

# IMPACT OF CAPITAL STRUCTURE ON PROFITABILITY: A STUDY OF LISTED MANUFACTURING COMPANIES IN THE COLOMBO STOCK (SEC) EXCHANGE IN SRI LANKA

**Sithy Safeena M.G. Hassan**

*Department of Management, South Eastern University of Sri Lanka Sri Lanka.  
ssafeena@seu.ac.lk*

## ABSTRACT

*A business concern can go for different levels of the mixtures of equity and debt or other financial facilities with equity having the emphasis on maximizing the firm's value. And also it's affects the liquidity and profitability of a firm. Therefore this study focused on the impact of capital structure on the profitability of listed manufacturing companies in the Colombo Stock Exchange in Sri Lanka. The primary objectives of this study are to investigate the significant impact of capital structure on profitability and find out the significant relationship between capital structure and profitability of listed manufacturing companies in Sri Lanka. In this regard, researcher has selected a sample of 20 manufacturing companies listed on the CSE in Sri Lanka during the year from 2009 – 2013. For the purpose of this study, the secondary data was extracted from the annual reports of sample listed manufacturing companies. Multiple regression and correlation analysis were used with the SPSS -16 versions.*

*The results indicate that the capital structure of the manufacturing companies listed on Colombo Stock Exchange has a significant impact on profitability. Moreover the findings revealed that there is a significant negative relationship between LDA and profitability while there is a positive strong relationship between TDA and profitability. But there is an insignificant negative relationship between SDA and profitability of manufacturing listed companies in the CSE in Sri Lanka.*

**Key Words:** *Capital Structure, Long-term debt, Short-term debt, Return on Asset, Profitability.*

## Introduction

Capital structure theory is one of the most important areas of finance. It shows the firm's financial frame work and refers to the various financing options of the assets by a firm. The capital structure is how a firm finances its overall operations and growth by using different sources of funds. It is most likely referring to a firm's debt-to equity ratio. Debt comes in the form of bond issues or long-term notes payable, while equity is classified as common stock, preferred stock, retained earnings and reserved fund. In general, a firm can choose among many alternative capitals structures. It can issue a large amount of debt or very little debt. Usually a company more heavily financed by debt poses greater risk. A firm can issue number of distinct securities in countless combinations; however, it attempts to find the particular combination that maximizes its overall market value (Abor, 2005).

Firm capital structure plays a determinant role in firm profitability. It is suggested that utilization of different levels of debt and equity in the firm's capital structure is one such firm-specific strategy used by managers in search for improved performance. A business can go for different levels of combination of equity and debts or other financial facilities; that may be lease financing, term financing, debentures and direct loans from bank etc with equity capital

(Raheman, Bushra, and Mustafa, 2007). Managers who are judicious enough to identify and set up the appropriate mix of debt and equity are fully rewarded in the market place, because, all things being equal, this appropriate mix of debt and equity minimizes a firm's cost of financing.

An optimal capital structure is usually defined as one that will minimize a firm's cost of capital, while maximizing firm value. Researchers continue to analyze capital structures and try to determine whether optimal capital structures exist. Modigliani Miller (1958) found that in a perfect competitive market; the capital structure doesn't have influence on the market value of the company, which will be settled by the composition of its assets. And also found that under the perfect capital market conditions; a firm's value depends on its operating profitability rather than its capital structure.

A company can finance its operations by either debt or equity or different combinations of these two sources. But it is a difficult decision for the firms to determine the proportion of the equity and the debt in the optimal capital structure to maximize the profit and minimize the risk and the cost of capital. Nirajini and Priya (2013) explained that capital structure decisions have significant impact on profitability of the firm. Exactly how firms choose the amount of debt and equity in their capital structures remains an enigma and it is not an easy task to every company and its managers, while there are many empirical studies emerging all over the world and moreover still straggling to fix a suitable proportion of the capital structure. An optimum capital structure is a critical decision making for any organization. But the capital structure decision is important for the need to maximize returns to various organizational constituencies, and also this decision has on an organization's ability to deal with its competitive environment (David, 2001).

Therefore it should be made clear understanding on the impact of capital structure on the firm's

financial performance. The main problems of this study is to analysis does capital structure has a impact on firm's financial performances and how the capital structure negatively or positively correlate on profitability of the companies in the Manufacturing sector in Sri Lanka.

