Impact of Capital Structure on Profitability: A Study on Listed Manufacturing Companies on Colombo Stock Exchange in Sri Lanka

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Abstract – This paper empirically investigated the relationship between capital structure and the profitability of manufacturing companies in Sri Lanka, using panel data extracted from the financial statements of the companies listed on the Colombo Stock Exchange. Cross sectional design was adopted and the random sampling technique was used to collect data covering the five years period from 2006 to 2010. Firms' profitability was measured by Return on Equity (ROE). These panel data were analyzed using Ordinary Least Squares (OLS) as a method of estimation. Results revealed that there was statistically significant negative relationship between long term debt and profitability. The relationship between total debt and the firm profitability were also found negatively related. Notwithstanding, results did not support any significant relationship between the short term debt and profitability. The effect of firm's age and size had considered as two control variables on the profitability scales. Firm size positively impacted on profitability and there was no clear evidence to impact the companies' age on profitability. The outcomes of the study would guide entrepreneurs, loan- creditors and policy planners to formulate better policy decisions in respect of the mix of debt and equity capital and to exercise control over capital structure planning and thereby to control and reduce bankruptcy costs. The future research work based on this study is also suggested as identifying the optimum capital structure that leads to higher profitability in Sri Lanka.

Keywords: Short term debt/Long term debt/ Total assets/Return on equity

1. INTRODUCTION

Financial management is largely concerned with financing, dividend and investment decisions of the firm with some overall goal in mind (FREEMAN,1991). Corporate finance theory has developed around a goal of maximizing the market value of the firm to its shareholders. This is also known as shareholder wealth maximization (PANDY, 1978,). Although various objectives or goals are possible in the field of finance, the most widely accepted objective for the firm is to maximize the value of the firm to its owners. Financing decisions deal with the firm's optimal capital structure in terms of debt and equity. The structure-conduct-performance paradigm has played a very important role in studying the determinants of firms' performance (BAIN, 1956).

Despite of substantial theoretical developments in the field of corporate finance over the past several decades (Ex: *Portfolio Theory, Optimal Capital Structure, Efficient Market Theory: Option Pricing Theory, Agency Theory, Pecking Order Theory*) , the rift between theory and practice still needs to be reconciled (AMJED,2007, GRAHAM - HARVEY, 2001 ; KERSYTE, 2011).The mix of debt and equity is known as the firm's capital structure (PANDEY, 1978,2005). The financial manager must strive to obtain the best financing mix or the optimum capital structure for his or her firm. The firm's capital structure is considered optimum when the market value of shares is maximized. In the absence of debt, the shareholders' return is equal to the firm's return. The use of debt affects the return and risk of shareholders; it may increase the return on equity funds, but it always increases risk as well. The change in the shareholders' return caused by the change in the profits is called the financial leverage. A proper balance will have to be struck between return and risk. When shareholders' return is maximized with given risk, the market value per share will be maximized and the firm's capital structure would be considered optimum. Despite of the crucial nature of capital structure decisions the empirical studies have very little to say about the optimal level of debt financing. Therefore, logical parameters with empirical proves are still waited as the available literature is unable to evaporate the rift between practice and theory (AMJED, 2007).

This paper, using dynamic panel data techniques, investigated the relationship between capital structure and the profitability of the listed manufacturing companies of Sri Lanka. The outlook for Sri Lanka's economy has improved with the ending of the conflict in May 2009, there re-integration of the Northern and Eastern Provinces with the rest of provinces, and renewed investor confidence following the favorable post conflict developments. The manufactures have taken timely measures to safeguard and promote the industry in the current global economic condition. Manufacturing, the largest sub-sector of the industry sector recorded a significant growth to economy (Central Bank Report, 2009). Therefore, in this study, specially manufacturing companies were taken into consideration those are playing very important role in the Sri Lankan economy in order to enhance the economic growth.

