

DETERMINANTS OF CAPITAL STRUCTURE: EVIDENCE FROM LISTED MANUFACTURING COMPANIES IN SRI LANKA

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ABSTRACT

Chosen the capital structure is one of the major influencing factors for the development of each company. Researcher choose listed firms in the manufacturing sector as a sample because the sector has grown faster and number of companies also more than any other sector in Sri Lankan economy. Further, the contribution of the manufacturing sector to total Gross Domestic Product (GDP) also higher and more compare with other companies and manufacturing industry is the important one in the country's economic development. In Sri Lanka, the above research work carried out by some authors in different periods. The purpose of this study is to fill this void to some extent by providing empirical evidence from a developing country's perspective. Here the researcher decided to carry out the research work from 2010 to 2014. It will be tested on the basis of the Trade off theory and pecking order theory. Researcher selected 34 listed manufacturing companies in Colombo stock exchange as a sample for this research purpose. Findings of this study are Tangibility significantly impact on long term debt and Profitability also significantly impact on total debt. The result of this study Profitability and tangibility was confirmed to be relevant determinant for Sri Lankan manufacturing companies, except Non debt tax shield, and Size. Tangibility, Profitability, Non debt tax shield, and Size do not appear to be significantly related to the debt to equity ratio. Through the findings can come to conclusion that Pecking order theory is more relevant to Sri Lankan context. It is largely consistent with the past empirical finding also. Findings should help corporate managers and decision makers to make optimal capital structure decisions.

Key Words: Capital structure, Trade-off theory, Pecking order theory

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1. INTRODUCTION

The manager of the firm should be able to make a managerial decision as well as a financial decision in order to maintain the value of the firm. One way that can be chosen is to undertake a capital restructuring, especially debt restructuring. An ideal composition of capital structure which consists of debt and equity will minimize the cost of capital and maximize the firm's value. Therefore, it is important for the firm's manager to understand the theory of capital structure. Capital structure refers to the mix of debt and equity used by a firm in financing its assets. The capital structure decision is at the center of many other decisions in the area of corporate finance. Firm's capital structure decision can be viewed from the following theories: Modigliani- Miller theory, pecking order theory, trade-off theory and agency cost theory. Each theory of capital structure gives the different implication on how the firm's characteristics influence the firm's capital structure choices. In order to identify which of the firm's characteristics that have significant effect on capital structure based on theories in the context of Sri Lankan firms. So this research concentrates on a group of variables identified in the previous literature. In this study, determinants of capital structure in Sri Lankan context are examined. How do firms finance their operations? And what are the potential determinants of such Capital structure? These are important questions that have motivated the researcher to conduct this research. Based on that motivation, through this research; Researcher examines the determinants of the capital structure of the listed manufacturing companies in Sri Lanka by formulating research hypotheses. Researcher was motivated to test Hypothesis are that the test of determinants of capital structure of the firms in manufacturing sector in Sri Lanka is important as these firms have different characteristics.

2. REVIEW OF LITERATURE

Capital structure is defined as the specific mix of debt and equity a firm uses to finance its operations. Four important theories are used to explain the capital structure decisions. A firm's capital structure is the composition or 'structure' of its liabilities thus, A mix of a company's long-term debt, specific short-term debt, common equity and preferred equity. The capital structure is how a firm finances its overall operations and growth by using different sources of funds. Debt comes in the form of bond issues or long-term notes payable, while equity is

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classified as common stock, preferred stock or retained earnings. Short-term debt such as working capital requirements is also considered to be part of the capital structure. Decision regarding what type of capital structure a company should have is of critical importance because of its potential impact on profitability and solvency. The small companies often do not plan their capital structure.

2.1 Theories of Capital Structure

This research work is carried out in the light of the trade off and Static Pecking Order theory.

2.1.1 Trade-off Theory

The major benefit of debt financing is that it provides a tax shelter that increases the available remaining to be distributed to shareholders of equity. Nevertheless, the main disadvantage related with debt financing is the risk of bankruptcy (Warner, 1977; Haugen and Senbet, 1978, Andrade and Kaplan, 1998). Increased levels of leverage, while resulting in the availability of a larger tax shields also necessitate a higher cost line of financial distress. The company is trying to trade-off between the size of the tax shelter and financial distress costs. Higher probability of financial distress is in terms of start-ups and high growth businesses. The company is exposed to the risk of uncertain cash flow streams and low tangible asset base. Therefore, these types of companies should not place high confidence on the debt in their capital structure. On the other hand, firms with a stable revenue stream and sound asset base facing a lower risk of bankruptcy. This company can apply a moderately higher level of leverage in their capital structure.