## **Literature Review**

A firm's capital structure is the composition of structure of its liabilities (Nirajini and Priya 2013). The behavior of the capital structure of the firm influences by many factors such as capital intensity, tangibility, expected growth, size, profitability, non debt tax shields, liquidity, volatility, uniqueness and industry classification (Titman and Wessels, 1998; Kajanathan and Achchuthan, 2013; Samarakoon, 1999; Sangeetha and Sivathaasan, 2013).

The theories of capital structure try to justify and explain the capital structure from time to time which addressed the nature of capital structure from different angles. The first concept of the capital structure was introduced by Durand (1952) but Modigliani and Miller (1958) was a pioneer in opening the way for wide range of studies, contemporary thinking and arguments on capital structure with their "irrelevancy theory" and rejected the Durand's theories. Identifying the right proportion of debt and equity of capital structure has been much difficult to bring favorable or profitable results for the organizations.

Haugen and Senbet (1978) explained that in a firm debt capital increases probability of bankruptcy increases. Harris and Raviv (1991) confirmed that firms with a high growth rate have a high debt to equity ratio and also pointed out bankruptcy costs were also found to be an important effect on capital structure. Titman (1984) demonstrates the idea of indirect bankruptcy costs and he argues that stakeholders not represented at the bankruptcy bargaining table, such as customers, can suffer material costs resulting from the bankruptcy. Given these

bankruptcy costs, the operating risk of the firm would also influence the capital structure choice of the firm because firms which have higher operating risk would be exposed to higher bankruptcy costs, making cost of debt financing greater for higher risk firms. When a firm finances a project through debt, the creditors charge an interest rate that they believe is adequate compensation for the risk they bear. Because their claim is fixed, creditors are concerned about the extent to which firms invest in excessively risky projects. The order of preferences reflects the relative costs of various financing options. Clearly, firms would prefer internal sources to costly external finance (Myers and Majluf, 1984).

The pecking order theory does not claim a well defined debt target. Brealey, Myers and Allen, (2006) suggested that having equity in both ends of the pecking order is one explanation for this, which is due to the existence of both internal and external equity. Every firm's cumulative need for external finance is therefore shown by its debt ratio. And also concludes that the most profitable firms in general do not raise debt, a finding consistent with the pecking order theory, simply saying that profitable firms in general are not in need of external financing.

There are few studies related with capital structure and profitability in Sri Lanka (Samarakoon, 1999; Nimalathasan and Brabete, 2010; Pratheepkanth, 2011; Velnampy and Nireesh, 2012; and Lingesiya, 2012; Kajanathan and Nimalthasan, (2013). Those finding differ in time period of studies and industries, analyzing somewhat different set of variables and indicate different degrees of results. Nimalathasan and Brabete (2010) analyzed the capital structure and its impact on profitability a study of listed manufacturing companies in Sri Lankan. The findings revealed that Debt Equity ratio is positively and strongly associated with profitability.

Manawaduge, DeZoysa and Chandrakumara (2010) investigated about Capital structure and

its implications, empirical evidence from an emerging market in South Asia. They used sample of 171 companies. The sample represents approximately 74 per cent of the listed companies in Sri Lanka. These companies belonged to all industrial sectors of the CSE, excluding the bank, finance and insurance sector over the period of 2002 to 2008. The result showed there is a significant negative relationship between leverage ratios and accounting performance measures.

Pratheepkanth (2011) conducted a study on the relationship between capital structure and firm's performance during the period from 2005 to 2009. The sample consists of 30 business listed companies in Sri Lanka. The results shown that there is no significant relationship between capital structure and gross profit but there was a negative significant relationship between capital structure and Net profit, ROE, ROI and ROA. Velnampy and Nireesh (2012) studied the relationship between Capital Structure and Profitability with a sample of 10 listed banks over the period of 2002 to 2009. The findings revealed that there is a significant negative relationship between the Capital Structure and Profitability.

