

Factors Influencing on Capital Structure of Listed Manufacturing Companies in Sri Lanka

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Abstract

This study investigates the capital structure of manufacturing companies listed in the Colombo stock exchange, Sri Lanka, in order to find out factors influencing on capital structure. Choosing the optimal capital structure is one of the major influencing factors for the development of each company. Researcher choose the manufacturing sector listed companies as a sample, because the sector has grown faster and a number of companies is 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 compare with other companies manufacturing industry is the important one in the country's economic development. Researcher selected 33 listed manufacturing companies in the Colombo stock exchange (CSE) as a sample for ten years from 2010 to 2019 to this research purpose. Base on listed life time, companies were divided as three groups, such as group A, B and C for the comparison purpose. It was tested on the basis of the tradeoff theory and pecking order theory. Findings of this study are, group A companies shows that profitability and growth rate significantly influenced on debt to equity and long-term leverage but firm size is insignificant with these two dependent variables. But, in case of group B and C companies, profitability, growth rate and firms size not significantly influence on debt to equity and long-term leverage. It explains that well experienced companies with longer listed life in the CSE prefer the equity capital than the debt capital. 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: Profitability, Growth Rate, Firm Size, Leverage

INTRODUCTION

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. To understand how firms in developing countries finance their operations, it is necessary to examine the determinants of their financing or capital structure decisions. Capital structure is one of the effective tools of management to manage the cost of capital. An optimal capital structure is reached at a point where the cost of the capital is minimum.

Firm's capital structure decision can be viewed from the capital structure theories. The theory of business finance in a modern sense starts with the Modigliani and Miller (1958) capital structure irrelevance proposition. Before them, there was no generally established theory of capital structure. The debate about how and why firms choose their capital structure began in 1958 (Myers, 2001), when Modigliani and Miller (1958) published their famous arbitrage argument showing that the market value of any firm is independent of its capital structure.

Research Problem

In order to identify which of the determinants of capital structure that have significant effect on capital structure based on trade off and pecking order theories in the context of Sri Lankan firms, this research concentrates on a group of variables identified in the previous literature.

Researcher choose listed firms in the manufacturing sector as a sample because the sector has grown faster, contribution of the Gross Domestic Product and number of companies also more than other sector in Sri Lankan economy. The companies listed life time (experience) also influencing their capital structure decision. (Evans, 1987 and Siti Rahmi Utaami, 2012). In Sri Lanka, the above research work carried out by some authors in different periods. Even though, no one researches carried out as inter comparison among the listed manufacturing companies based on their listed life time in the Colombo stock Exchange. This is identified as research method gap. Therefore, in the light of trade off and pecking order capital structure theories the research problem could be stated and analyzed as follows.

“How far the factors influencing on capital structure based on listed life time of manufacturing Companies in Sri Lanka?”

Research Question

Researcher found the research problem through various literatures and based on the research problem the following research questions were formulated.

- Is there any significant influence between the influencing factors and capital structure of the listed manufacturing companies in Sri Lanka?
- Whether the listed life time of the manufacturing companies determine the capital structure decision?

Research Objective

The fundamental objective of this study is “**To find out the significant factor’s influence on capital structure based on listed life time of manufacturing Companies in Sri Lanka**”

Literature Review

The variables used in this study and their measurement are largely adopted from existing literature. Debt-Equity ratio (D/E R), and long –term debt ratio (LTDR), are dependent variables and profitability (PROF), growth rate (GWRA), and firm size (FSIZE) are independent variables in this study. Pecking order theory of the corporate capital structure has long root in the literature given by Myers in 1984. Pecking order theory predicts the hierarchy of preference in which firms prefer internal financing e.g. retained earnings to external financing and prefers debt to equity. Trade-off theory states that there are benefits of financing with debt i.e. tax shield benefit, agency benefit and there are also costs of funding with debt e.g. costs of financial distress, agency costs.

