that, the model

### MULTIPLE REGRESSIONS ANALYSIS

Table 4: Summary of the Result of Multiple Regressions

Detail	Dependent Variable: LTD			
	Value	$\beta$ - value	T Value	Sig.
(Constant)		.029	.287	.774
PROF		-.208	-3.201	.002
FSIZE		.013	1.397	.164
TANG		.127	1.893	.045
LIQ		-.012	-1.638	.031
R	0.365			
R <sup>2</sup>	0.133			
Adj. R <sup>2</sup>	0.112			
Std. Error	0.152 57			
F Value	6.32			
Sig (P. Value)	.0000			

(Source: SPSS output)

applied can statistically predict the outcome variable of LTD. And also all the linear variables are stationary. It explained that variables are not depends on the time. Further output of model summary of the multiple regression analysis describes the R square value of 0.133, which indicates that 13.3 percent of the observed variability in LTD is explained by the independent variable of PROF,FSIZE,TANG, and LIQ. Further finding reveals that, other factors have 86.7 percent impact on leverage level in manufacturing and Beverage food and Tobacco sector in the CSE in Sri Lanka. Based on the above result the researcher developed the followings regression equation model.

$$\text{LTD} = 0.029 - .208\text{PROF}_t + 0.013\text{FSIZE}_t + 0.127\text{TANG}_t - 0.012\text{LIQ}_t$$

This multiple linear regression equation shows that  $\beta$  equals to, -0.208, 0.013, 0.127, -0.012 which indicates the slop of the regression line, which simply indicates that there is a significant impact of PROF,TANG, LIQ on Leverage level since the significant value is 0.002, 0.45, 0.31 respectively which is less than 0.05. Therefore the findings revealed that PROF, TANG, LIQ has high significant impact on LTD than Firm size in manufacturing and Beverage food and Tobacco sector in the CSE in Sri Lanka.

**Table 5. Hypotheses Testing**

Hypothesis	Alternative Hypothesis	Null Hypothesis
There is a significant impact of determinants of capital structure on leverage level	Accepted ( $H_{a1}$ )	Rejected ( $H_{01}$ )
There is a significant relationship between profitability and leverage level	Accepted ( $H_{a2}$ )	Rejected ( $H_{02}$ )
There is a significant relationship between firm's size and leverage level	Rejected ( $H_{a3}$ )	Accepted ( $H_{03}$ )
There is a significant relationship between tangibility and leverage level	Accepted ( $H_{a4}$ )	Rejected ( $H_{04}$ )
There is a significant relationship between Liquidity and leverage level	Accepted ( $H_{a5}$ )	Rejected ( $H_{05}$ )

In testing of Hypothesis<sub>1</sub>, Table 4 pointed out the significance value is  $P = 0.000$  which is less than 0.05 and  $R^2$  is 0.133. Therefore finding revealed that there is a significant impact of determinants of capital structure on capital structure decision (LTD). Therefore the hypothesis<sub>a1</sub> is accepted and  $H_{01}$  should be rejected. In testing of Hypothesis<sub>2</sub>, the table 4 describe that the calculated significant value is (0.000) which is less than alpha value (0.05), therefore the null hypothesis  $H_{02}$  should be rejected and alternative hypothesis  $H_{a2}$  should be accepted. But alternative hypothesis  $H_{a3}$  should be rejected and null hypothesis  $H_{03}$  should be accepted. since calculated significant value 0.900 which is more than 0.05. Further alternative hypothesis  $H_{a4}$  should be accepted and null hypothesis is  $H_{04}$  should be rejected since the significant value is less than 0.05 which is  $p = 0.004$ . And also alternative hypothesis  $H_{a5}$  should be accepted and

null hypothesis is  $H_{05}$  should be rejected since the calculated significant value is 0.010 which is less than 0.05.

### **3. CONCLUSION**

The findings revealed that the determinants of capital structure such as PROF and LIQ were significantly negatively correlated with capital structure (LTD) at 1% significance level. But tangibility (TANG) has a significant positive correlation with LTD while Firm size (FSIZE) has no significant relationship with capital structure (LTD). Further determinants of capital structure have a significant impact on capital structure (LTD) at 1% significance level. Finally, the conclusion can be made that R square value of 0.133, which indicates that 13.3 percent of the observed variability in LTD is explained by the independent variable of PROF, FSIZE, TANG, and LIQ. Further finding reveals that, other factors have 86.7 percent impact on LTD in manufacturing and Beverage food and Tobacco sector in the CSE in Sri Lanka.

### **DIRECTIONS FOR FUTURE RESEARCH**

The results of the current study related to the manufacturing and Beverage food and Tobacco sector. As such, future research may consider other sectors of CSE and extend the study and develop significantly results to the listed companies. Further finding of this study revealed that determinants of capital structure which were taken in this study Profitability, firm size, tangibility, and liquidity. Therefore the future researchers can take more factors in their study.

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