Nirajini and Priya (2013) examines the impact of capital structure and financial performance of the listed trading companies in Sri Lanka with a sample of 11 trading companies in Colombo stock exchange over the period of five years from 2006 to 2010. The findings revealed there is a significant positive relationship between capital structure and financial performance. And also capital structure has a significant impact on financial performance. Tharmila and Arulvel (2013) also examined the relationship between capital structure and financial performance of the listed companies traded in Colombo stock exchange (CSE) using the sample of thirty companies during the period of 5 five years from 2007 to 2011. This research results showed that there is an insignificant negative relationship between the capital structure and firm's financial performance

## **Significance of the Study**

The capital structure of a firm concerns the mix of debt and equity, the firm uses in its operation this has centered on whether there is an optimal capital structure for an individual firm or whether the proportion of debt usage is irrelevant to the individual firm's value. The optimal capital structures the one that maximizes the market value of the firm's outstanding shares. The fact that an optimal capital structure has not been found is an indication of some flaw in the logic. So, the choice of capital structure is a fundamental problem for each and every firm. The trade-off theory of optimal capital structure assumes that firms balance the financial discipline and marginal present values of interest tax shields against the costs of financial distress. Naturally, it lies in every firm's interest to find an optimal balance between internal and external financing. Byoun and Rhim (2003) found that differences between that the target debt ratio and actual debt ratio is an important aspect to take into consideration. According to their study firms tend to adjust their debt ratios to specific target debt ratios. This is consistent with the trade-off theory.

There are number of studies have been conducted to find out the relationship between the capital structure and financial performance in Sri Lanka and other countries. Some researchers found that there is a positive significant relationship between capital structure and firm's financial performance (Frank and Goyal, 2003; Abor, 2005; Berger and Bonaccorsi, 2006; Nimalathasan and Brabete, 2010; Abbadi and Abu Rub, 2012; Nirajini and Priya, 2013) while some studies have reported a significant negative relationship between capital structure and firm's financial performance (Myers, 1984; Fama and French, 1998; Frank and Goyal, 2003; Huang and Sang, 2006; Tang and Jang, 2007; Ebaid, 2009; Pratheepkanth, 2011; Velnampy & Nireesh, 2012; Ebrati, Emadi, Balasang, Safari, 2013). But Abu-Tapanjeh (2006) found that, there is no relationship between the capital structure and profitability.

In this scenario the researcher attempt to investigate the impact of capital structure on profitability of manufacturing companies listed on the CSE in Sri Lanka. And also the finding of this research would be important and useful to the managers and shareholders of the companies to take the efficient financing decision.

## **Research Questions**

From the above discussion, the researcher developed the following research questions.

- Does the capital structure have impact on profitability of the manufacturing companies in the CSE in Sri Lanka?
- To what extent the capital structure contribute to the profitability of the manufacturing companies in the CSE in Sri Lanka?
- Does the capital structure have a significant relationship with profitability of the manufacturing companies in the CSE in Sri Lanka?

## **Objectives of the Study**

The primary objectives of this study are;

- To investigate the significant impact of capital structure on profitability of manufacturing companies listed on the CSE in Sri Lanka.
- To analysis the significant relationship between capital structure and profitability of the manufacturing companies in the CSE in Sri Lanka?

## **Methodology**

### **Data Collection and sample selection**

For this study the researcher used the secondary data which were collected from the Annual reports of the selected manufacturing companies in Sri Lanka. Due to the availability of data, the researcher considers only 20 manufacturing companies from the entire manufacturing sector,

which were listed on the CSE in Sri Lanka. The study period is five years from year 2009 to 2013.

## Research Framework

In this study independent variables are the debt ratios. The debt ratios include short-term debt to total assets ratio, long-term debt to total assets ratio and total debt to total assets ratio. The dependent variable is Return on Asset (ROA) ratio

