

Capital Structure Patters: A Study of Companies Listed on the Colombo Stock Exchange in Sri Lanka

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Abstract

A sound or appropriate capital structure of a firm is significant, because of the interrelationships among capital structure and various other financial decisions variables.

Therefore, an ability to assess the firm's capital structure and to understand its relationship to risk, return and value is a necessary skill.

So, the present study aimed to investigate the capital structure patterns of the selected companies listed with the Colombo Stock Exchange (CSE) in Sri Lanka and to test the extent of variations among industries as also among individual firms/companies within the same industry.

The resulting inferences were that the capital structures among sampled industries investigated were significantly different except beverage, food and tobacco industry.

Keywords: capital structure, financial decisions, Colombo Stock Exchange CSE)

JEL classifications: M41, G32

1. Background and Significance

Capital structure is one of the most complex areas of financial decision making due to its interrelationship with other financial decisions variables. Capital structure is the composition of debt and equity capital that comprise a firm's financing its assets and can be rewritten as the sum of net worth plus preferred stock plus long-term debts. Given the objective of maximization of shareholders' wealth, the need for an appropriate capital structure cannot be overemphasized.

A sound or appropriate capital structure of a firm is significant, because of the interrelationships among capital structure and various other financial decisions variables. Therefore, an ability to assess the firm's capital structure and to understand its relationship to risk, return and value is a necessary skill.

An acceptable degree of debts for one industry or line of business could be highly risky in another because of differing operating characteristics between industries or line of business. Of course,

differences in debt positions are likely to exist within an industry or line of business as well. The amount of debt within a given firm is largely the result of the decision maker's attitude toward risk.

Thus, a firm's capital structure must be developed with an eye toward risk because it is a direct link to the overall performance of the firm. Since the level of risk and the associated level of return are key inputs to the valuation process, the decision maker must estimate the potential impact of alternative capital structures on these factors and ultimately on value in order to select best capital structure.

2. Justification of the Study

Not the choice between debt and equity but the proportion between them is the crucial problem in financial management. A high ratio shows the claims of creditors are greater than those of owners. A very high ratio is unfavourable from the firm's point of view.

This introduces inflexibility in the firm's operations due to the increasing interference and pressures from creditors. During the periods of low profits, a highly debt-financed company suffers great strains; it cannot earn sufficient profits even to pay the interest charges of creditors.

As a result, their pressure and control are further tightened. However, from the shareholders point of view there is a disadvantage during the periods of goods economic activities if the firm employs a low amount of debt. Thus, there is a need to strike a proper balance between the use of debt and equity. The present study aims at investigating the capital structure patterns of companies listed on the CSE Limited.

3. Literature Review

The essence of financial management is the creation of shareholder value. According to Ehrhard & Bringham (2003), the value of business based on the going concern expectation is the present value of all the expected future cash flows to be generated by the assets, discounted at the company's weighted average cost of capital (WACC). From this it can be seen that the WACC has a direct impact on the value of business (Johannes & Dhanraj, 2007).

The choice between debt and equity aims equity to find the right capital structure that will maximized stockholder wealth. WACC is used to define a firm's value by discounting future cash flows. Minimizing WACC of any firm will maximize value of the firm (Messbacher, 2004). Debt policy and equity ownership structure 'matter' and the way in which they matter differs between firms with many firms with few positive net present value project.

In their second seminal paper on corporate capital structure. Modigliani and Mill (1963) show that firm value is an increasing function of leverage due to the tax deductibility of interest payments at the corporate level. In the 30 years since, enormous academic effort has gone into identifying the relevant costs associated with debt financing that firms presumably trade off against this substantial corporate tax benefit. Although direct bankruptcy costs

are probably small, other potentially important factors include personal tax, agency cost, asymmetric and corporate control considerations [Bradley, Jarrell & Kim (1984); Harris & Raviv (1991); Masulis (1988) & Miller (1977)].

Early empirical evidence on the trade-off theory [e.g., Bradley, Jarrell and Kim, (1984)] yield mixed results. However, recent studies examining capital structure response to change in corporate tax exposure. Mayer (1986) argues that the trade-off theory also fails to predict the wide degree of cross-sectional and time variation of observed debt ratios. Return on stock increases for any announcement of issue exchange offers. Overall, 55 percent of the variance in stock announcement period returns is explained (Masulis, 1998). Under some conditions capital structure does not affect the value of the firm. Splitting a fund into some mix of shares relating to debt, dividend and capital directly add value to the company (Gemmlie, 2001).

