



EFFECT OF CAPITAL STRUCTURE ON PROFITABILITY OF FOOD AND BEVERAGE SECTORS IN SRI LANKA



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ABSTRACT

The optimal combinations of debt and equity capitals play a crucial role in achieving goal of investors of the firm, and it has become necessary for the firms to measure the impact of capital structure on profitability which influences their capital structure decision-making to achieve the firm objectives. Identifying the right proportion of debt and equity of capital structure has been much difficult to bring favorable or profitable results for the organizations. This research attempts to find out the relationship between capital structure and profitability of the Food, Beverage and Tobacco Industry companies listed in Colombo Stock Exchange. For this purpose, data were extracted from the annual reports of the companies for period of five years from 2007 to 2012. Total debt to total asset and total debt to total equity are used as the measures for capital structure while return on equity and return on capital employed are used as the proxy for profitability. The findings of this research revealed that capital structure has a negative impact on profitability of the listed Food and Beverage Sectors companies listed in Sri Lanka. This study is significant evidence in a developing market context especially in Sri Lankan context. Further, this study has practical implications because practitioners would get an idea as to whether capital structure has an impact on a firm's profitability.

KEY WORDS: Capital Structure, Profitability, Food & Tobacco industry, Total debt to total asset, total debt to total equity, Sri Lanka

1.INTRODUCTION

The subject of capital structure is a mixture of debts and equity capital, which is retained by a firm and is also referred as financial structure of a firm. It is a debatable topic in academic circles in the corporate finance world and widely discussed in western countries (Abor, 2005 and Abu-Tapanjeh, 2006). Myers (1984) and Harris and Raviv (1991) argued that the capital structure theory is one of the "most puzzling issues in the corporate finance literature" and Pratheepkanth (2011) pointed out that the relationship between capital structure and financial performance are one that established significant attention in the finance literature.

The capital structure is a complex set of decision making tools for any firm (Myers, 1984) which is an important instrument where the firms try to maintain the control of its profit and loss through the setting of perfect combination of debt and equity of capital structure (Derayat, 2012). Profitability is another important factor which the shareholders and creditors of the firms are more concerned about it, particularly in the purpose of financial decision making is to increase the value of shareholders of the firm (Bradley, Jarrell & Kim 1984).

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, minimize the risk and the cost of capital. But Brennan and Schwartz (1978) argued that an optimal capital structure will consist almost entirely of debt. Therefore, this difference of choices about the financing decisions gives rise to the various capital structure theories and studies.

It is clear that the optimal combinations of debt and equity capitals play a crucial role in achieving goal of investors of the firm, and it has become necessary for the firms to measure the impact of capital structure on profitability which influences their capital structure decision-making to achieve the firm objectives. As a result, many researchers and scholars are still continuing the works and are testing their assumptions and different variables with firms' capital structures and release their findings. In this regard this research also tries to unfold the impact of capital structure decisions on firm profitability.

2. RESEARCH PROBLEM

According to Prahalathan & Ranjani (2011), most of the research studies on capital structure have used data from developed markets (e.g. USA and Europe) and explained that little is empirically known about such implications in emerging or transition economies like Sri Lanka. There do seem very few published work on capital structure and profitability conducted in Sri Lanka by scholar such as Samarakoon (1999), Nirmalathasan & Brabete (2010), Pratheepkanth (2011), Prahalathan & Ranjani (2011), Velnampy & Nires (2012) and Lingesiya (2012) those finding differ in time period of studies and industries, analyzing somewhat different set of variables and indicate different degrees of results, some findings indicate positive relationship in between capital structure and profitability meanwhile others are with difference views.

In the process of economic liberalization and the promotional activities of attracting investments in Sri Lanka, the Beverages Food, & Tobacco industry of Sri Lanka play an important role in terms of its substantial contribution towards the growth in Gross Domestic Product (GDP) of the country. The Beverages, Food and Tobacco industry has become a booming product industry during last few years contributing around 10% to the GDP as sub-industry accounted for 40.2 percent of total industrial production output in 2012 and produce wide range of products such as milk products, Poultry products, soy products, ice cream and fruits and vegetable processing and canning food, drinking item such as any drinking

liquids, smoking items producing companies are listed under this industry, (Central Bank Annual Report, 2012).

