# What predicts capital structure? An empirical analysis of top companies in colombo stock exchange

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**Abstract**

The objective of the study is identifying the impact of the determinants of capital structure of the top five listed companies in the Colombo Stock Exchange of Sri Lanka period from 2006 to 2015. Here explanatory variables used were firm size, profitability, growth, dividend payout, liquidity and tangibility. Whereas the dependent variable used was a long term debt ratio. Determinants of capital structure have been analyzed through descriptive statistics, correlations and multiple regression analysis.

The results reveal that firm size, profitability, growth, dividend payout, liquidity and tangibility impact on long term debt at 93 percent. Further results reveal that firm size, growth, dividend payout and tangibility have a positive relationship with leverage while profitability and liquidity have a negative relationship with leverage. According to the analysis, firm size, profitability, growth and dividend payout were statistically significant determinants of capital structure in Sri Lanka. These facts concluded that firm size, profitability, growth and dividend payout play a major role in the determination of the financial leverage in Sri Lankan firms and tangibility and liquidity do the dismal role. This study recommending that the capital structure decision is essential for the every organization to maximize their return and compete with changing business environment to sustain competitive advantages since it directly influenced to cost of capital in the firm.

**Key Words:** Capital structure, size, growth, profitability, tangibility, dividend payout, liquidity

**Background Of Study**

The Capital Structure decision is essential for the every organization to maximize their return and compete with changing business environment to sustain competitive advantages than existing players. One of the most important decisions confronting a firm in corporate finance is the design of its capital structure. Capital structure describes the proportionate relationship between debt and equity. While debt is majorly made up of long term loans such as debenture, equity includes paid up share capital, share premium, reserves, and surplus or retained earnings. Therefore, a company can finance its investments by debts and equity or a mixture of both.

This study incorporates several related empirical evidence in national and international for the research argument. Ajanthan (2013) investigates that determination of capital structure: evidence from hotels and restaurant companies in Sri Lanka. He found that only profitability is negatively related to the debt ratios, whereas tangibility, size and growth do not appear to be significantly related to the debt ratios. Sangeetha and Sivathaasan (2013) investigate that the factors determining capital structure in Sri Lankan context during 2002 to 2006. Results revealed that the use of debt capital is relatively low in Sri Lanka and size, growth rate and profitability are statistically significant determinants of capital structure. Prahalathan (2010) investigates that the determinants of capital structure; An empirical Analysis of listed manufacturing companies in the stock market in Sri Lanka. Findings showed that the direction of the explanatory variables such as, tangibility, profitability, firm size and non-debt tax shields with total debt largely consistent with the explanations of trade - off theory and prove past empirical findings.

Kajananthan and Nimalthasan(2013) investigate that Capital structure and its impact on firm performance: A study on Sri Lankan listed manufacturing companies. However, the findings have highlighted the effects of the firm performance and capital structure. The study contributes to literature in Sri Lanka.Vijeyaratnam and Anandasayanan (2015) investigate that the determinants of Leverage of Sri Lankan Manufacturing Companies

Listed on Colombo Stock Exchange. The results this study Profitability and Non debt tax shield were confirmed to be relevant determinant for Sri Lankan manufacturing companies, except Tangibility. It is largely consistent with the past empirical finding also.

Perera and Bandaranayake (2014) investigate that The Impact of External Environmental Conditions on Corporate Capital Structure: Evidence from Hotels and Travels Sector in Sri Lanka. The findings of the study, which is a featured departure from the previous studies on capital structure which emphasize the role that prevailing institutional and macroeconomic conditions play in determining the capital structure decisions in the listed firms in Sri Lanka.

Tharmila and Arulvel (2013)State thatthe impact of the capital structure and financial performance: A study of the listed companies traded on a Colombo stock exchange. This research examines the relationship between capital structure andfinancial performance of the listed companies traded on a Colombo stockexchange (CSE). Gamini (2008) investigates the determinants of capital structure in Sri Lanka. This finding confirms that more successful firms consistently fund their investment projects using retained earnings and have a lower debt ratio compared to their unsuccessful counterparts. Corporate size and growth rate were not significantly related to firms' debt ratios. The negative coefficient of asset structure and positive coefficient of business risk go against the theoretical predictions.

Sritharan and Vinasithamby (2014) investigate that determination of capital structure - a study of listed banks, finance & insurance companies In Colombo stock exchange in Sri Lanka. Statistical results show that tangibility, profitability, growth, and liquidity are negatively related to the debt ratio, while size is related positively. Non-debt tax shield is not significantly related to the debt ratio. Furthermore, these results consistent with the forecasts of the trade-off theory, pecking order theory, and agency theory, and provide some help in understanding of financing behavior of Sri Lankan firms.Yogendrarajah and Thanabalasingam (2011) investigate that the effect on profit Margin on Capital Structure: A Study of Listed Manufacturing Companies of Colombo Stock Exchange (CSE), Sri Lanka. In the study, we may say that the firms, finance their investment activities by retaining profits are more profitable than those that finance their activities through borrowed capital and it depends on their level of investments.

Handoo and Sharma (2014) investigate that a study of determinants of capital structure in India.It has been concluded that factors such as profitability, growth, asset tangibility, size, cost of debt, tax rate, and debt serving capacity have significant impact on the leverage structure chosen by firms.Youssef and Ghonamie (2015) investigate that the factors that determine the capital structure in building material and construction listed firms: Egypt case.The results recommended that profitability is negatively related to debt ratios (LTDR, TDR); whereas firm tangibility is positively linked to the debt ratios. Size, Non-debt tax shields, liquidity and growth opportunities do not appear to be significantly related to the debt ratios.

