

IMPACT OF FIRM SPECIFIC FACTORS ON CAPITAL STRUCTURE: EVIDENCE FROM LISTED COMPANIES IN COLOMBO STOCK EXCHANGE OF SRI LANKA

S. Kasthury ¹, S Anandasayanan ²

¹*Student, Department of Financial Management, University of Jaffna*

²*Senior Lecturer, Department of Financial Management, University of Jaffna*

Abstract

Capital structure is one of the most controversial topics in the world of corporate finance. This study attempts to identify the factors affecting the capital structure and to what extent they impact on the capital structure. To analyze this, the researchers selected a sample of 100 listed companies in CSE for 6 years from 2013 to 2018 using stratified random sampling technique. The determinants of leverage represented by the variables namely Profitability, Tangibility, Size, Liquidity and Sales Growth Rate were independent variables. In addition, Total Debt to Total Assets was employed as dependent variable. The study was analyzed using the statistical tools Descriptive Statistics, Correlation Analysis, Pooled Ordinary Least Square Regression, Fixed Effect and Random Effect. The findings reflected Profitability and Liquidity have significant negative impact on leverage at the same time Tangibility, Firm Size, Sales Growth Rate have significant positive impact on leverage.

Keywords: Capital Structure, Profitability, Tangibility, Size, Liquidity, Sales Growth Rate

Introduction

Capital structure is one of the noteworthy and debatable matters in financial management. This has drawn special attention among the researchers for prolonged period it is because the decisions on capital structure directly or indirectly have effect in managing finance especially in maximization of wealth of investors. Also, there are several factors influencing the capital structure adversely or favorably while making decisions on seeking for the sources of finance. Unless the decision planned carefully, the firm may fail to maximize the shareholder's wealth at efficient cost. Therefore, considerable attention has to be taken while determining the optimal capital structure.

The mixture of different sources of financing is known as capital structure which comprises mainly of debt capital and equity capital (Pandey, 2009). The theory of capital structure was emerged by Modigliani and Miller in 1958 putting forward an opinion that capital structure does not affect the firm value under assumptions of efficient market conditions. Furthermore, other three conflicting theories were developed namely trade off theory (Modigliani and Miller, 1964), agency theory (Jensen and Meckling, 1976) and pecking order theory (Myers and Majluf, 1984). Various factors such as profitability, tangibility, firm size, growth opportunities, business risk, firm age etc play important role in determining the composition of capital structure of an organization. However, the nature of influencing and impact may vary from country to country, industry to industry depending on the economic situation. Thus, the researchers have intended to undertake study on the determinants of capital structure for 100 listed companies for 6 years from 2013 to 2018.

Research Problem

There are plenty of studies conducted by the foreign researchers on identifying the determinants of capital structure. (M'ng, Rahman and Sannacy, 2017; Acaravci, 2015). More than these, several researchers from Sri Lanka had also undertaken studies on determinants of capital structure (Vijayakumaran and Sunitha, 2011; Hassan and Safeena, 2015; Anadasayanan and Subramaniam, 2013). But the findings of these studies differ in terms of either industry or period. Also, the impact of the determinants of leverage on capital structure is bit conflicting especially variables carrying significant or insignificant impact, positive or negative impact and the empirical evidences are proved only in specific sector. Vijayakumaran and Sunitha (2011) had concluded that firm size has positive and significant impact on leverage on the other hand Thusyanthi and Yogendrarajah (2015) proved that there is a significant negative impact of firm size on debt to equity. Similarly, there are conflicting results between the firm specific factors and capital structure. So, the research problem is "To what extent the firm specific factors impact on capital structure of listed companies in Sri Lanka?"