According to Titman and Wessels (1988) tangible assets end up helping companies to accumulate debts and if the investment proves a failure, the creditor will charge the guarantee offered. It also says that companies saddled with extra heavy debt - too much to pay down with a couple of years' internally generated cash should issue equity or sell off assets to raise cash to rebalance the capital structure. In addition Mason (1990) found that tax-paying companies are more likely to issue debt (Vs equity) than non taxpaying companies. This shows that taxes do affect financing choices. Contrarily a study by Fama and French (1998) covering over 2000 firms from 1965 to 1992, failed to find any evidence that interest tax shields contributed to firm value. Further, Bevan and Danbolt (2000 and 2002) find a positive relationship between

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tangibility and long-term debt, whereas a negative relationship is observed for short-term debt and tangibility in UK.

While Um (2001) suggests that a high profit level gives rise to a higher debt capacity and accompanying tax shields. Hence, it is expected that a positive relationship should exist between profitability and financial leverage. Rather than tangibility and profitability, several studies find that the size of a firm is a good explanatory variable for its leverage ratio. Bevan and Danbolt (2002) argue that large firms tend to hold more debt, because they are regarded as being ‘too big to fail’ and therefore receive better access to the capital market. Also some other studies Rajan and Zingales (1995), Wiwattanakantang (1999), Booth et al (2001), Pandey (2001), Al- Sakran (2001), and Huang and Song (2002) find a significant positive relationship between leverage ratios and size in developing countries. Meanwhile Titman and Wessels (1988) report a positive correlation between the size of the firm, the total debt ratio and the long term debt ratio. On the other hand, Bevan and Danbolt (2002) report that size is found to be negatively related to short term debt and positively related to long term debt.

2.1.2 Pecking Order Theory

According to this theory, the company follows a specific order of preferences in financing decisions (Myers, 1984; Myers and Majluf, 1984). The most popular mode of financing is retained earnings. The advantage of financing through retained earnings is that it has no related flotation costs. Additionally, retained earnings do not require external supervision by the provider of capital. When the internal accruals are not adequate to finance the proposed investment, then the company resorts to debt financing. The issue of debt does not result in dilution of equity capital and has no implications on stock ownership. The next way of financing in the hierarchy is the issuance of preference capital. This was followed by a variety of hybrid instruments like convertible instruments. The least preferred mode of financing is issue of equity (Donaldson, 1961; Myers, 1984; Myers and Majluf, 1984). This is only reliable as a last option. Pecking order theory is a behavioural approach to capital structure. This is based on the principle that financing decisions are made in a way that causes the least difficulty to the management.

Consistent with the pecking order theory, work of Titman and Wessels (1988), Rajan and Zingales (1995), Antoniou et al, (2002) and Bevan and Danbolt (2002) in developed countries,

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Booth et al, (2001), Pandey (2001),Um (2001),Wiwattanakantang (1999), Chen (2004) and Al-Sakran (2001) in developing countries all find a negative relationship between leverage ratios and profitability. Contradicting this, Booth et al (2001) revealed that, generally a positive relationship exists between growth and debt ratios in all countries in their sample, except for South Korea and Pakistan. Pandey (2001) also argued that there is a positive relationship between growth and both long term and short term debt ratios in Malaysia. Myers (1984) argues that there is a positive relationship between tangibility and financial leverage. Consistent to his argument, empirical evidences were also reported by Titman and Wessel (1988) and Rajan and Zingales (1995) in developed countries.

2.3 Past Research findings regarding the Determinants of capital structure in Sri Lanka

It is worth reviewing the previous studies on Sri Lankan companies that are related to leverage and capital structure. Samarakoon (1997) investigated the ability of market beta, book - to -market equity, leverage and earning price ratio to explain the cross sectional variation in expected returns in Sri Lanka. He found no evidence of a relationship between mean returns, size of the firm, book-to-market equity and leverage. Senerathne (1998) tested the applicability of pecking order theory of financing in Sri Lanka. The results suggested that Sri Lankan companies follow the pecking order partially. Colombage (2005) empirically investigates the capital structure of Sri Lankan companies and finds that the financing trend of Sri Lankan firms confirms the pecking order hypothesis to a greater extent than predictions of information asymmetry and static tradeoff consideration.

Champika and Gunaratne (2007) found that Sri Lankan firms demonstrated a market timing behavior in adjusting their capital structure. They also revealed that profitable firms are particularly very much reliant on internal financing. Rathirani and Sangeetha (2011) found there is low relationship between the factors of leverage and profitability, tangibility and assets turnover has negative relationship related with leverage. Pirakalathan (2010) found that Capital Intensity positively related with long term debt and total debt and negatively related with short term debt. Tangibility positively related with long term debt short term debt and total debt. Profitability negatively related with long term debt short term debt and total debt. Firm size

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negatively related with long term debt short term debt and total debt. Non-debt tax shield negatively related with long term debt short term debt and total debt.

Silva and Ranjani(2010) found that positive association between leverage and non debt tax shields, -size measured in terms of sales, size measured in terms of assets, tax, volatility, tangibility, and profitability (return on equity) while -negatively associate with profitability (return on capital), profitability (return on assets) and growth opportunities. Buvanendra (2013)Profitability, Tangibility, Size and Growth rate were used as independent variables, while leverage ratios such as total debt ratio, long term debt ratio and short term debt ratio were the dependent variables and the result was only profitability variable was statistically significant with leverage ratios (with total debt ratio and short term debt ratio) at manufacturing companies. Ajanthan (2013), results suggest that only profitability is negatively related to the debt ratios (long term; short term and total debt) whereas tangibility (asset structure), size and growth do not appear to be significantly related to the debt ratios. Through the findings we can come to conclusion that Pecking order theory is more relevant to Sri Lankan context.

Sangeetha and Sivathaasan (2013), Results revealed that the use of debt capital is relatively low in Sri Lanka and size, growth rate and profitability are statistically significant determinants of capital structure. Hanitha and Anandasayanan (2015) result of this study Profitability and Non debt tax shield were confirmed to be relevant determinant for Sri Lankan manufacturing companies, except Tangibility. However, this study was confined only to manufacturing companies. However this sector plays an important role in the Sri Lankan economy. Manufacturing sector is the largest industrial subsector to contribute the GDP in Sri Lanka.

3. RESEARCH PROBLEM

“To what extent the determinants of capital structure impact on capital structure of the listed manufacturing firms in Sri Lanka?”

4. RESEARCH QUESTIONS

Based on the research problem the following research questions are formulated.

- Do the determinants of capital structure impact on capital structure of the listed manufacturing companies in Sri Lanka?

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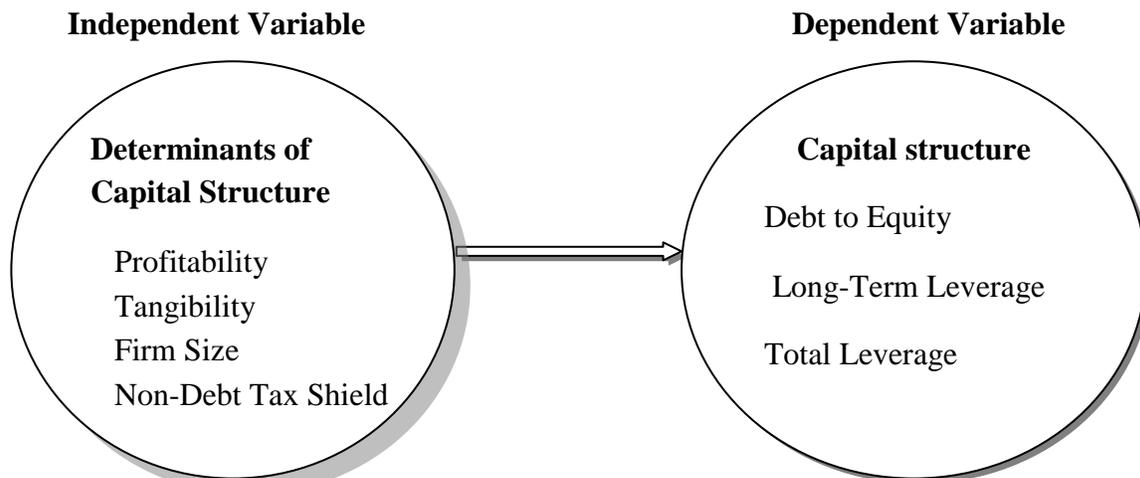
5. OBJECTIVES

The main objective of this study is **“To examine the impact of determinants of capital structure on capital structure of listed manufacturing companies in Sri Lanka”**

The sub objectives are,

- To find out the significant factors which determining the capital structure.
- To suggest the possible implications to maintain the optimal capital structure of the listed manufacturing firms in Sri Lanka.