Sina & matubber (1998) observed the adverse position in the industry's managerial performance, profit earning capacity, liquidity etc that are the result of operational inefficiency, effective credit policy, improper planning and controlling of working capital, increased cost of raw materials, labour and overhead. Choudhury (1993) mentioned that the decreased use of debt tends to decrease profitability of a company. Because due to lack of adequate finances it has to give up some of the profitable opportunities and vice-versa. Banu (1990) stated that the capital structure of a firm has a direct impact on its profitability. She suggested that the concerned financial executives should put emphasis on various aspects of capital structure. Otherwise the capital structure of the enterprise will be unsound producing adverse impact on its profitability. Rahman (1995) identified the various aspects of problem of the sugar mills in Bangladesh and particularly of Kushtia Sugar Mills Ltd.

Based on the above literature, we can say that several studies have been done on this area, but a comprehensive study has not yet been conducted, in Sri Lankan perspective. Hence, the present study aimed to investigate the capital structure patterns of the selected companies listed with the CSE and to test the extent of variations among industries as also among individual firms within the same industry.

4. Objectives

The following objectives have been taken for the study:

- To investigate the capital structure patterns of the selected companies enlisted with the CSE limited';
- To test the extent of variations among industries;
- To examine the extent of variations among individual companies within the same industry in the same industry in respect of capital structure.

5. Hypotheses

With the above objectives in mind attempts had been made to test the following hypotheses.

Ho₁: Capital structures as measured by debt ratios (percentage of long-term debts to total permanent capital employed) did not vary significantly among individual companies within the same industry.

Ho₂: The average debt ratios did not vary among industries such as banking, finance and insurance; beverage, food and tobacco; chemical and pharmaceuticals; and manufacturing.

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6. Material and Methods

This section is divided into five sub-sections. The first sub-section presents the scope. The sub-second section discusses the period of the study. In the sub-third section, data sources are discussed. The sub-fourth section illustrates the reliability and validity whereas the last sub-section highlights mode of analysis.

6.1 Scope

The scope of the study is listed companies on CSE in Sri Lanka. There are twenty sectors [i.e., (1) Bank, Finance & Insurance; (2) Beverage, Food & Tobacco; (3) Chemicals & Pharmaceuticals; (4) Constructing Engineering; (5) Diversified Holdings; (6) Footwear & Textile; (7) Healthcare; (8) Hotels & Travels; (9) Information Technology; (10) Investment Trust; (11) Land & Property; (12) Manufacturing; (13) Motors; (14) Oil palms; (15) Plantations; (16) Power & Energy; (17) Services; (18) Stores & Suppliers; (19) Telecommunications and (20 Trading] listed under CSE. Only four sectors are selected as random sampling (i.e., banking, finance and insurance; beverage, food and tobacco; chemical and pharmaceuticals; and manufacturing) for study purposes. Only five companies are selected from each sector. Hence, ultimate sample is 20 companies (04X05=20).

6.2 Data Sources

In order to meet the objectives of the study, data were collected from secondary sources mainly from financial report of the selected companies, which were published by CSE in Sri Lanka.

6.3 Reliability and Validity of the Data

Secondary data for the study were drawn from audited accounts (i.e., income statement and balance sheet) of the concerned companies as fairly accurate and reliable. Therefore, these data may be considered reliable for the study. Necessary checking and cross checking were done while scanning information and data from the secondary sources. All these efforts were made in order to generate validity data for the present study. Hence, researchers satisfied content validity.

6.4 Mode of Analysis

We used one-way Analysis of Variance (ANOVA) along with necessary ratio analysis. The period of the study was five years from 2003 to 2007. The following capital structure ratios are taken into accounts which are given below.

Table 1: Calculations of Capital Structure Ratios

Capital Structure Ratio	
Debit Ratio (D/R Ratio)	=Long term debts/ Total Permanent Capital X100
Debt Equity Ratio (D/E Ratio)	=Long term debts/ Shareholders Equity X100

7. Findings

This section presents the findings of the study and is divided into two-sections. Section one begins with capital structure patterns. The final section presents the capital structure variations with hypotheses testing.