The investigation is kept limited to manufacturing industry since different industries have different financing requirements. Previous researchers, including BRADLEY et al. (1984) and ALMAZAN - MOLINA (2005), reported that firms in a given industry develop similar capital structures. Exogenous variables appear to force firms in the same industry in similar fashion, thus leading to the existence of an industry specific capital structure. According to ELI SCHWARTZ (1959) optimum capital structure varies for firms in different industries because the typical asset structure and earning stability which determine inherent risk vary for different types of production and thus the borrowing powers of the firm. MACKAY - PHILLIPS (2002 cited in AMJED,2007) provided evidence that industry factors help explain firm financial structure, the diversity of firms that populate industries, and the simultaneity of real and financial decision.

The rationale of this study is to provide insights into the relationship between capital structure and profitability of Sri Lankan's manufacturing companies. The pioneer work on capital structure by MODIGLIANI - MILLER (1958) despite of the unrealistic assumptions has been source of inspirations for scholars (cited in AMJED, 2007). Their propositions state that the

market value of any firm and its cost of capital are independent of its capital structure in presence of perfect market conditions. In the real world, uncertainty and lack of knowledge as to the relevant variables may make this optimum solution a difficult achievement. Therefore, this study seeks to provide answer to the question, "does capital structure affects profitability of firms?"

2. LITERATURE REVIEW

Starting from the late 1940s, experts in finance recognised that intelligent manipulation of debt and equity could enhance corporate value, via producing an optimal (or near-optimal) mix of capital. Over the 1950s, 1960s, and 1970s five concepts of finance theory were developed on this area, viz: (1) early gearing (leverage) models; (2) the model of MODIGLIANI - MILLER (MM); (3) Capital Asset Pricing Model (CAPM); (4) Arbitrage Price Theory (APT); and (5) Gordon model (SHUBBER - ALZAFIRI, 2008). Capital structure refers to a mixture of a variety of long term sources of funds and equity shares including reserves and surpluses of an enterprise (BREALEY - MYERS, 1992; GITMAN, 1997 and WESTON - BRIGHAM, 2000). Therefore, it is studied which is the volume of common share (stock) and preferred share (stock) and which is the financing amount the company possesses. This analysis is important because it shows several internal aspects of the company, mainly, which the participation of its equities and, consequently, which is the degree of financial leverage, besides the respective expiration periods. As each source has a specific cost, the return rate can be influenced in a significant way by that composition

Research on the theory of capital structure was pioneered by the seminal work of MODIGLIANI – MILLER (1958). Significant empirical and theoretical extensions followed and the broad consensus paradigm, at least until recently, has been that firms choose an appropriate (optimal) level of debt, based on a trade-off between benefits and costs of debt. The main benefit associated with debt was the tax advantage of interest deductibility. More recently, it has been argued that the monitoring engaged in by lenders was another significant benefit associated with debt, as this may reduce the agency costs of manager-stockholder conflicts (JENSEN, 1986). The costs of debt include bankruptcy and agency costs. According to this view, the leverage decision is fundamentally an exercise in balancing the costs and benefits at different levels of debt.

Financial leverage has a positive effect on the firm's profitability. (HUTCHINSON, 1995). TAUB(1975), NERLOVE(1968), BAKER(1973), PETERSEN - RAJAN (1994), SHOAIB - SIDDIQUI (2011), AMAN (2011), CHOWDHURY - CHOWDHURY (2010) and OMOROGIE - ERAH (2010) also found a positive relationship between capital structure and profitability of the firm. In addition, RODEN - LEWELLEN (1995) found a positive relationship between profitability and total debt. Champion (1999) described that the use of leverage is one way to improve the performance of the firm. HADLOCK - JAMES (2002) argued that companies prefer debt financing because they anticipate higher returns. FAMA - FRENCH (1998) argued that the use of excessive debt creates agency problems among shareholders and creditors, in turn, lead to negative relationship between leverage and profitability. MAJUMDAR - CHHIBBER (1999), GLEASON *et al.* (2000), SHAH, et.al. (2011), ONAOLAPO - KAJOLA (2010) HAMMES (1998) and SHUBITA - ALSAWALHAH (2012) found a negative effect of leverage on corporate profitability. ABOR (2006) examined the effect of capital structure on the corporate profitability of the listed firms in Ghana using a panel regression model. His measures of capital structure included short-term debt ratio, long-term debt ratio, and total debt ratio. ABOR'S (2006) findings showed a significantly positive relation between the short-term debt ratio and profitability. JENSEN (1986) reported that profitable firms might signal quality by leveraging up, resulting in a positive relation between leverage and profitability. ARBOR (2006) reported significantly positive relationship between short term debt and profitability and negative association between long term debt and