Literature Review

Empirical Evidence

This section explains about the previous researches undertaken relating to capital structure. In a study conducted on Determinants of capital structure for 112 companies for the period from 1997 to 2005, it is proved that the profitability and growth has negative relationship with the leverage where as firm size positively related with the leverage (Jahfer, 2009). The pecking order theory is quite adapted by Sri Lankan listed companies as the firm size has significant and positive impact on capital structure and profitability negatively significantly impact on capital structure (Vijayakumaran et al., 2011). Yogendrarajah and Thanabalasingham (2011) had investigated on the determinants of capital structure for the listed manufacturing companies covering the period of 2005 to 2009. It has been concluded that profitability has a low impact on capital structure except tangibility and asset turnover.

Sangeetha and Sivathaasan (2013) have proved that use of debt financing is low in the context of Sri Lankan companies in a research on Factors determining capital structure. In addition they have concluded the factors such as profitability, growth and firm size significantly impact on capital structure. Sri Lankan companies under banks, finance and insurance industry adapts the trade off, pecking order and agency theory in various occasions (Sritharan, 2014). In their analysis, tangibility is negatively impact on short term and total debt ratios which is supporting the agency theory. And pecking order theory is highlighted by the negative impact of profitability on leverage.

In a research on Determinants of leverage of Sri Lankan listed manufacturing companies, Vijeyaratnam and Anadasayanan (2015) emphasized that profitability and non debt tax shield were possessing significant relationship with leverage and tangibility was not significantly related to leverage. Also, Hassan et al. (2015) proved liquidity and profitability has significant negative correlation with Long Term Debt ratio in study factors determining capital structure of listed companies in CSE.

Research Questions

The researchers have formulated the following questions to answer them through the study conducted. They are:

1. What are the factors determining the capital structure of listed companies in Sri Lanka?

Research Objectives

The objective of the study is listed as follows:

1. To identify the factors determining on capital structure of listed companies in Sri Lanka

Hypotheses Testing

The hypotheses developed for testing are as follows:

H1 - Determinants of capital structure has significant impact on Total Debt to Total Assets.

H1a – Profitability has significant impact on Total Debt to Total Assets.

H1b - Tangibility has significant impact on Total Debt to Total Assets.

H1c – Firm Size has significant impact on Total Debt to Total Assets.

H1d – Liquidity has significant impact on Total Debt to Total Assets.

H1e – Sales Growth Rate has significant impact on Total Debt to Total Assets.