7.1 Capital Structure Patterns

Table 2 illustrates the capital structure ratios of the selected industrial enterprises.

Table 2: Capital Structure Ratios of the Selected Industries from 2003-2007 (Figures in percentage)

Year	2003		2004		2005		2006		2007	
	D/R	D/E	D/R	D/E	D/R	D/E	D/R	D/E	D/R	D/E
Bank, Finance and Insurance	76.54	468.40	77.98	503.92	78.3	469.87	80.40	677.28	77.83	369.50
Beverage, Food & Tobacco	17.14	23.29	9.90	12.13	14.36	17.19	15.56	19.59	24.44	29.49
Chemicals & Pharmaceuticals	36.44	-53.63	28.62	-140.79	26.16	-4164.38	26.42	108.75	19.38	42.28
Manufacturing	20.85	37.58	18.55	29.42	24.79	34.77	19.68	27.75	23.51	34.52

Source: Calculated from the figures available in the income statements and balance sheets of the companies concerned.

Table 2 reveals that banking, finance and insurance industries used more long-term debts in the range of 76.54 to 77.83 for debt ratio and 468.40 to 369.50 for debt-equity ratio, followed by manufacturing industries (20.85 to 23.51 for debt ratio and 37.58 to 34.52 for debt-equity ratio), beverage, food and tobacco (17.14 to 24.44 for debt ratio and 23.29 to 29.49 for debt-equity ratio) and so on. Further, chemicals and pharmaceuticals industries used long-term debts in the range of 36.44 to 19.39 for debt ratio but in case of debt-equity ratio, it used less long-term debts in their capital structures.

7.2 Capital Structure Variations

From the earlier analysis, it was observed that capital structure varied in different industries. In this section, an attempt has been made to test statistically the variations among industries as also among individual companies with the same industry with regard to the capital structure.

7.2.1 Capital Structure Variations among individual companies within the same industry.

H_{01} : Capital structures as measured by debt ratios do not vary significant among individual companies within the same industry.

Banking, Finance and Insurance

Table 3 illustrates the debt ratios of the sampled companies within banking, finance and insurance.

Table 3: Debt ratio of the selected companies within the banking, finance and insurance (Figures in percentages)

Company Year	ALLI	CFIN	CSF	DFCC	LOLC
2003	90.69	75.25	87.01	72.03	57.70
2004	91.12	74.10	88.30	74.34	62.03
2005	89.69	74.85	87.49	75.14	64.67
2006	82.48	75.52	95.28	77.12	71.59
2007	84.36	73.78	74.10	80.91	76.02

Source: Calculations based on data from annual reports of Companies.

Table 4: ANOVA

Source of Variance	SS	df	Ms	F	P	F critical value
Between Groups	1570.84	4	392.71	13.96	0.000	2.87
Within Groups	562.34	20	28.11			
Total	2133.18	24				

From the table-4 it is seen that the debt ratio of the selected companies within the banking, finance and insurance is highly significant ($F=13.96$; $P=0.000$) at 1% level which indicates that the debt ratio of the selected companies differs significantly. Therefore null hypothesis is rejected.

Beverage, Food and Tobacco

Table 5 presents the data on debt ratios of the selected companies in beverage, food and tobacco industries from 2003-2007.

Table 5: Debt ratio of the selected companies within the beverage, food and tobacco (Figures in percentages)

Company Year	BFL	CARG	BREW	CCS	COCO
2003	6.15	19.77	30.30	0	29.46
2004	10.32	22.79	16.41	0	0
2005	18.01	12.96	19.94	16.05	4.84
2006	23.48	22.86	20.99	5.06	5.42
2007	14.14	25.44	26.72	19.04	36.88

Source: Calculations based on data from annual reports of Companies.

Table 6: ANOVA

Source of Variance	SS	df	Ms	F	P	F critical value
Between Groups	680.02	4	170.06	1.86	0.156	2.866
Within Groups	1827.02	20	91.352			
Total	2507.04	24				

From the table 6 it is seen that the debt ratio of the selected companies within the beverage, food and tobacco is not significant

($F=1.86$; $P=0.156$) which indicates that the debt ratio of the selected companies does not differ significantly. Therefore null hypothesis is accepted.