profitability. This implies that an increase in the long-term debt position is associated with a decrease in profitability.

As to the financing decision, the choice of the optimum capital structure will be settled, accordingly to BOOTH et al (2001), in conformity with three models: 1) the Static Trade-off Model affirms that the firm chooses a goal-structure based on tributary aliquots, types of investment, business' risk, profitability and bankruptcy code; 2) the Agency Theoretic Framework suggests that potential conflicts of interests among internal and external investors determine the optimal structure that compensates agency costs with other financial costs and, 3) the Pecking-Order Hypothesis - based on the market imperfections, specifically shares' costs and asymmetric information - affirms that the choice will be based on the possibility of generation of funds to the company, given the asymmetry of information (e.g.: if the company judges that its shares are sub-evaluated in the moment, it will opt for the use of debt. On the other hand, if the company feels that the shares are well valued, it will issue a new emission of shares).

GRAHAM (2000) estimated the magnitude of debt's benefit. He pointed out to a taxes benefit of US$ 0.2 for each unit of profit before taxes, or the equivalent to 10% of the firm's value, which are still below the potentially maximum benefit, according with his calculations. In the same work, another conclusion indicated that big and profitable companies present a low debt rate. According to GRAHAM (2000), several factors, not related to tributary subjects, explain the choice of the financing. The financial cost of a possible bankruptcy will inhibit the grant of loans. The opportunities of investment exerted some influence, as the shareholders can give up projects with positive net present values (NPVs), which result in larger benefits for the parts engaged. The low liquidity and the irregularity of the cash flow affect the financing decision, as they tend to elevate the cost of the loan. The attitudes of the administration often prod the company to conservatively employ debts, either because the administrators would not like to assume risks, or because they could increase their shareholding participation.

LUPER - ISAAC (2012) recently conducted a study to examine the impact of capital structure on performance of manufacturing companies in Nigeria. He reported in his conclusion that capital structure is not a major determinant of firm performance.

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, especially in Sri Lankan manufacturing companies. Hence, further this paper was an attempt to evaluate the capital structure and its impact on financial performance of the listed manufacturing companies in Sri Lanka

3. DATA AND METHODOLOGY

Population of the study was listed manufacturing companies in Sri Lanka. From the listed manufacturing companies by using the random sampling method 25 companies were selected in order to carry out the research for the period of 2006-2010. Around 75% of the population had been selected as sample.Annual data extracted from the financial statements of these companies over five year's period has been used for analysis. The entire set of variables used in this study is based on book values. MYERS (1984 cited in AMJED, 2007)) advocated that the book values are proxies for the values in place. Panel data analysis allows studying the dynamic nature of the capital structure decisions at the firm level of manufacturing companies.Secondary data for the study was drawn from audited accounts (i.e., income statement and balance sheet) of the concerned companies as fairly accurate and reliable. Therefore, these data might be considered reliable for the study. Necessary checking and cross checking were done while scanning information and data from the secondary sources. Sample of this study extracted from listed companies in Sri Lanka. Also Sri Lankan Colombo Stock Exchange is functioning under the government rules and regulations and adopting the international and Sri Lankan Accounting Standards. All these efforts

were made in order to generate validity data for the present study. Hence, researchers satisfied content validity.