Conceptual Framework

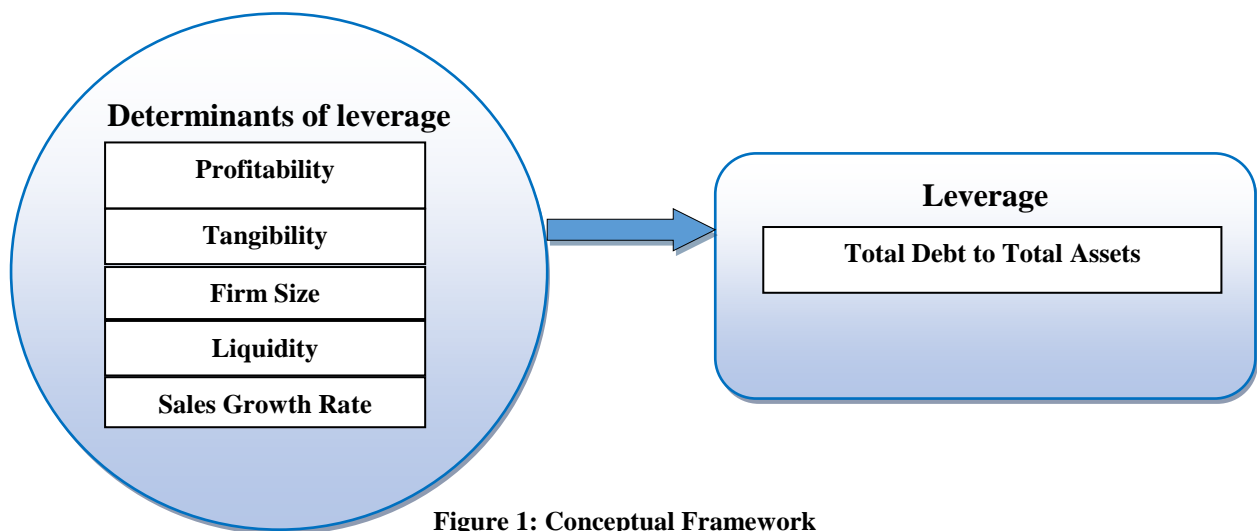


Figure 1: Conceptual Framework

Source: Deduced from the literature

Research Methodology

There are 297 companies listed in Colombo Stock Exchange of Sri Lanka representing 20 sectors. Out of these, the researcher has chosen 100 companies out of 16 sectors using Random Stratified Sampling method. Due to unavailability of data for some companies for few years, the Stratified Sampling method was employed to extract data for 100 listed companies for 6 years period from 2013 to 2018. Also, it is common the other researchers have conducted the study for specific sector only.

The study was analyzed using the secondary data and the data had been collected from annual financial statements of companies listed in Colombo Stock Exchange of Sri Lanka. The statistical techniques such as Descriptive Statistics, Correlation Analysis, Ordinary Least Squares Regression, Fixed Effect, Random Effect and Variance Inflation Factor were used to analyze the data.

$$TD_TA = \beta_0 + \beta_1 PROF + \beta_2 TANG + \beta_3 SIZE + \beta_4 LIQ + \beta_5 SGR + \varepsilon$$

where,

- β_0 - Constant variable
- $\beta_1, \beta_2, \beta_3$ - Coefficient of variables
- ε - Error

Table 1. Variables and measurement

Abbreviations	Variable	Measurement
TD_TA	Total Debt to Total Assets	Total Debt / Total Assets
PROF	Profitability	Profit Before Tax / Total Assets
TANG	Tangibility	Tangible Fixed Assets / Total Assets
SIZE	Firm Size	Logarithm of Sales
LIQ	Liquidity	Current Assets / Current Liabilities
SGR	Sales Growth Rate	Percentage change in sales

Results and Discussions

Table 2. Descriptive Statistics

	TD_TA	PROF	TANG	SIZE	LIQ	GROWTH
Mean	0.353061	0.079598	0.658529	20.75116	4.693721	2.05E+10
Median	0.337087	0.071181	0.690155	20.74073	1.458270	7.890839
Maximum	1.326374	0.739935	0.999323	25.86484	114.1067	1.05E+12
Minimum	0.003028	-0.216100	0.046129	9.210340	0.020905	-8.268431
Std. Dev.	0.231152	0.092007	0.227552	2.035401	11.58702	1.08E+11

Source: Surveyed Results

Based on the above output, the mean value of Total Debt to Total Assets, Profitability, Tangibility, Firm Size, Liquidity and Sales Growth Rate are 0.353061, 0.079598, 0.658529, 20.75116, 4.693721 and 2.05 respectively. This reflects the average leverage is low which means listed companies in Sri Lanka are quite rarely financed by debt capital. Also, the average profitability is 7.9%.

Table 3. Correlation matrix

	TD_TA	PROF	TANG	SIZE	LIQ	SGR
TD_TA	1.00000 -----					
PROF	-0.117829 0.0038	1.00000 -----				
TANG	-0.253148 0.0000	0.04838 0.2366	1.00000 -----			
SIZE	0.317097 0.0000	0.13801 0.0007	-0.20560 0.0000	1.00000 -----		
LIQ	-0.379844 0.0000	0.03666 0.3700	-0.04595 0.2611	-0.15422 0.0001	1.00000 -----	
SGR	0.069217 0.0903	0.00093 0.9818	-0.04387 0.2833	0.03848 0.3467	0.06597 0.1064	1.00000 -----

Source: Surveyed Results

The above Table 3 represents the Pearson’s correlation matrix of dependent and independent variables. The Profitability, Tangibility and Liquidity are negatively and significantly correlated with the Total Debt to Total Assets. On the other hand, Firm Size and Sales Growth Rate have positive relationship which is statistically significant at 95% and 90% confidence level respectively. All the independent variables except Sales Growth Rate possess significant relationship with Total Debt to Total Assets at 95% confidence level since the p value is less than 0.05.