Chemicals and Pharmaceuticals Industry

Table 7 presents the data on debt ratios of the selected companies in chemicals and pharmaceuticals industry from 2003-2007.

Table 7: Debt ratio of the selected companies within the chemicals and pharmaceuticals industry (Figures in percentages)

Company	CIC	HAYC	ASPH	MORI	LCEY
Year					
2003	13.09	7.39	2.68	10.33	148.70
2004	10.30	5.64	1.85	9.52	115.80
2005	20.33	3.87	1.51	4.60	100.50
2006	13.99	27.60	2.05	5.65	82.80
2007	11.69	17.48	0.77	3.67	63.30

Source: Calculations based on data from annual reports of Companies.

Table 8: ANOVA

Source of Variance	SS	df	Ms	F	P	F critical value
Between Groups	35444.97	4	8861.24	37.41	0.000	2.867
Within Groups	4737.71	20	236.89			
Total	40182.68	24				

From the table-8 it is seen that the debt ratio of the selected companies within the chemicals and pharmaceuticals industry is highly significant ($F=37.41$; $P=0.000$) at 1% level which indicates that the debt ratio of the selected companies differs significantly. Therefore null hypothesis is rejected.

Manufacturing Industries

Table-9 presents the data on debt ratios of the selected companies in manufacturing industries from 2003-2007.

Table 9: Debt ratio of the selected companies within the manufacturing industries (Figures in percentages)

Company	ABANS	ACL	ACME	CIND	DIPP
Year					
2003	3.64	0.57	55.22	14.94	29.90
2004	3.58	0	47.31	16.78	25.06
2005	17.83	18.87	36.02	16.98	34.27
2006	12.36	11.72	27.93	6.93	39.46
2007	37.32	6.35	9.27	29.25	35.38

Source: Calculations based on data from annual reports of Companies.

Table 10: ANOVA

Source of Variance	SS	df	Ms	F	P	F critical value
Between Groups	582.09	5	116.42	20.86	0.000	2.62
Within Groups	133.95	24	5.58			
Total	716.04	29				

From the table-10 it is seen that the debt ratio of the selected companies within the manufacturing industries is highly significant (F=20.86; P=0.000) at 1% level which indicates that the debt ratio of the selected companies differs significantly. Therefore null hypothesis is rejected.

7.2.2 Variations in Capital Structure among Industries

H₀₂: The average debt ratios did not vary among industries such as bank, finance and insurance; beverage, food and tobacco; chemicals and pharmaceuticals; and manufacturing.

Table 11 illustrates the average debt ratios of the selected industries from 2003 to 2007.

Table 11: Average debt ratio of the selected industries from 2003 to 2007 (Figures in percentages)

Company Year	Bank, Finance and Insurance	Beverage, Food and Tobacco	Chemicals and Pharmaceuticals	Manufacturing
2003	76.54	17.14	36.44	20.85
2004	77.98	9.90	28.62	18.55
2005	78.37	14.36	26.16	24.79
2006	80.40	15.56	26.42	19.68
2007	77.83	24.44	19.38	23.51

Source: Calculations based on data from annual reports of Companies.

Table 12: ANOVA

Source of Variance	SS	df	Ms	F	P	F critical value
Between Groups	12282.44	3	4094.15	220.29	0.000	3239.00
Within Groups	297.36	19	18.59			
Total	12579.80	20				

From the table-12 it is seen that the average debt ratio of the selected industries is highly significant (F=220.29; P=0.000) at 1% level which indicates that the average debt ratio of the selected industries differs significantly. Therefore null hypothesis is rejected.

8. Concluding Remarks

This effort was about the capital structures of the industrial enterprises listed on the CSE limited. In addition, an attempt was also made to present evidence on whether capital structures as measured by debt ratios vary significantly among industries as also among individual companies within the same industry. The analysis of data provided sufficient evidence that capital structures among sampled industries investigated were significantly varied.

It is clear from the analysis that various industries, subject to various degrees of risks, have indeed developed characteristically different capital structures. The one-way analysis of variance used in this study indicated that the sample means were not all equal. The resulting inferences were that the capital structures among sampled industries investigated were significantly different except beverage, food and tobacco industry.

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