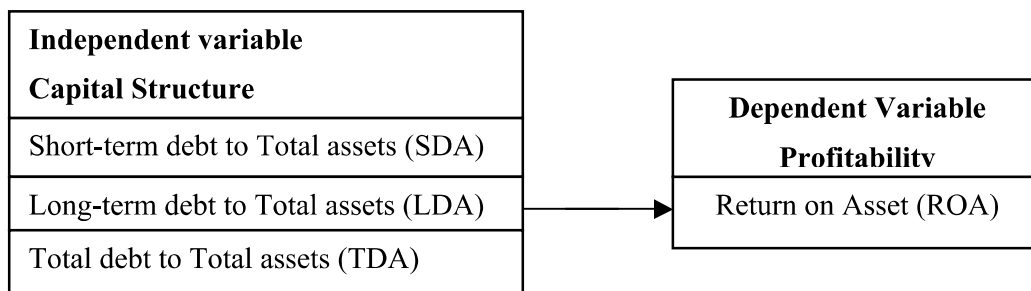


Figure 1: Research framework

## Hypotheses to be tested

In this study the researcher were developed the following hypotheses

### Null hypotheses;

- H<sub>01</sub>: There is no significant impact of capital structure on profitability of manufacturing companies listed on the CSE in Sri Lanka.
- H<sub>02</sub>: There is no significant relationship between short-term debt to total assets and profitability of manufacturing companies listed on the CSE in Sri Lanka.
- H<sub>03</sub>: There is no significant relationship between long-term debt to total assets and profitability of manufacturing companies listed on the CSE in Sri Lanka.

H<sub>04</sub>: There is no significant relationship between total debt to total assets and profitability of manufacturing companies listed on the CSE in Sri Lanka.

### Alternative hypotheses;

H<sub>a1</sub>: There is a significant impact of capital structure on profitability of manufacturing companies listed on the CSE in Sri Lanka.

H<sub>a2</sub>: There is a significant relationship between short-term debt to total assets and profitability of manufacturing companies listed on the CSE in Sri Lanka.

H<sub>a3</sub>: There is a significant relationship between long-term debt to total assets and profitability of manufacturing companies listed on the CSE in Sri Lanka.

H<sub>a4</sub>: There is a significant relationship between total debt to total assets and profitability of manufacturing companies listed on the CSE in Sri Lanka.

## Techniques used to Analyze the Data

For the analysis the researcher used multiple linear regressions and correlation analysis using the SPSS 16.0 version software. Multiple linear

**Impact of Capital Structure on Profitability: A study of Listed Manufacturing Companies in the Colombo Stock (SEC) Exchange in Sri Lanka.**

regression models are formed to find out the impact of capital structure on profitability. Further correlation coefficient analysis used to find out the significant relationship between the depended variable and independent variables.

**Model Specification**

The regression model will be formulated in the following manner;

$$Y_{ROA} = \alpha + \beta_{1LDA} + \beta_{2SDA} + \beta_{3TDA} + \varepsilon$$

**Empirical result**

**Table 1:** Result of Multiple Regressions

Detail	Dependent Variable: ROA		
	$\beta$ - value	t	Sig.
(Constant)	.076	2.656	.009
LDA	- .003	-.043	.966
SDA	-.083	-1.178	.242
TDA	.030	11.340	.000
R	.779		
R <sup>2</sup>	.606		
Adj. R <sup>2</sup>	.594		
Std. Error	.10273		
F Value	49.321		
Sig.(p.Value)	0.000		

*(Source: SPSS output)*

This multiple linear regression equation shows that  $\beta$  equals to -0.003, -0.083 and 0.030 which shows the slop of the regression line. It indicates that there is a negative relationship between the LDA and SDA while TDA has a significant positive relationship with ROA ( $p(0.000) < 0.05$ ). The value of “ $\alpha$ ” is 0.076. It can be derived the regression equation as,

$$ROA = 0.076 - 0.003_{LDA} - 0.083_{SDA} + 0.030_{TDA}$$

ANOVA table of this model indicate that the overall model is significant since the p-value is (0.000) and R<sup>2</sup> is 0.606 indicating the 60.6% of the Return on assets (ROA) is explained by the given independent variables; LDA, SDA and

TDA. This reveals that capital structure has a significant impact on Profitability of manufacturing listed companies in the CSE in Sri Lanka. Therefore current study accepts the alternative hypothesis H<sub>a1</sub> and rejects the null hypothesis H<sub>01</sub>.