Table 4. Ordinary Pooled Ordinary Least Square

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.000420	0.094417	-0.004449	0.9965
PROF	-0.318842	0.088649	-3.596671	0.0003
TANG	-0.215327	0.036346	-5.924388	0.0000
SIZE	0.026529	0.004149	6.394234	0.0000
LIQ	-0.007058	0.000707	-9.977324	0.0000
SGR	1.60E-13	7.49E-14	2.131568	0.0335
R-squared				0.282231
Adjusted R-squared				0.276189
F-statistic				46.71286
Prob(F-statistic)				0.000000
Durbin-Watson stat				0.809131

Source: Surveyed Results

Table 5. Fixed Effect

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.034124	0.197790	-0.172528	0.8631
PROF	-0.181500	0.065936	-2.752671	0.0061
TANG	0.131314	0.048551	2.704665	0.0071
SIZE	0.015491	0.009416	1.645090	0.1006
LIQ	-0.003018	0.000572	-5.278384	0.0000
SGR	3.83E-13	1.61E-13	2.374390	0.0180
R-squared				0.825244
Adjusted R-squared				0.788527
F-statistic				22.47611
Prob(F-statistic)				0.000000
Durbin-Watson stat				2.133087

Source: Surveyed Results

Table 6: Random Effect

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.175319	0.138174	-1.268826	0.2050
PROF	-0.201374	0.064028	-3.145070	0.0017
TANG	0.015645	0.041699	0.375176	0.7077
SIZE	0.026367	0.006354	4.149605	0.0000
LIQ	-0.003820	0.000546	-7.001643	0.0000
SGR	2.38E-13	1.14E-13	2.088339	0.0372
R-squared				0.122482
Adjusted R-squared				0.115095
F-statistic				16.58182
Prob(F-statistic)				0.000000
Durbin-Watson stat				1.761022

Source: Surveyed Results

Table 7. Hausman Test

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	31.627498	5	0.0000

Source: Surveyed Results

The above tables Table 4, Table 5 and Table 6 depict the regression of Pooled Ordinary Least Square, Fixed effect and Random Effect respectively. Based on the Pooled Ordinary Least Square, Fixed effect and Random Effect models, Profitability and Liquidity negatively impact on Total Debt to Total Assets possessing statistically significant at 95% confidence level. Whereas Firm Size and Sales Growth Rate positively impact on the Total Debt to Total Assets as per the Pooled OLS. But, the Firm Size does not significantly impact on Total Debt to Total Assets in Fixed Effect Model and Tangibility does not impact on Total Debt to Total Assets in Random Effect Model. However, according to the Hausman test carried out, the Fixed Effect is appropriate model as the probability value of Chi square is less than 0.05.

In respect to the Fixed Effect model, R^2 is 0.8252 which reveals 82.52% variation in the Total Debt to Total Assets is explained by the variation in the determinants of leverage. Additionally, the value of F statistic is 22.48 and its probability value is less than 0.05 proving the overall model is best and significant at 95% confidence level. Also, the Durbin Watson value is closer to two which indicates there is no auto correlation issue.

Conclusion

This study examines the determinants of capital structure of 100 listed companies in Colombo Stock Exchange of Sri Lanka from 2013 to 2018. With reference to the fixed effect, the findings revealed there is a negative impact of Profitability on leverage and the impact is significant at 5% which is consistent with the findings of Dissanayake (2015), Gamini (2008), Vijeyaratnam et al. (2015), Anandasayanan et al. (2013), Hassan et al. (2015) and Thusyanthi et al. (2015). Also, Liquidity negatively and significantly impact on leverage and matches the findings of Dissanayake (2015) and Hassan et al. (2015). Firm Size does not significantly influence the leverage and corresponds with Hassan et al. (2015). Moreover, all the hypotheses are accepted except H1c.