3.1. Mode of Analysis

The following variables were used in the study: Debt Ratio (DR): The agency cost theory predicts that higher leverage is expected to lower agency costs, reduce inefficiency and thereby lead to improvement in firm's performance. BERGER (2002) argued that increasing the leverage ratio should result in lower agency costs of outside equity and improve firm performance, all else held constant. From the above contributions, we expected an inverse relationship between leverage (DR) and firm performance.

Profitability was measured by commonly used ratio by many researchers i.e. Return on Equity (ROE). It was worked out by dividing the net profit before interest and taxes by the shareholders' equity, expressing the result in percentage. Return on equity demonstrated the percentage earnings of the shareholders' funds.

Leverage ratios included: Short term debt included all liabilities, which are required to be discharge within one year, alternatively, these cover those obligations whose liquidation is expected to be made out of current assets. They are usually incurred in the normal course of business and are required to be paid at fairly definite dates. Long term debt included all liabilities other than the short term debt and Shareholders' equity. Total debt pertains to sum of total fixed liabilities and current liabilities except shareholder's equity. Assets included all assets at their book value.

Firm size and age were also included as control variables. Natural logarithm of sales has been taken as proxy for size (SIZE). This measure was the most common proxy for size (TITMAN - WESSELS, 1988). The age of a firm may also have an impact on firm's performance, STINCHCOMBE (1965) argued that older firms can achieve experience- based economies and can avoid the liabilities of newness.Natural logarithm of number of years since the date of incorporation of the company has been considered as age of companies. The following hypothesis was tested:

H1: Short term debts have positive impact on profitability
H2: Long term debts have a negative impact on its profitability
H3: A firm's capital structure should have a negative impact on its profitability
H4: The size of company positively impact on profitability
H5: The age of company positively impact on profitability

Linear regression model was used to investigate the nature of relationship between capital structure and profitability. The motive of studying short term, long term and total debt separately was to investigate the impact of different type of financing options minutely. Since the cost / benefits of short term debt and long term debt differed to a great extant. Therefore, separate analysis could better explain the relationship.

The following regression equations were used in the analysis.

1. $ROE_{i;t} = \alpha + \beta\, STD\_TA_{i,t} + \beta\, SIZE_{i,t} + \beta\, AGE_{i,t} + e$
2. $ROE_{i;t} = \alpha + \beta\, LTD\_TA_{i,t} + \beta\, SIZE_{i,t} + \beta\, AGE_{i,t} + e$
3. $ROE_{i;t} = \alpha + \beta\, TD\_TA_{i,t} + \beta\, SIZE_{i,t} + \beta\, AGE_{i,t} + e$

Where:

$ROE_{i,t}$ is EBIT divided by equity of firm i in time t;

$STD\_TA_{i,t}$ is short-term debt divided by the total assets of firm i in time t;

$LTD\_TA_{i,t}$ is long-term debt divided by the total assets of firm i in time t;

$TD\_TA_{i,t}$ is total debt divided by the total assets of firm i in time t;

$SIZE_{i,t}$ is the log of sales for firm i in time t;

$AGE_{i,t}$ is log of number of years since the date of incorporation of firm i in time t; and

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e is the error term.

The return on equity was kept dependent variable and the leverage ratios and control variables as the independent variables.