Previous Studies on factors influencing on 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. 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. Vijayakumaran and Sunitha (2011), Buvanendra (2013) Ajanthan (2013), Kasthury and Ananthasayanan (2019) Mayuri and Lingesiya (2019) and Amjath and Sufeera (2021) also found this result.

METHODOLOGY

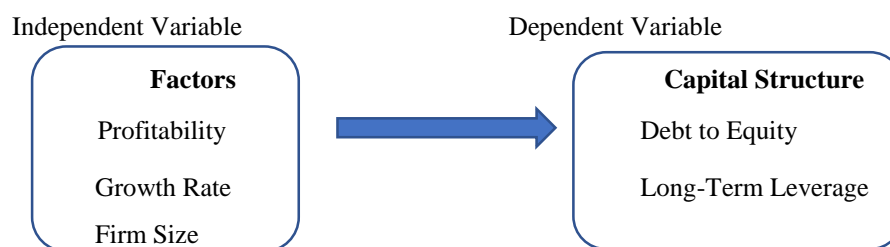


Figure 1. Conceptual Framework

Hypothesis

The following hypotheses were formulated based on the research problem and objective.

- H1: Firm’s profitability significantly influenced on Debt to Equity
- H2: Firm’s growth rate significantly influenced on Debt to Equity
- H3: Firms Size significantly influenced on Debt to Equity
- H4: Firm’s profitability significantly influenced on long term debt
- H5: Firm’s growth rate significantly influenced on long term debt
- H6: Firms Size significantly influenced on long term debt

Operationalization

Key concepts and variables used in the conceptual frame work are operationalized as follows:

Table 1: Operationalization

Concept	Variable	Indicator	Measurement (Ratios)
Capital Structure	Debt-Equity	Debt to Equity ratio	$\frac{\text{Long term Debt}}{\text{Total Equity}}$
	Long – term Leverage	Long term debt ratio	$\frac{\text{Long term Debt}}{\text{Total Assets}}$
Influencing factors on Capital Structure	Profitability	ROTA ratio	$\frac{\text{Earnings Before Interest and Tax}}{\text{Total Assets}}$
	Growth Rate	M/B ratio	$\frac{\text{Market Value of Assets}}{\text{Book value of Assets}}$
	Firm Size	Sales Value	Log of Sales value

Research Sample

Manufacturing companies which were listed under Colombo Stock Exchange (CSE) were selected as a sample of this study and 33 companies were selected randomly with 10 years financial data representing the periods of 2010-2019 based on the data availability and time period taken for the study.

Table 2: Number of companies based on the Life Time

Group	Number of companies	Percentage
A	16	49%
B	15	45%
C	2	6%
Total	33	100%

(Source: Colombo Stock Exchange Reports)

RESULT AND DISCUSSION

The secondary data was collected and used from the annual financial reports of listed companies published by the Colombo Stock Exchange for the study.

For the data presentation and comparisons purpose selected companies were categorized into three groups based on their life time. (Evans, 1987 and Siti Rahmi Utaami, 2012).

Table 3: Life time of the companies

Group	Life time (years)
A	10-26
B	27-43
C	44-61

(Source: Colombo Stock Exchange Reports)

For the data analysis purpose, the researcher used Multiple Regression analysis (OLS model) and statistical software “EViews 8” was used to analyze the panel data.

In order to test the hypotheses, and motivated by the literature on capital structure, researcher estimate the following models. Fitness of these models were tested for each group of companies separately based on their life time.

Model – I

$$D/E R_{i,t} = \beta_0 + \beta_1 PROF_{i,t} + \beta_2 GWRA_{i,t} + \beta_3 FSIZE_{i,t} + \varepsilon$$

Model – II

$$LTDR_{i,t} = \beta_0 + \beta_1 PROF_{i,t} + \beta_2 GWRA_{i,t} + \beta_3 FSIZE_{i,t} + \varepsilon$$

Where, β_0 = constant variable

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

ε = Error term and i, t = for firm i in period t

Testing of Model Fitness and Hypothesis for Each group of companies

Coefficient of determination for models 1, 2, would be the value between Debt to equity, long-term leverage, as dependent variable profitability, growth, and firm size as predictors.