**Correlation Analysis**

**Table 2:** Result of Correlation Analysis

		LDA	SDA	TDA
LDA	Pearson Correlation	1		
	Sig. (2-tailed)			
	N	100		
SDA	Pearson Correlation	.154	1	
	Sig. (2-tailed)	.127		
	N	100	100	
TDA	Pearson Correlation	-.282**	-.156	1
	Sig. (2-tailed)	.004	.120	
	N	100	100	100
ROA	Pearson Correlation	-.230*	-.196	.775**
	Sig. (2-tailed)	.021	.050	.000
	N	100	100	100

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

\* . Correlation is significant at the 0.05 level (2-tailed).

The above table - 2 shows that the relationship between dependent variable and independent variable of companies in term of correlation coefficient. Correlation coefficient of ROA and LDA is -0.230 with a p-value of 0.021 which describes there is a significant negative relationship between ROA and LDA at 5% significant level. The result of correlation analysis of ROA and SDA shows coefficient of correlation -0.196, with p-value of 0.050. It indicates that there is no significant relationship between ROA and SDA. Moreover Correlation coefficient of ROA and TDA is 0.775 with a p-value of 0.000 which describes there is strong positive significant relationship between ROA and TDA. From the above discussion the results of hypotheses testing have been summarized in the following table.

**Conclusions**

The empirical findings of this study revealed that capital structure has a significant impact on profitability of manufacturing listed companies in the CSE in Sri Lanka. Moreover the result revealed that there is a significant negative relationship between LDA and ROA while found that there is a positive strong relationship between TDA and profitability. Mean time the result indicates that, there is an insignificant negative relationship between SDA and profitability of manufacturing listed companies in the CSE in Sri Lanka.

**Table 3:** Result Summery of Hypothesis Testing

Statement	Null Hypothesis	Alternative Hypothesis
There is no significant impact of capital structure on profitability	Rejected(H <sub>01</sub> )	Accepted (H <sub>a1</sub> )
There is no significant relationship between LDA and ROA	Rejected(H <sub>02</sub> )	Accepted (H <sub>a2</sub> )
There is no significant relationship between SDA and ROA	Accepted(H <sub>03</sub> )	Rejected (H <sub>03</sub> )

## References:

- Abbadi, M., Abu-Rub, N. (2012), "The Effect of Capital Structure on the Performance of Palestinian Financial Institutions, British Journal of Economics, Finance and Management Sciences, Vol.3 No.2, pp. 91-101.
- Abor, J. (2005), "The effect of capital structure on profitability: an empirical analysis of listed firms in Ghana", The Journal of Risk Finance, Vol. 6 No. 5, pp. 438-447.
- Abu-Tapanjeh, A.M. (2006), "An Empirical Study of Firm Structure and Profitability Relationship: The Case of Jordan", Journal of Economic & Administrative Sciences, Vol. 22 No.1, pp. 41 -59
- Annual Reports (2009-2013) of 20 listed manufacturing companies in the CSE in Sri Lanka
- Berger, A. N., Bonaccorsidi, P. E. (2006), "Capital structure and firm performance: a new approach to testing agency theory and an application to the banking industry", Journal of Banking & Finance, Vol.30, pp.1065 -1102.
- Brealey, R., Myers, S. and Allen, F. (2006), "Principles of Corporate Finance" 8th edition, McGraw-Hill.
- Byoun, S. and Rhim, J. (2003), "Tests of the Pecking Order Theory and the Tradeoff Theory of Optimal Capital Structure," Proceedings of the Midwest Business Economics Association, pp. 31-40.
- David, A. (2001), "Pricing the strategic value of put able securities in liquidity crises", Journal of Financial Economics Vol.59, pp. 63-99.
- Ebaid, E. I (2009), "The impact of capital-structure choice on firm performance: empirical evidence from Egypt", The Journal of Risk Finance, Vol.10 No.5, pp. 477-487.
- Fama, E.F., and French, K.R. (1998), "Taxes, financing decisions, and firm value", Journal of Finance, Vol. 53, pp. 819-43.
- Frank, M. and Goyal, V. (2003), "Trade-off and Pecking Order Theories of Debt" Working Paper, Forthcoming in B. Espen Eckbo (ed.), Handbook of Corporate Finance: Empirical Corporate Finance, Vol 2.
- Harris, M., and A. Raviv. (1991); "The theory of capital structure", Journal of Finance, Vol.46 No.1, pp. 297-355.
- Haugen, R., and Senbet, L. (1978), "The insignificance of bankruptcy costs to the theory of optimal capital structure", Journal of Finance, Vol. 33 No. 2, pp. 383-93.
- Huang, S., and Song, F. (2006), "The determinants of capital structure: evidence from China", China Economic Review, Vol.17 No.1 pp. 14-36.
- Kajananthan, R., and Achchuthan, S. (2013), "Liquidity and Capital Structure: Special reference to Sri Lanka Telecom Plc", Advances in Management & Applied Economics, Vol. 3 No.5, pp. 1792-7544
- Kajananthan, R. and Nimalthasan, P. (2013), "Capital structure and study on Sri Lankan listed manufacturing companies," Journal of Business and Management, Vol. 1 No.2, pp.037-044,
- Manawaduge, A. S., De Zoysa, A., and Chandrakumara, P. (2010), "Capital structure and its implications: empirical evidence from an emerging market in South Asia", Third Annual International Business Conference Sri Lankan Journal of Management, Vol. 3, pp.35-51.
- Modigliani, F. and Miller, M. (1958), "The cost of capital, corporate finance and the theory of investment", American Economic Review, Vol. 48, pp 261-297.
- Ebrati, M.R., Farzad Emadi, Balasang, R.S., Safari, G. (2013), "The Impact of Capital