Thus it can be seen that there is yet an opening for investigation in the area of capital structure and profitability. Similarly, relationship between capital structure and profitability established in developed and developing context and in different industries through various research. Whether such factors can be generalized to the Beverages, Food & Tobacco industry is not well known.

Thus the research attempts to identify the relationship between capital structure and profitability of listed companies in the Beverages, Food & Tobacco industry in Sri Lanka.

3. RESEARCH OBJECTIVES

The objectives of this study are;

- ✦ To find out the relationship between capital structure and profitability of the listed Beverage, Food and Tobacco industry in Sri Lanka,
- ✦ To recognize the extent of the impact of capital structure on profitability of the listed Beverage, Food and Tobacco industry in Sri Lanka

4. SIGNIFICANCE OF THE STUDY

In Sri Lankan context, no attempts have been made to examine the relationship between capital structure and profitability of listed Food Beverage and Tobacco industry. Further, this study measures the ratios of total debt to total assets and total debt to equity as the proxy for capital structure of independent variables. The Return on Equity (ROE) and Return on Capital Employed (ROCE) are measured by the proxy of profitability as dependent variables. However, this present study is going to use firm's size and the type of industry, as control variables to test whether there is impact of capital structure on profitability. This will enhance new finding of this area of research for Sri Lankan companies in order to fill the knowledge gap.

The study has practical implications because practitioners would get an idea as to whether capital structure has an impact on a firm's profitability.

5. LITERATURE REVIEW

Being one of the most debatable topics in finance era, number of researches has been documented on capital structure and its impact of firm profitability.

For instance in Sri Lanka, Nimalathasan and Brabete (2010) conducted a study to find out the capital structure and its impact on profitability in randomly selected thirteen (13) listed Manufacturing companies in CSE of Sri Lanka for the period of 05 years from 2003 to 2007. He found that capital structure measured by debt to

equity is positively and strongly associated with profitability in terms of gross profit margin, operating profit margin and net profit margin. Contradicting to the above claim, Prahalathan and Ranjani (2011) examined the impact of capital structure on firms' performance in Sri Lanka. Sample of the study represented 65 Sri Lankan companies listed in CSE for the period from 2003 to 2007. His findings revealed that capital structure found to have significant negative impact gross profit margin. Similarly, Pratheepkanth (2011) revealed that the relationship between the capital structure and financial performance is negative.

As in Sri Lanka different results have been documented on the impact of capital structure on profitability in foreign countries. For example, Abu - Tapanjeh (2006) examined the relationship of firm's structure and profitability by using data from 48 Jordanian listed industrial companies at Amman Stock Exchange for a period of one decade, from 1995 to 2004. His indicated that the total debt to asset ratio proxy for

capital structure has a positive significant relation with return on equity whereas firm size showed significant negative relation with ROE thus stated that capital structure is a useful factor influencing firm performance. Consistent with this, Derayat (2012) revealed a positive relationship between capital structure and profitability for a sample of 135 companies listed in Tehran Stock exchange for a period between 2006 and 2010. Contradicting to this, Olufunso et al. (2010) revealed that the usage of debt in small and medium enterprises of manufacturing industry in the Buffalo City Municipality of South Africa has a significantly negative impact on their profitability when he investigated the impact of the usage of debt on the profitability of 45 small and medium enterprises (SMEs) in the Manufacturing industry in the Buffalo City Municipality of South Africa and the sample data collected over the period from 2005 to 2006.

6. CONCEPTUAL FRAMEWORK

The conceptual framework depicts the casual relationship between the dependent and independent variable.

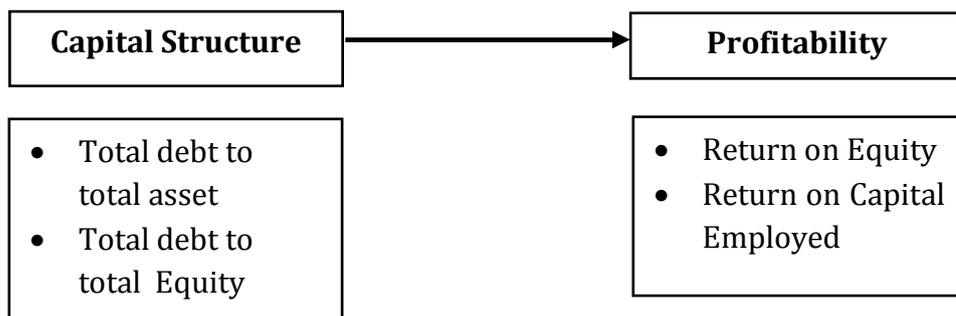


Figure - 1 Conceptual Framework Constructed by Researcher

7. HYPOTHESES

The following alternative hypothesis is formulated based on the above conceptual framework.

H₁: There is a relationship between capital structure and profitability.

8. STUDY DESIGN

Table - 1 lists the indicators and measures formulated to understand each variable.

Table 1: Process of Conceptual Reduction

Concept	Variables	Indicators	Measures	Symbols
Capital structure	Total debt to total assets (TDA)	Ratio	$\frac{\text{Total debt}}{\text{Total assets}}$	TDA
	Total debt to equity (TDE)	Ratio	$\frac{\text{Total debt}}{\text{Total Shareholders' Equity}}$	LDE
Profitability	Return on Equity (ROE)	Percentage	$\frac{\text{Profi after tex} \times 100}{\text{Total Shareholders' Equity}}$	ROE
	Return on Capital Employed (ROCE)	Percentage	$\frac{\text{Profit before Interest and Taxes} \times 100}{\text{Capital Employed}}$	ROCE
Size	Log of Net sales (LNS)	Log value	Natural logarithm of Net sales	LNS



The population of this study is comprises the listed companies of Beverage, Food & Tobacco industries in Sri Lanka, the Beverage, Food & Tobacco industry consist of 21 listed companies and 14 companies from the Beverage, Food & Tobacco industry. But unavailability and

shortage of data for the research period of 2007 to 2012, it was possible to collect data from 14 companies of the Beverage, Food & Tobacco industry and 24 companies from the Manufacturing industry and the study will have 84 financial data observations.

9. DATA PRESENTATION AND ANALYSIS

Table 2: Results of Correlation Analysis

	ROE	ROCE	TDA	TDE	LNS
ROE	1				
ROCE	.905**	1			
TDA	-.220*	-.235*	1		
TDE	-.136	-.147	.908**	1	
LNS	.590**	.579**	.158	.238	1

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

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

Table - 2 shows the bivariate correlation analysis for the study variables. Correlation analysis is carried out in order to test the multicollinearity since the analysis uses multi-regression analysis and to study the effect of capital structure on each measure of profitability.

As a rule of thumb, a bivariate correlation coefficient for two explanatory variables greater than 0.8 indicates that multi-co-linearity is a problem in the regression model. As per the correlation matrix, the bivariate correlation coefficient between the dependent variable and control variable is less than 0.3.

Accordingly the results show that multi-co-linearity does not exist in the study model.

As per the results tabulated in table 1, it can be seen that leverage, measured in terms of total debt to asset (TDA), has a negative impact on profitability measured by return on equity (ROE) and return on capital employed (ROCE) and is significant at 0.05 significance level whereas leverage, measured by total debt to equity (TDE) shows a negative relationship but not significant. Log of net sales (LNS), proxy for size, is found to have positive impact on profitability at 0.01 significance level.

REGRESSION ANALYSIS

Table 3: Results of Model - I: TDA & ROE

	β	t-statistic	p-value
TDA	-.310	-3.385	.001
LNS	.567	6.197	.000
R^2	.362		
Adjusted R^2	.346		
F-statistic	22.170		
Prob. (F-statistic)	.000		

Table - 3 shows the regression analysis for TDA and ROE along with the control variable LNS. According to the table, the value of F-statistic is 22.170 for the regression model and is significant at 1% significance level ($p < 0.01$), ratifying the overall validity of the model.