4. RESULTS AND DISCUSSION

Table 1. Descriptive statistics

	Mean	SD	Mini.	Maxi.
Profitability (ROE)	0.077	0.355	-1.668	1.710
Size of the company	8.524	1.613	0.000	10.859
Age of the company	1.406	0.197	0.778	1.7853
STD_TA	0.345	0.183	0.017	0.908
LTD_TA	0.153	0.192	0.000	0.929
TD_TA	0.498	0.228	0.019	1.002

Source: Survey Data

Average value of return on equity (ROE) over five year period was 7.7 % that demonstrate a not remarkable performance of the companies in the period under study. Average of short term debt to total assets is 35 % that depicts a noteworthy portion of assets was financed with the short term debt. This suggested that short-term debt tends to be easily available therefore companies used short term debt as their major source of financing. Long term debt to total assets as compared to the short term debt to assets was low i.e. 20%. The under developed nature of the long term debt market might be one of the possible reasons. Overall 50% assets were financed with the debt that depicts manufacturing companies was moderately leveraged industry. However, the debt ratio variation across the firms was large, ranging from a maximum debt ratio of 100% and a minimum of 1%.

4.1. Regression Statistics

Results of the Regression Equations used in the analysis were exhibited in this section. The results were discussed separately that enable us to make comparison of the different debt financing options. The separation of results also permitted us to observe inherited almost opposite characteristics of short term debt and the long term debt in association with control variable.

Equation 1

In the first equation the relationship of short term debt with the profitability was studied keeping size and age controlling variables. It is found that the there was no significant relationship between short term debt and profitability exists. The negative value of coefficient of beta (-0.306081) was empirically not significant ($p < 0.05$). Therefore, no significant relationship could be found between short term debt and the profitability. The negative relationship was not significant (t- Stat -1.671314) enough to justify any proposition.

$ROEi;t = \alpha + \beta\ STD\_TAi,t + \beta\ SIZEi,t + \beta\ Agei,t + e$

In order to test the hypothesis (H_1), it was stated that Short term debts have positive impact on profitability. There was no evidence to prove this hypothesis. As a result hypothesis was rejected.

Table.2. Profitability Ordinary Least Squares

Variable	Coefficient	Std. Error	t-Stats	Prob.
C	-0.381	0.278	-1.368	0.173
STD_TA	-0.306	0.183	-1.671	0.097
Size	0.073	0.019	3.672	0.000
Years	-0.042	0.162	-0.262	0.793
Regression Statistics				
R^2	0.106	F-statistic	4.813	
Adj. R^2	0.084	Prob.	0.003	

Source: Survey Data

Equation 2

The results given in the table below depicted that empirically significant negative relationship exists between the long term debt and the profitability. The results were consistent with the pecking order theory the negative value of beta (-0.8108) was significant at 99.91% confidence level further t value of (-5.52115) exhibited that the relationship was empirically reliable. It dictated that higher level of long term debt in the capital structure of the firm lower the profitability. The results tend to refute the trade-off theory rather support the pecking order theory. Profitable firms internal funds over the outside financing options.

$ROEi;t = \alpha + \beta\ LTD\_TAi,t + \beta\ SIZEi,t + \beta\ Agei,t + e$

Table 3. Profitability Ordinary Least Squares

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.125	0.247	-0.508	0.612
LTD_TA	-0.810	0.146	-5.521	0.000
Size	0.045	0.017	2.634	0.009
Age	-0.044	0.140	-0.319	0.749
Regression Statistics				
R^2	0.269	F-statistic	14.912	
Adj. R^2	0.251	Prob.	0.000	

Source: Survey Data

In order to test the hypothesis, considering the probability of t test of long term debt less than 5%. Hypothesis (H_2) stated that long term debts have negative impact on profitability. It was accepted that long term debts had negative impact on profitability.

Equation 3

The results given in the table below depicted that empirically significant negative relationship exist between the total debt and the profitability. The results were consistent with the pecking order theory the negative value of beta (-0.80407) is significant at 99.91% confidence level further t value of (-6.500332) exhibit that the relationship was empirically reliable. It dictated that higher level of debt in the capital structure of the firm lower the profitability. In other words profitable firms prefer capitalization of earnings for their financing needs. The results tend to refute the trade-off theory rather support the pecking order theory. Profitable firms internal funds over the outside financing options.