Reference

1. Acaravci, S. K. The determinants of capital structure: Evidence from the Turkish manufacturing sector. *International Journal of Economics and Financial Issues*.2015, 5(1) 158.
2. Ajanthan, A., Determinants of capital structure: Evidence from hotel and restaurant companies in Sri Lanka. *International journal of Scientific and research publications*.2013, 3(6) 1.
3. Anandasayanan, S., Subramaniam, V. A., Srirangan, A.,&Raveeswaran, M., The Determinants of Leverage of the Listed Companies in Sri Lanka: An Empirical Study.*International Journal of Research in Commerce & Management*. 2013, 3(6) 1.
4. Dissanayake, T. D. S. H., & Fernando.C. S. P. K., Determinants Of capital Structure: Evidence From Sri Lanka. 2015.
5. Gamini, L. P. S., Determinants of capital structure– A case in Sri Lanka. *Journal of Humanities and Social Sciences*. 2008, 4 38 .
6. Hassan& Safeena, M.G., Factors determining capital structure: an analysis of listed companies in the Colombo Stock Exchange in Sri Lanka. 2015.
7. Jahfer, A., Determinants of Capital Structure in Sri Lanka: An Empirical Study.*Annamalai International Journal of Business Studies & Research*. 2009, 1(1) 23.
8. Jensen, C., &Meckling, H., Theory of the firm: Managerial behavior, agency costs and ownership structure.*Journal of financial economics*. 1976, 3(4) 305.
9. M'ng, J. C. P., Rahman, M., & Sannacy, S. The determinants of capital structure: Evidence from public listed companies in Malaysia, Singapore and Thailand. *Cogent Economics & Finance*.2017, 5(1).
10. Modigliani, F., &Miller, H., The cost of capital, corporation finance and the theory of investment.*The American*. 1958, 3.
11. Modigliani, F., &Miller, H.,Corporate income taxes and the cost of capital: A Correlation.*The American*. 1964,53 433.

12. Myers, C., and Majluf, S., Corporate financing and investment decisions when firms have information that investors do not have. *Journal of financial economics*. 1984, 13(2) 187.
13. Pandey, I. M., *Financial management*. New Delhi: Vikas Publishing House PVT Ltd, 2005.
14. Pratheepan, T., & Yatiwella, W.B. The determinants of capital structure: Evidence from selected listed companies in Sri Lanka. *International Journal of Economics and Finance*. 2016, 8(2).
15. Sangeetha, M., & Sivathaasan, N., Factors determining capital structure: a case study of listed companies in Sri Lanka. *Research Journal of Finance and Accounting*. 2013, 4(6) 236.
16. Sriharan, V., Determinants of capital structure-a study of listed banks finance & insurance companies in Colombo Stock Exchange in Sri Lanka. *International Journal of Economics, Commerce and Management*. 2014, 2(10) 72.
17. Thusyanthi, R., & Yogendrarajah, R., Determinants of Capital Structure: Evidence from Listed Manufacturing Companies in Sri Lanka. 2015.
18. Vijayakumaran, R., & Sunitha, V., Determinants of capital structure in Sri Lanka: Evidence from panel data. *Proceedings of the international conference of Sri Ram Institute of Management Studies, India*. 2011, 295.
19. Vijayaratnam, H., & Anandasayanan, S., The Determinants of Leverage of Sri Lankan Manufacturing Companies Listed on Colombo Stock Exchange. *Research Journal of Finance and Accounting*. 2015, 6(5).
20. Yogendrarajah, R., & Thanabalasingham, S. Determinants of Capital Structure: A Study of Listed Manufacturing Companies of Colombo Stock Exchange (CSE), Sri Lanka. *Financial Information and Strategies*. 2011.