The value of adjusted R-squared is at 0.346 and implies that the model consisting of TDA and LNS accounts

only for 34.6% of the variability of the return on equity of beverage, food and tobacco sector companies listed on Colombo Stock Exchange. A significant negative relation between TDA and ROE is found after controlling for LNS, proxy for the firm size at 0.01 significant level ($p < 0.01$).

Table 4: Results of Model - II: TDA & ROCE

	β	t- statistic	p- value
TDA	-.329	-3.705	.000
LNS	.595	6.698	.000
R²		.400	
AdjustedR²		.385	
F- statistic		26.062	
Prob. (F-statistic)		.000	

Table - 4 presents the regression analysis for TDA and ROCE along with the control variable LNS. As per the results presented in the table, the value of F-statistic is 26.062 for the regression model and is significant at 1% significance level ($p < 0.01$), validating the model.

The adjusted R-squared shows a value of 0.385 and implies that the model consisting of TDA and LNS explains only for 38.5% of the variability of the return on capital employed of beverage, food and tobacco sector companies listed on Colombo Stock Exchange. TDA is also found to have a negative impact on profitability measured by ROCE after controlling for LNS at 0.01 significant level ($p < 0.01$).

Table 5: Results of Model - III: TDE & ROE

	β	t- statistic	p- value
TDE	-.275	-2.905	.005
LNS	.584	6.167	.000
R²		.340	
AdjustedR²		.323	
F- statistic		20.108	
Prob. (F-statistic)		.000	

Table - 5 shows the regression analysis for TDE and ROE along with the control variable LNS. The table shows a value 20.108 of F-statistic for the regression model and is significant at 1% significance level ($p < 0.01$), validating the model.

The value of adjusted R-squared is at 0.340 and implies that the model consisting of TDE and LNS accounts

only for 34.0% of the variability of the return on equity of beverage, food and tobacco sector companies listed on Colombo Stock Exchange. TDE is also found to have a negative impact on profitability measured by ROE after controlling for LNS. The relationship is significant at 99% confidence level.

Table 6: Results of Model - IV: TDE & ROCE

	β	t- statistic	p- value
TDE	-.293	-3.182	.000
LNS	.613	6.652	.002
R²		.376	
AdjustedR²		.360	
F- statistic		23.476	
Prob. (F-statistic)		.000	

Table - 6 shows the regression analysis for TDE and ROCE along with the control variable LNS. As per the table, the value of F-statistic is 23.476 for the regression model and is significant at 1% significance level ($p < 0.01$), validating the model.

The value of adjusted R-squared is at 0.360 and implies that the model consisting of TDE and LNS accounts only for 36.0% of the variability of the return on capital

employed of beverage, food and tobacco sector companies listed on Colombo Stock Exchange. TDE has a negative impact on profitability measured by ROE after controlling for LNS and is significant at 0.01 confidence level.

It is also evident from the analysis that LNS, the proxy for size, have a significant positive impact on profitability for beverage, food and tobacco sector companies listed on Colombo Stock Exchange at 0.01 significant level.

10. FINDINGS

The research attempts to find the impact of capital structure on profitability. For this, the study employs TDA and TDE, measures for leverage, as independent variable while ROE and ROCE, measures for profitability, are employed as the dependent variable.

With regards to the statistical analysis reported in table 2, there is a negative (β coefficient = -0.310) relation between TDA and return on equity and is significant at 1% significance level ($p < 0.01$).

It can be noted that according to Table 3 the relationship between TDA and the return on capital employed is also negative (β coefficient = -0.329) and significant at 1% significance level ($p < 0.01$).