Turan and Hasanaj (2014) investigate that Determinants of Capital Structure: Evidence from Banking Sector in Albania. The empirical study determines if these variables are important over the capital structure and whether the independent variables are significant over the leverage ratios of the second level banks.Onaolapo.at.el(2015) investigatorsthat The Determinants of capital structure: A study of Nigerian quoted companies**.** Results reveal that the three leverage ratios (Total Leverage Ratio, Long-Term Leverage Ratio and Short-Term Leverage Ratio) are negatively and significantly related to profitability. Firm size and asset tangibility are, however, positively and significantly related to leverage proxies. The outcome of the study shows that Nigerian firms rely heavily on the use of retained earnings (internal source) and where funds raised are insufficient, they then seek for external source. This is in line with financial theory and provides evidence in support of Pecking Order Theory. Khrawish and Khraiwesh (2010) investigate that The Determinants of the Capital Structure: Evidence from Jordanian Industrial Companies. The findings of this study contribute towards a better understanding of financing behavior in Jordanian industrial companies. The results of this study showed that a significant positive relationship between

LTD/TD and size (TA), Tangibility (Tang), and long-term debt (LTD) and there was a negative relationship between LTD/TD and short-term debt of the firm.

Bassey, at el (2013) investigates that analysis of the Determinants of Capital Structure: Evidence from Unlisted Agro-Based Firms in Nigeria 2005-2010. The result revealed that only growth and educational level of firms' owners were significant determinants of both long and short-term debt ratios. While asset structure, age of firms, gender of owners and export status impacted significantly on long–term debt ratios, only business risk, size and profitability of firms were major determinants of short-term debt ratio of the firms under investigation. This, therefore, informed the need to pursue policies that would encourage asset accumulation, promote exportation, address, gender inequality and reduce business risk as policy measures.

Akinlo and Olayinka(2011) investigate that determination of capital structure: Evidence from Nigerian panel data. The results show that there is a negative relationship between leverage and growth opportunities, leverage and tangibility, but positively related to liquidity as well as size. Hassan (2015) investigates that Factors determining capital structure: an analysis of listed companies in the Colombo stock exchange in Sri Lanka. The findings revealed that the determinants of capital structure such as profitability (PROF) and liquidity (LIQ) were significantly negatively correlated with leverage levels (Long term debt ratio) while Tangibility(TANG) has a significant positive relationship with level of leverage but Firm size (FSIZE) has no significant relationship with the leverage level (LTD). Kareem and Saud (2015) investigate that the determinants of capital structure: An empirical study of Omani listed industrial companies. The findings of the study indicate that there is a statistically positive association between risk and tangibility and leverage.

Many theories proposed firm's selection of capital structure depend on many variables. There are several cost and benefit associate with this selection. However, most of the research work has been carried out in developing economies and very little is known about the capital structure of firms in developing economies and in Sri Lankan context also few studies have been done. Therefore, the main purpose of this study is to identify the impact determinants of capital structure of Sri Lankan companies in Colombo stock exchange.

**Research Methodology**

This study conceptual design has shown developed. It finds relationship and significant impact of the selected determinants of capital structure of five sectors in CSE. The explanatory variables are size, profitability, growth, dividend payout, liquidity and tangibility. As well as explained variable is capital structure here long term debt is used as proxy variable. Colombo Stock Exchange has 294 companies under 20 numbers of sectors as the date of 06$^{th}$ October 2015. The sampling frame is all listed five companies in five different sectors consists of the trading, beverage food & tobacco, healthcare, telecommunication, manufacturing companies listed in the Colombo Stock Exchange. The secondary data were collected for the ten year periods from 2006 to 2015.

**Table 1 Operationalization**

| Variables | Indicators | Measurement |
|---|---|---|
| Long – term debt (LTD) | Change in long term debt | Long term liability/ Total assets |
| Firm size (SIZ) | Change in size of a firm | Total Assets |
| Profitability (PRO) | Change in profitability of a firm | Earnings Before Interest and Tax (EBIT)/ Sales |
| Growth (GRO) | Change in growth of a firm | changes in total Asset |
| Dividend payout (DPO) | Change in dividend payout | Dividend per share/Earning per share |
| Liquidity (L) | Change in liquidity of a firm | Current assets/ Current liability |
| Tangibility (TAN) | Change in tangibility of the firm | Book value of fixed assets/ Total assets |

**Data Analysis and Interpretation**

**Table 2 Descriptive statistics**

| | N | Minimum | Maximum | Mean | Std. Deviation |
|---|---|---|---|---|---|
| SIZE | 50 | .57 | 1.71 | 1.1613 | .21692 |
| PROFIT | 50 | .01 | 1.25 | .2634 | .26591 |
| GROWTH | 50 | -.03 | .78 | .1691 | .12361 |
| DIVIDEND | 50 | .17 | 1.33 | .5575 | .24891 |
| LIQUIDITY | 50 | .28 | 2.50 | 1.0568 | .50084 |
| TANGIBILITY | 50 | .22 | .82 | .5291 | .17266 |
| L.DEBT | 50 | .02 | .71 | .1915 | .15975 |
| