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#### THE DETERMINANTS OF LEVERAGE OF THE LISTED COMPANIES IN SRI LANKA: AN EMPIRICAL STUDY

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#### **ABSTRACT**

The role of financial leverage in magnifying the return of the shareholder is based on the assumptions that the fixed charges fund. A company increases its leverage because it can invest in business operations without increasing its equity. Leverage is not always bad, however it can increase the shareholder's return on their investment and often there are tax advantages associated with borrowing. The purpose of present study is to investigate the determinants of leverage (or capital structure) decision of Sri Lankan firms based on a panel data set over a period of five years from 2007-2011 comprising of 60 companies. This study examines the impact of five firm specific factors – firm size, firm growth rate, profitability, and asset tangibility, on the leverage decision of listed companies in Sri Lanka. The results show that financial leverage of Sri Lankan firms is influenced by firm size, firm growth rate and profitability. This study contributes to the literature on the factors that influence financial leverage of the firm.

#### **KEYWORDS**

financial leverage, firm size, firm growth rate, profitability, and asset tangibility.

#### **BACKGROUND OF THE STUDY**

company can finance its investments by debt or Equity. The modern theory of capital structure began with the landmark paper of Modigliani and Miller published in 1958. In this paper, they argued the irrelevance of capital structure to the value of firm under certain restrictive assumptions - no rtransaction costs, the equality of lending and borrowing rates, no bankruptcy costs, and absence of corporate taxes. The theoretical and empirical literature developed over a period of time suggests that, once the restrictive assumptions are relaxed, firms are able to change their value by altering their leverage or debt-equity ratio. The research in the capital structure field is dominated by two principal theories (1) the trade-off theory and (2) pecking-order theory. The trade-off theory of capital structure is established around the concept of target capital structure that balances between the benefit of debt-tax shields and cost (excess risk taking by shareholders) of debt financing. In contrast, the pecking-order theory, developed by Myers and Majluf (1984), suggests that managers do not seek to maintain a specific capital structure. Firms prefer to issue debt rather than equity if internally generated cash flows are not sufficient; external equity is offered only as a last resort when company runs out of its debt capacity as informational asymmetry between managers and investors make it costly to raise funds through equity. Asymmetric information term indicates that managers and other insiders have more information about the firms' prospects and risks than do outside investors, realizing this, judge that managers are more likely to offer equity when shares are overvalued. Due to this, investors price equity issues at a discount. Thus, according to pecking-order theory, in general it will be the cheapest for a firm to use from the least to the most expensive source of finance in the following order: internal financing, bank debt, bond market debt, convertible bonds, preference capital, and common equity (Myers, 1984). Much of the empirical research on the determinants of leverage has been directed largely towards companies listed in developed companies. There is very few published work on determinants of leverage in Sri Lankan companies and this paper intends to contribute further evidence to this debatable topics. So The purpose of present study is to investigate the determinants of leverage (or capital structure) decision of Sri Lankan firms based on a panel data set over a period of five years from 2007-2011 comprising of 60 companies.

#### LITERATURE REVIEW

Colombage (2005) empirically investigates the capital structure of Sri Lankan companies and find the financing trend of Sri Lankan firms confirms the pecking order hypothesis to a greater extent that predictions of information asymmetry and static tradeoff consideration.

Champika and Gunaratrne (found that Sri Lankan firms demonstrated a market timing behavior in adjusting their capital structure. They also revealed that profitable firms are particularly very much reliant on internal financing.

Samarakoon (1999) examines the use and the determinants of leverage in a cross- section of quoted companies in Sri Lanka using a sample of firms listed in the Colombo stock exchange. The results indicate that the use of long term debt is relatively low. The tangibility and growth opportunities are not related to leverage.

At the outset, 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.

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.

Diamond (1989), Bender et al. (2005), Campbell and Kracaw (1990) introduced the concept that management, which is actually working for the best interest of shareholders, may wish to limit the asset substitution. Nevertheless, practically, optimal leverage instability choice has never been considered through the use of derivatives in which it can be controlled continuously. Similarly, Myer's (1984), worked on role of dividend policy and underinvestment issue in enabling a firm. Fan and Sundaresan (1997); Zweibel (1996) and Paul (1997) all have considered the levered firm and optimal dynamic dividend policies for them. From all these recent papers, Zweibel (1996) have addressed the agency problem of dividends. Many papers have focused on financial policy. Until today, there are three major classes of models, the agency, the trade-off theory and the pecking order hypotheses. The agency hypothesis states that firms also face the cost of financial distress due to divergence in the utility function of stakeholders and informational irregularities but in this situation, the level of debt becomes a governance device for a firm. Similarly, the trade-off hypothesis says that the optimal financing policy consists of adjustment towards the target debt level. The target leverage ratio balances the marginal financial distress cost of debt with marginal tax benefit. Pecking order hypothesis talked about the firm value, which is affected by informational irregularity bias investment policy. The unfavorable selection discount leads to rejecting the positive NPV projects. The optimal financial policy in a result, firstly, tires out the least sensitive financing source, i.e. internal financing, then debt and as a last resort, equity. Although many variables affect the capital structure systematically, but they are also failed to distinguish between the above three hypotheses.

Bender et al. (2005) indicated that in the understanding process of financial policy, neither a simple pecking order nor a simple trade-off model is adequate; they also highlighted the timing issues and agency problem impacts upon capital structure. For the debt ratios, they figure out that firms limit themselves only to an upper barrier. As per pecking order theory also, firms prefer to issue equity or repayment of debts rather than to increase the debts level. Debt- equity choice is affected by both market and operating performance since debt limit the managers for cash payout and because of this reason during a lot of opportunity windows, equity may become cheap.

#### **PROBLEM STATEMENT**

Most companies use debt to finance operations. By doing the primary motive of a company in using financial leverage is to magnify shareholder's return under favorable economic conditions. The role of financial leverage in magnifying the return of the shareholder is based on the assumptions that the fixed charges fund. A company increases its leverage because it can invest in business operations without increasing its equity. The degree to which an investor or business is utilizing borrowed money companies that are highly leveraged may be at risk of bankruptcy if they are unable to make payments on their debt. They may also be unable to find new lenders in the future. Leverage is not always bad, however it can increase the shareholder's return on their investment and often there are tax advantages associated with borrowing.

There is no exact formula available for the establishing optimal target debt and equity, empirical studies indicate that Size of the company, growth of the company, Non-debt tax shield, profitability and tangibility should be considered when formulating capital structure policy. Does an optimal leverage exist? To what extent the exploratory variables (Size of the company, growth of the company, Non-debt tax shield, profitability and tangibility) impact on leverage of listed companies in Sri Lanka. These are the questions to be answered by a researcher.

However most of the research work carried out in developed countries and very little is known about the determinants of leverage of firms in developing economies. Thus this study intends to fill this research gap.

#### RESEARCH METHODOLOGY

#### THE DATA COLLECTION AND SAMPLING

This study investigates the impact of five firm-specific variables on firms' leverage choice decision. The sample of study contains 60 Sri Lankan companies listed on the Colombo Stock Exchange (CSE) whose published financial information for the period 2007-2011. The panel data analysis is done for observations of five consecutive years starting from 2007-2011. In this way, the sample of the study consists of 300 firm-year observations.

#### **VARIABLES USED IN THIS STUDY**

Literature on the subject matter suggests a number of factors, which may affect firms' financing decision. This study examines the impact of five firm specific factors – firm size, firm growth rate, non-debt tax shields, profitability, and asset tangibility, on the leverage decision of listed companies in Sri Lanka. While dependent variables are leverage ratios such as Debt to Equity ratio and Debt to Total Asset Ratio.

**DEBT TO EQUITY RATIO** is a measure of a company's financial leverage calculated by dividing its total liabilities by stockholders' equity. It indicates what proportion of equity and debt the company is using to finance its assets.

**DEBT TO TOTAL ASSET RATIO:** A measurement representing the percentage of a firm's assets that are financed with loans and financial obligations lasting more than one year.

Independent variables are defined as firm size is measured by taking the natural logarithm of the total assets.

Growth is measured as the change in total assets between two consecutive years divided by previous year total assets.

Non-debt tax shield (NDTS) is defined as a ratio of total annual depreciation to total assets.

**Profitability** is defined as earnings before interest and taxes scaled by k value of Sales Tangibility is measured as a ratio of net fixed assets divided by total assets. After careful study of the review of literature, the above conceptual model was developed by the researcher.

#### **HYPOTHESIS**

The hypothesis of the research paper are given below

- H1: There is a relationship between size and leverage of Sri Lankan firms.
- H2: There is a relationship between firm growth rate and leverage of Sri Lankan firms.
- H3: There is a relationship between non-debt tax shields and leverage of Sri Lankan firms.
- H4: There is a relationship between profitability, and leverage of Sri Lankan firms
- H5: There is a relationship between asset tangibility and leverage of Sri Lankan firms.

# Size of the Company Growth of the firm Non-debt tax shield Profitability Figure 1: Conceptual frame work Financial Leverage

#### STATISTICAL TECHNIQUE USED IN THIS STUDY

This paper uses panel data set over a period of five years between 2007-2011 to investigate the linkage between leverage and the firm specific factors. The fixed effects test is employed to test the hypotheses. The fixed effects regression equation can be expressed as:

#### MODEL 01

Debt to Equity  $i t = \alpha i + \beta 1$  Size  $i t + \beta 2$  Growth  $i t + \beta 3$  NDTS  $i t + \beta 4$  Profitability  $i t + \beta 5$  Tangibility  $i t + \epsilon i t$ 

Where i =1, 2, 3,..., 60 for the sample companies

t = 1, 2, 3, 4, 5 (time period).

 $\boldsymbol{\alpha}$  is the intercept of the equation

 $\beta$ 1,  $\beta$ 2,  $\beta$ 3,  $\beta$ 4,  $\beta$ 5 = are the coefficients for the five explanatory variables in the model.

#### MODEL 02

Long Term Debt Ratio  $it = \alpha i + \beta 1$  Size  $it + \beta 2$  Growth  $it + \beta 3$  NDTS  $it + \beta 4$  Profitability  $it + \beta 5$  Tangibility  $it + \epsilon it$ 

Where i =1, 2, 3,..., 60 for the sample companies

t = 1, 2, 3, 4, 5 (time period).

 $\boldsymbol{\alpha}$  is the intercept of the equation

 $\beta$ 1,  $\beta$ 2,  $\beta$ 3,  $\beta$ 4,  $\beta$ 5 = are the coefficients for the five explanatory variables in the model.

#### **ANALYSIS AND DISCUSSION OF RESULTS**

Table 1 summarizes the statistics for the selected variables and leverage measures for the whole sample of Sri Lankan companies.

**TABLE 1: DESCRIPTIVE STATISTICS** 

	Minimum	Maximum	Mean	Std. Deviation
Leverage(Debt/Equity)	0.43	19.43	3.2778	.821
Size	8	11	9.16	11.31233
Growth	-122.37	.91	-2.0680	4.35556
Debt /TA	0.21	0.92	0.1088	.62009
Net fixed asset/TA	0.32	0.88	1.2015	4.60875
Debt	8667700300	215938000000	12007005501.03	35369796768.88996
Equity	67670290	31029565	2088189711.6667	4497617200.68848
Valid N (list wise) 300				

Source: Survey data

According to the Table 1 the minimum value of the Debt to Equity ratio is 0.43 and the maximum value is 19.43. The mean value of the debt to equity ratio is 3.2778 and its standard deviation is .821. Regarding the size of the companies, the minimum and maximum values are 8 and 11 respectively. The mean value is 9.16 and it's standard deviation is 11.31233.

When the firm's growth values are considered the minimum value is -122.37 and the maximum value is 0.91. The minimum and the maximum values of debt to total assets are 0.21 and 0.92 respectively. Its standard deviation value is 0.62009. When we consider the fixed assets to Total assets ratio the minimum value is 0.32 and the maximum value is 0.88. The standard deviation for the above is 4.60875.

#### **EMPIRICAL RESULTS**

To find the determinants of leverage of listed Sri Lankan companies, fixed effect regression

The estimation using Eviews 6 in Table 02 indicate that estimated coefficients of all the five explanatory variables used in the model- firm size(Ln assets), Growth of the firm, non-debt tax shield, EBIT and asset tangibility. All variables are significant at 1 percent significance. In this model R2 value is 0.731. The R2 statistics shows that approximately 73percent of variation in the firm's leverage can be explained by movements in the vale of independent variable used in the model and the rest of 27 percent is due to the extraneous factors. F statistics indicates that overall significance or goodness of fitness of the model is very high.

Firm size has a positive impact on leverage .The Beta Value of the firm size is 3.469 and the P value is .000. So this is significant at 1 percent significance. So Hypothesis H1 is accepted. We can say that the size of the company significantly affect the leverage of the firm. This finding reveals that larger companies in Sri Lanka use more debt as compared to small companies.

The relationship between leverage and growth in total assets is found to be negative. The beta value of the growth in total assets is -0.017 and p value is 0.010. So H2 is accepted. That is growth of the firm significantly impact on leverage. This results indicates that growing firm in Sri Lanka rely on less on debt and more on retained earnings or equity to finance their new investment opportunities.

The non – debt tax shields are positively related to leverage. Non tax Beta value is 15.118. and P value is 0.000. So H3 is accepted. This finding is consistent with other studies smith and watts (1992) and Liagal Ali (2011).

Profitability to Total assets is estimated to have negative impact on leverage. The Beta value of the profitability is -1.647 and the P value is .000. Then H4 is accepted. This finding suggests that Sri Lankan firms prefer to finance new investment using equity funds.

Tangibility of assets to Total assets is positively associated with the leverage. The beta value of the tangibility is 0.018 and the P value is .000. Then H5 is accepted .This results indicates that with a 1 percent increase in the firm's net assets , relative to total assets, there is 0.018 percent rise in debt- equity ratio or leverage ratio of firm.

#### **REGRESSION RESULTS (MODEL 1)**

#### TABLE 02

TABLE 02					
Predictors	Coefficient	Std.Error	t-statistic	p-value	
Constant	-27.818	.311	-8.403	.000	
Size(Ln assets)	3.469	.362	9.581	.000	
Growth	-0.017	0.023	-2.611	0.010	
NDTS	15.118	2.979	5.075	0.000	
Profitability	-1.647	0.404	-4.076	0.000	
Tangibility	0.018	0.019	.927	.000	
No. of Observations	300				
R2	0.731				
F-Statistics	53.392				
Prob(F-Statistics)	0.000				

**Dependent Variable (**Debt to Equity Ratio) **REGRESSION RESULTS (MODEL 02)** 

#### TABLE 03

Predictors	Coefficient	Std.Error	t-statistic	p-value
Constant	-30.706	.1357	-2.262	.025
Size(Ln assets)	3.548	1.539	2.306	.022
Growth	-0.254	0.231	-1.100	.0273
NDTS	8.513	0.470	.836	.0404
Profitability	-0.299	1.349	221	0.0825
Tangibility	0.071	0.010	7.396	.000
No. of Observations	300			
R2	0.537			
F-Statistics	14.853			
Prob(F-Statistics)	0.000			

#### **DEPENDENT VARIABLE (DEBT TO TOTAL ASSET RATIO)**

In this model R<sup>2</sup> value is 0.537. The R<sup>2</sup> statistics shows that approximately 54 per cent of variation in the firm's leverage can be explained by movements in the changes of independent variable used in the model and the rest of 46 percent is due to the extraneous factors. F statistics indicates that overall significance or goodness of fitness of the model is very high.

Firm size has a positive impact on leverage .The relationship between leverage and growth in total assets is found to be negative .The beta value of the growth in total assets is -0.254 and p value is 0.0273. So H2 is accepted.

The non – debt tax shields are positively related to leverage. Non tax Beta value is 8.153. and P value is 0.0404. So H3 is accepted. Profitability to Total assets is estimated to have negative impact on leverage. The Beta value of the profitability is –0.299 and the P value is .0825. Then H4 is accepted.

Tangibility of assets to Total assets is positively associated with the leverage. The beta value of the tangibility is 0.071 and the P value is .000. Then H5 is accepted.

#### CONCLUSION

This paper examined the impact of five firm specific factors – firm size, firm growth rate, non-debt tax shields, profitability, and asset tangibility, on the leverage decision of listed companies in Sri Lanka The results of the study based on the fixed effect estimation show that the explanatory variables in the model 01 and 02: firm size, growth, non-debt tax shields, profitability and tangibility have strong significant influence on firm's leverage. This paper support for existing literatures such as Samarakoon P(2009) Liaqal Ali(2011), smith and watts(1992),and Fan, H. Sundaresan, S. (1997). The objective of an investment is to maximize the wealth of owners. In order to achieve this objective investors should select the shares of companies which have higher profitability. Therefore the findings of this research will help investors in selecting profitable shares by considering their capital structure and to maximize their return. Companies can alter their capital structure according to their needs. The findings of this study will also help to companies to determine the optimum leverage which maximizes their profitability. By increasing their profitability companies can also increase the market values of their shares.

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