Factors influencing on Debt to Equity and Long-term Leverage**Table 4:** Group A Companies with Debt to Equity

Included observations: 160

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.108987	0.773341	-0.140930	0.8881
PROFITABILITY	-1.073801	0.306541	-3.502959	0.0006
GROWTH	0.062188	0.024150	2.575061	0.0110
FIRM_SIZE	0.047277	0.086640	0.545675	0.5861
R-squared	0.093501	Mean dependent var		0.318687

Table 5: Group A Companies with Long term Leverage

Included observations: 160

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.118933	0.204463	-0.581688	0.5616
PROFITABILITY	-0.298558	0.081046	-3.683810	0.0003
GROWTH	0.028458	0.006385	4.457032	0.0000
FIRM_SIZE	0.025863	0.022907	1.129067	0.2606
R-squared	0.135679	Mean dependent var		0.135436

Based on the analyzed result of Group A companies, growth has a positive highly significant regression coefficient on debt to equity and long term leverage with 0.0110 and 0.0000 at 0.05 significant level and 2.575 and 4.457 t-values respectively, profitability has a negative highly significant regression coefficient on debt to equity and long term leverage with 0.0006 and 0.0003 at 0.05 significant level and -3.502 and -3.683 t-values respectively, Firm Size has a positive insignificant regression coefficient on debt to equity and long term leverage with 0.5861 and 0.2606 at 0.05 significant level and 0.545 and 1.129 t-values respectively, so according to this result, hypotheses 4, 5 are accepted and 6 is rejected.

Coefficient of determination result of A group companies 9.3% of debt to equity, 13.5 % of long-term leverage could be explained by the existence of those independent variables.

Table 6: Group B Companies with Debt to Equity

Included observations: 150

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	5.707671	9.555563	0.597314	0.5512
PROFITABILITY	0.446028	7.164401	0.062256	0.9504
GROWTH	-0.005966	0.325206	-0.018346	0.9854
FIRM_SIZE	-0.555283	1.062597	-0.522572	0.6021
R-squared	0.002506	Mean dependent var		0.713422

Table 7: Group B companies with Long term Leverage

Included observations: 150

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.800210	0.397719	2.012000	0.0461
PROFITABILITY	-0.391806	0.298194	-1.313928	0.1909
GROWTH	0.015725	0.013536	1.161714	0.2472
FIRM_SIZE	-0.069260	0.044227	-1.566012	0.1195
R-squared	0.081009	Mean dependent var		0.178061

In case of Group B companies, profitability has positive and growth and firm size has a negative insignificant regression coefficient on debt to equity with 0.9504, 0.9854, and 0.6021 respectively at 0.05 significant level and 0.062, -0.018, -0.522 t-values respectively. Hypotheses 1, 2 and 3 are rejected. Growth has positive and profitability and firm size has negative insignificant regression coefficient on long term leverage with 0.2472, 0.1909, and 0.1195 respectively at 0.05 significant level and 1.161, -1.313, -1.566 t-values respectively and hypotheses 4, 5 and 6 are rejected.

Coefficient of determination result of B group companies 0.25% of debt to equity, 8.1 % of long-term leverage could be explained by the existence of those independent variables.