According to the results presented in table 4, there exist a negative relationship between TDE and ROE (β coefficient = -0.275) and is significant at 0.01 significance level. the relationship between TDE and ROCE is also found to have a significant negative impact (β coefficient = -0.293)

Accordingly, it is clear that both the measures of leverage (TDA & TDE) have a negative impact on both the measures of profitability (ROE & ROCE). The p value is less than 0.01 for all the cases thus allowing rejecting the null hypothesis and accepting H_1 . Therefore, it could be concluded that at 1% significance level, leverage/debt capital has a negative impact on the profitability of beverage, food and tobacco sector firms listed on Sri Lanka.

11. LIMITATION OF THE STUDY

This study has the following limitations. Firstly, this study includes only one industry of the listed companies of CSE. Hence, the findings of this study are not applicable for other listed companies in other industries and any other unlisted companies. Secondly, the sample of listed companies for this study includes only with an availability of at least last six years of financial data. Firms which are younger than six years or whose annual reports could not be obtained are not included in this study.

12. CONCLUSION

This research attempts to find out the relationship between capital structure and profitability of the Food and Beverage Sectors companies listed in Colombo Stock Exchange. For this purpose, data were extracted from the annual reports of the companies for period of five years from 2007 to 2012. Total debt to total asset and total debt to total equity are used as the measures for capital structure while return on equity and return on capital employed are used as the proxy for profitability. The study also employed size, measured by natural logarithm of sales as a control variable. The findings of this research revealed that both the measures of capital structure, total debt to asset and total debt to

equity have a significant negative impact on profitability measured by return on equity and return capital employed whereas size of the firm found to have positive impact on profitability of the listed Food and Beverage Sectors companies listed in Sri Lanka.

REFERENCE

1. Abor, J. (2005). *The effect of capital structure on profitability: an empirical analysis of listed firms in Ghana. The Journal of Risk Finance*, 6(5), 438-445.
2. Abu-Tapanjeh, (2006). *An empirical study of firm structure and profitability relationship: The case of Jordan. Journal of Economic & Administrative Sciences*, 22(1), 41-59.
3. Bradley, M., Jarrell, G.A., & Kim E. H. (1984). *On the existence of an optimal capital structure: Theory and evidence. The Journal of Finance*, 39(3), 857-880.
4. Brennan, M. J., & Schwartz, E.S. (1978). *Corporate income taxes, valuation and the problem of optimal capital structure. Journal of Business*, 51(1), 103-114.
5. Central Bank of Sri Lanka (2012), *Annual Report – 2012*
6. Derayat, M. (2012). *The investigation of experimental relationship between capital structure and profitability in accepted companies of Tehran stock exchange (TSE). Journal of Basic and Applied Scientific Research*, 2(7)6517-6522.

7. Harris, M., &Raviv, A. (1991).Theory of capital structure.Journal of Finance,46(1), 297-355
8. Lingesiya, Y. (2012). Factors influencing companies' leverage: Evidence from Sri Lankan panel data. ACADEMICIA, 2(3), 2249-7137.
9. Myers, S.C (1984). The capital structure puzzle. The journal of finance, 39(3), 574-592.
10. Nimalathasan, B., &Brabete, V. (2010).Capital structure and its impact on profitability: a study of listed manufacturing companies in Sri Lanka.RevistaTineril or Economist (The Young Economists Journal), 1(15), 7-16.
11. Olufunso, F.O., Herbst G. & Lombard, M.R. (2010).An investigation into the impact of the usage of debt on the profitability of small and medium enterprises in the Buffalo city municipality, South Africa.African Journal of Business Management, 4(4), 373-381.
12. Prahalathan&Ranjani (2011). The impact of capital structure-choice on firm performance: Empirical investigation of listed companies in Colombo stock exchange, Sri Lanka. International journal of research in commerce & management.2(4), 12-16.
13. Pratheepkanth, P. (2011). Capital structure and financial performance: Evidence from selected business companies in Colombo stock exchange Sri Lanka. International Refereed Research Journal, 2(2), 171-183.
14. Samarakoon, L.P. (1999). The capital structure of Sri Lankan companies.Sri Lankan Journal of Management, 4(1&2), 18-30.
15. Velnampy, T., &Niresh, J.A. (2012).The relationship between capital structure & profitability.Global Journal of Management and Business Research, 12(13).

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