Therefore the impact of total debt on profitability as a whole contains significant value as the short term debt has no significant relationship and long term debt has negative significant relationship therefore the net impact is negative. This result was consistent with the result of FAMA - FRENCH (1998), MAJUMDAR - CHHIBBER (1999) and HAMMES(1998).

$ROEi;t = \alpha + \beta\ TD\_TAi,t + \beta\ SIZEi,t + \beta\ Agei,t + e$

Table 4. Profitability Ordinary Least Squares

Variable	Coefficient	Std. Error	t-Stas.	Prob.
C	-0.390	0.237	-1.642	0.103
TD_TA	-0.804	0.123	-6.500	0.000
Size	0.073	0.016	4.429	0.000
Age	0.172	0.142	1.214	0.226
Regression Statistics				
R^2	0.322	F-stas.	19.205	
Adj. R^2	0.305	Prob.	0.000	

Source: Survey Data

In order to test the hypothesis, considering the probability of t test of total debt less than 5%. Hypothesis (H_3) stated that firm's capital structure (total debt to total assets) have negative impact on profitability. It was accepted that capital structure had negative impact on profitability.

In order to test the hypothesis four (H_4), it was stated that size of the company positively impact on profitability. With the evidence of *Table 3* and *4* size of the company positively had impact on firm profitability (*Table 2*: β=.073, t=3.672, p=.000: *Table 3*: β=.045, t=2.634, p=.009: and *Table 4*: β=.073, t=4.429, p=.000). As a result H_4 was accepted.

Hypothesis five (H_5), it was stated that age of the company positively impact on profitability. Based on the result (*Table 2*: β=-0.042, t=-0.262, p=.793: *Table 3*: β=-0.044, t=-0.319, p= .749: and *Table 4*: β =0.172, t= 1.214, p=.226) there was no clear evidence to company's age impacted on profitability. As a result H_5 was rejected.

The values of Coefficient of Determination i.e. R Square and Adjusted R square were considerably low in all three equations. The ultimate cause was there were numerous factors that determine the profitability. In this study we are barely interested in studying the relationship of leverage and profitability therefore, values of individual variables' statistics are relevant with propositions of the study. Results are significant enough to serve our purpose best. Overall the results are consistent with the existing research but with little variation of not enough evidence to prove relationship of short term debt with profitability. Based on the F statistics and their probability all there models are fit for the analysis.

5. CONCLUSION

This paper examined the impact of capital structure on firm's profitability using 25 listed manufacturing companies in Sri Lanka between 2006 and 2010. The paper searched to fill the gap in the literature as a result of limited studies that have been conducted so far in this area using Sri Lankan data.

On the basis of findings, it was documented that short term debt had no significant relationship with the profitability. It was not enough to justify any proposition. Whereas long term debt had significant negative relationship with the profitability that envisage long-term debts were relatively more expensive due to certain direct and indirect costs, therefore employing high proportions of long term debt in financial structure results in low profitability. Size of the company positively impacted on performance and there was no evidence to age of company positively impacted on profitability.

Empirical results indicated that negative significant association between total debt and profitability .The underlying rationality was, Pecking order theory was true with this finding as key element of pecking –order theory is that firms prefer to use internal financing whenever possible and if a firm is very profitable, it might never need external financing; so it would end up

with little or no debt. Result of the study was not consistent with the static theory, which explains that these are the firms should use the most debt because there is little risk of bankruptcy and the value of the tax shield is substantial, therefore the positive direction between debt and profitability. Simply it is difficult if not impossible to think over, over all relevant factors with bounded rationality, at least in the current scenario. In-depth case study observations of individual firms' financing decisions over time would be especially valuable in exploring this diversity. Regarding future line of research, this study can be improved upon if the number of firms and the profitability measures are increased. The use of market- based performance measures such as the original Tobin's Q, price- earnings, market value to book value of equity, among others, will make the study more robust. Attention should also be shifted to the study of small and medium scale firms in the developing countries.

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