- Structure on Firm Performance: Evidence from Tehran Stock Exchange”, Australian Journal of Basic and Applied Sciences, Vol.7 No.4. pp.1-8.
- Myers, S.C. (1984); “The capital structure puzzle”, Journal of Finance, Vol.39, pp 575-92.
- Myers, S.C. and Majluf, N.S. (1984), “Corporate financing and investment decisions when firms have information that investors do not have”, Journal of Financial Economics, Vol. 12, pp 187-221.
- Nimalathasan, B., Valeriu Brabete (2009), “The determinants of capital structure: evidence on UK property companies”, Journal of Property Investment & Finance, Vol. 17 No. 5, pp 464-480.
- Nimalathasan, B., Valeriu, Brabete ( 2010). Capital Structure and Its Impact on Profitability: A Study of Listed Manufacturing Companies in Sri Lanka. The Young Economists Journal, Vol.13, pp. 55-61.
- Nirajini, A., Priya, K. B. (2013), “Impact of Capital structure on financial performance of listed trading companies in Sri Lanka,” International Journal of Scientific and Research Publications, Vol.3 No.5 pp.1-9.
- Pratheepkanth, P. (2011), “Capital structure and financial performance: Evidence from selected Business companies in CSE in Sri Lanka”, The International Refereed Research Journal V01-2, No.2.
- Raheman, A., Bushra Z., and Mustafa (2007), “Capital Structure and Profitability: Case of Islamabad Stock Exchange” International review of Business Research Papers, Vol.3 No.5, PP. 347-361.
- Samarakon, L.P.(1999), “The capital structure of Sri Lankan Companies”, Sri Lankan Journal of Management Vol. 4 No,1&2 , pp. 18-30
- Sangeetha, M., and Sivathaasan, N. (2013), “Factors Determining Capital Structure: A Case study of listed companies in Sri Lanka”, Research Journal of Finance and Accounting, Vol.4, No.6, pp. 236-247.
- Tang, C.H. and Jang, S.S. ( 2007), “Revisit to the determinants of capital structure: a comparison between lodging firms and software firms”, International Journal of Hospitality Management, Vol.26 No.1, pp.175-187.
- Tharmila, K., Arulvel, K. K. (2013), “The impact of the capital structure and financial performance: A study of the listed companies traded in Colombo stock exchange”, Journal of Accounting, Auditing, Economics and Finance, Vol.1No.5, pp.106-117.
- Titman, S. (1984), “The effect of capital structure on a firm’s liquidation decisions”, Journal of Financial Economics, Vol.13, pp. 137–151.
- Titman, S., and Wessels, R. (1988), “The Determinants of Capital Structure Choice”, The Journal of Finance, Vol. 43No.1, pp.1-19.
- Velamp, T., Aloy Niresh. J. (2012), “The Relationship between Capital Structure & Profitability”, Global Journal of Management and Business Research, Vol.12 No.13, pp. 67-74