Table 8: Group C companies with Debt to Equity

Included observations: 20

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.799182	2.762872	0.289258	0.7761
PROFITABILITY	0.582463	0.593588	0.981258	0.3411
GROWTH	-0.053343	0.071913	-0.741768	0.4690
FIRM_SIZE	-0.051586	0.317517	-0.162466	0.8730
R-squared	0.110247	Mean dependent var		0.321272

Table 9: Group C companies with Long term Leverage

Included observations: 20

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.003854	0.451574	-0.008535	0.9933
PROFITABILITY	0.055375	0.097018	0.570773	0.5761
GROWTH	-0.014721	0.011754	-1.252460	0.2284
FIRM_SIZE	0.011863	0.051896	0.228585	0.8221
R-squared	0.130936	Mean dependent var		0.088189

Analysis result of Group C companies, growth has a negative insignificant regression coefficient on debt to equity and long-term leverage with 0.4690, 0.2284 respectively at 0.05 significant level and -0.741, -1.252 t-values respectively. Hypotheses 1, 2 and 3 are rejected. Profitability has positive insignificant regression coefficient on debt to equity and long-term leverage with 0.3411, 0.5761 respectively at 0.05 significant level and 0.981, 0.570 t-values respectively and hypotheses 4, 5 and 6 are rejected.

Coefficient of determination result of C group companies 11% of debt to equity, 13 % of long-term leverage could be explained by the existence of those independent variables.

FINDING AND CONCLUSIONS

This study results also shows that Sri Lankan companies follow the pecking order partially. It was largely consistent with the past empirical findings of the previous researchers. Among these group of companies, group C companies' debt to equity is explained more by independent variables than group A and B. Group A companies have less experience in the industry and profitability and growth rate of the company significantly influence on debt to equity and long-term leverage other than the firm size. This suggests that high profit firms are less likely to use debt for financing their investments than low profit firms by negative relationship of profitability. And high growth firms are more likely to use debt for financing purpose because of positive relationship. It indicates, less experienced companies (group A) in the manufacturing industry in Sri Lanka prefer to finance their assets by equity fund and debt based on their profit level. It indicates, more experienced companies (group B, in compare with group A) in the manufacturing industry in Sri Lanka prefer to finance their assets by equity than debt. It indicates, well experienced companies (group C) in the manufacturing industry in Sri Lanka prefer to finance their assets by equity fund than the debt. Well experienced companies (group B and C), all the factors have not significant regression co-efficient on debt to equity and long-term leverage. It indicates experienced companies prefer the equity capital than debt capital. Thus, well experience manufacturing companies follow the pecking order theory in Sri Lanka.

More profitable companies would tend to have fewer debts, since they use the retained earnings rather than debts. 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 than trade off in Sri Lankan context. Therefore, it is better to follow the pecking order theory by the listed manufacturing firms in Sri Lanka.

It was largely consistent with the past empirical findings of Senerathne (1998), Colombage (2005), Champika and Gunaratne (2007), Gamini (2008), Pirakalathan(2010), Yogendrarajah and Sangeetha (2011), Silva and Ranjani (2010), Vijayakumaran and Sunitha (2011), Lingesiya (2012), Buvanendra (2013), Buvanendra (2013) Ajanthan (2013), Sangeetha and Sivathaasan (2013), Vijeyaratnam and Anandasayanan (2015). Sithy Safeena Hassan (2015), Kasthury and Ananthasayanan (2019), Mayuri and Lingesiya (2019) and Amjath and Sufeera (2021).

Chief executive officers and finance managers of the companies can consider the findings of this research to make appropriate capital structure decisions that best fit their respective firms' financing needs. Lenders also should consider the capital structure determinant variables studied above to evaluate and predict the profit level and risk associated with lending capital to their respective borrowers. Finally, this study helps to policy makers at different levels for designing the policies which guide organizations to develop their market capitalization.

This study covers only selected factors for 10 years data from 2010 to 2019 and listed manufacturing sector companies only. Future researches may consider the entire sectors listed under the Colombo stock exchange and comparative analysis can be done among various sectors. They may consider more than ten years data and can do this study in current economic conditions of Sri Lanka also. Further, researches can be done by including companies in various countries and the Sri Lankan companies can be compared with those foreign companies.

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