6. CONCEPTUALIZATION



Source: Developed by Researcher

7. HYPOTHESES OF THE STUDY

H1: Determinants of capital structure significantly impact on Firm’s debt equity

H2: Determinants of capital structure significantly impact on Firm’s Long-Term Leverage

H3: Determinants of capital structure significantly impact on Firm’s Total Leverage

8. METHODOLOGY

8.1 Sampling method

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Sri Lanka is a developing country with one stock exchange, the Colombo Stock Exchange (CSE) being the one and only one. Nearly 297 companies are listed on CSE representing 20 business sectors. Like other developing economies, the area of capital structure is relatively unexplored in Sri Lanka. Limited research work exists in this area. Listed manufacturing companies are selected for the purpose of this study. The reason for taking manufacturing companies are these are more compare with other companies and manufacturing industry is the important one in the country's economic development. The researcher selected 34 companies based on the data availability for the study. The data representing the periods of 2010-2014 is taken into consideration for the purpose of ratio computation and analysis.

8.2 Data collection

The secondary data will be used for the study. Thus the data will be collected from the annual financial reports of listed companies published by the Colombo Stock Exchange, Journals and books etc.

8.3 Data Analysis

The study examines the determinants of capital structure of listed manufacturing firms in Sri Lanka by using the following analysis,

- Ratio Analysis – To calculate the ratios
- Descriptive Statistics analysis- To summarize the statistics for the selected variables
- Multiple Regression analysis (OLS model) - To find out the significant impact of determinants of capital structure on the capital structure.

Model – I

$$D/E R_{i,t} = \beta_0 + \beta_1 TANG_{i,t} + \beta_2 PROF_{i,t} + \beta_3 NDTS_{i,t} + \beta_4 FSIZE_{i,t} + \epsilon$$

Model – II

$$LTDR_{i,t} = \beta_0 + \beta_1 TANG_{i,t} + \beta_2 PROF_{i,t} + \beta_3 NDTS_{i,t} + \beta_4 FSIZE_{i,t} + \epsilon$$

Model – III

$$TDR_{i,t} = \beta_0 + \beta_1 TANG_{i,t} + \beta_2 PROF_{i,t} + \beta_3 NDTS_{i,t} + \beta_4 FSIZE_{i,t} + \epsilon$$

Where, β_0 = constant variable

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$\beta_1, \beta_2, \beta_3, \beta_4$, - Model coefficients of variables

ε = Error term.

i,t = for firm i in period t

Table1: Calculation of dependent and independent variables

Dependent variables	
Debt to equity ratio	Total Debt/Total Equity
Long term debt ratio	Long term Debt/ Total Assets
Total debt ratio	Total Debt/ Total Assets
Independent variables	
Tangibility	Total Fixed Assets/ Total Assets
Profitability	Earnings before Interest and Tax/ Total Assets
Non-debt tax shield	Total annual depreciation/ Total Assets
Size	Log of Sales value

9. RESULT AND ANALYSIS

Table2:Summary of Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Debt-Equity ratio	169	-57.245	192.729	1.43710	15.607009
Long term debt to total assets	169	.000	2.489	.14063	.261442
Total debt to total assets	169	.022	2.741	.46405	.334705
Tangibility	169	.052	.965	.49777	.216194
Profitability	169	-.310	.692	.09773	.126906
Non-debt tax shield	169	.000	.093	.02373	.018732
Size	169	.000	10.105	8.92601	1.179550

Source: Analyzed data

Mean value of tangibility was 49.7% which indicated 49.7% of fixed assets were in the total assets. Average value of profitability over five year period was 9.7 % (it was nearly 10%) that

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demonstrate a not remarkable performance of the companies in the period under study because minimum profitability was -31%. Only 2.3% was depreciation on the total assets. Average of long term debt to total assets was 14 % that depicts a noteworthy portion of assets was financed with the long term debt. In compare with total debt 46% , total debt consist only 14% of long term debt and rest 32% is the short term debt. The under developed nature of the long term debt market might be one of the possible reasons. Overall 46% assets were financed with the debt that depicts listed companies was moderately leveraged.

9.1 Regression Analysis

Table 4: Predictors of capital structure Model summary

Model	Dependent variable	R	R ²
1	Debt to equity	.114 ^a	.013
2	Long term debt	.371 ^a	.137
3	Total debt	.205 ^a	.042

Predictors (constant), Tangibility, Profitability, Non debt tax shield, Size

The R² values 1.3%, 13.7%, and 4.2%, of the observed variability in Debt to equity, Long term debt and Total debt is explained by the variability in the independent variable of Tangibility, Profitability, Non debt tax shield, and Size. These indicate there may be number of variables which can have impact on capital structure other than selected variables of determinants of capital structure.

Table 5: Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1 Debt- Equity ratio	(Constant)	4.120	9.957		.414	.680
	Tangibility	5.763	5.694	.080	1.012	.313
	Profitability	.793	9.912	.006	.080	.936
	Size	-.468	1.073	-.035	-.436	.664
	Non-debt tax shield	-61.301	66.070	-.074	-.928	.355
2 Long term debt to total assets	(Constant)	.093	.156		.594	.553
	Tangibility	.380	.089	.314	4.258	.000
	Profitability	-.244	.155	-.118	-1.570	.118
	Size	-.015	.017	-.068	-.891	.374
	Non-debt tax shield	.692	1.035	.050	.669	.505

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3Total debt	(Constant)	.449	.210		2.135	.034
to total	Tangibility	.024	.120	.015	.199	.842
assets	Profitability	-.517	.209	-.196	-2.470	.015
	Size	.002	.023	.009	.109	.914
	Non-debt tax shield	1.331	1.396	.075	.954	.342

Source: Analyzed data

In this study, multiple Regression analysis has been employed to analyze the data collected from the companies listed on CSE. A well known statistical package called “SPSS” (Statistical Package for Social Science) version19 has been used to analyze the data the researcher collected. The upper level of statistical significance for hypotheses testing was set at 5%. All statistical test results were computed at the 2-tailed level of significance. The purpose of regression analysis is to find out the impact of independent variables relate a dependent variable.

Table 6: Hypotheses Testing

No	Hypotheses	Results	Tools
H1	Determinants of capital structure significantly impact on Firm’s debt to equity	Rejected	Regression
H1a	Tangibility of assets significantly impact on Firm’s Debt to equity	Rejected	
H1b	Profitability significantly impact on Firm’s Debt to equity	Rejected	
H1c	Firm’s size significantly impact on Firm’s debt equity	Rejected	
H1d	Non-debt tax shield significantly impact on Firm’s debt equity	Rejected	
H2	Determinants of capital structure significantly impact on Firm’s Long-Term debt	Rejected	Regression
H1a	Tangibility of assets significantly impact on Firm’s Long term debt	Accepted	
H1b	Profitability significantly impact on Firm’s Long term debt	Rejected	
H1c	Firm’s size significantly impact on Firm’s Long term debt	Rejected	
H1d	Non-debt tax shield significantly impact on Firm’s Long term debt	Rejected	
H3	Determinants of capital structure significantly impact on Firm’s Total debt	Accepted	Regression
H1a	Tangibility of assets significantly impact on Firm’s Total debt	Rejected	
H1b	Profitability significantly impact on Firm’s Total	Accepted	

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H1c	debt Firm's size significantly impact on Firm's Total debt	Rejected	
H1d	Non-debt tax shield significantly impact on Firm's Total debt	Rejected	

Source: developed by researcher

10. CONCLUSIONS AND RECOMMENDATIONS

The findings of this study contribute towards a better understanding of capital structure decisions in the Sri Lankan context. This study analyses the determinants of the capital structure of 34 listed manufacturing companies from 2010 to 2014, and the extent to which the influence of these determinants on capital structure decision.

Tangibility was confirmed to be a relevant determinant to long term leverage and profitability was confirmed to be a relevant determinant to total leverage for Sri Lankan listed manufacturing companies. More profitable companies would tend to have fewer debts, since they use the retained earnings rather than debts. Firm's Size and non –debt tax shield variables were confirmed not to have much effect in capital structure decisions listed manufacturing companies. This evidence is support to the pecking order theory based on the relevant determinant of profitability variable. Therefore it could be concluded that implication of pecking order theory is more relevant in Sri Lankan context.

Therefore, The major implications related to the capital structure decisions of the listed manufacturing companies in Sri Lankan are the average debt ratio of listed manufacturing companies is around 46%, capital structure decision is influenced by the Profitability and tangibility variable, Factors other than selected variables could have an influence on capital structure decision, and Sri Lankan context, implication of pecking order theory is more relevant than static trade off.

11. LIMITATIONS AND SCOPE FOR FUTURE RESEARCH

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The study suffers from certain limitations which are, the study is purely based on listed manufacturing companies, so the results of the study are only indicative and not conclusive. And data representing the period of 5 years were used for the study. The findings of this study imply areas that need further study. Currently there are 297 companies listed in the CSE under 20 sectors. The study covered only the listed manufacturing sector companies. Therefore, additional investigation is required to examine firms in the different sectors in the capital structure patterns. Giving enough time and resources it is possible to attempt to study some other listed companies in Sri Lanka over a long period of time and using different statistical methods in order to have a more comprehensive result. The analyses and findings this study show that there are other factors than the independent variables used for this study that affect capital structure, further Research could be conducted to identify those other factors so as determine the capital structure.

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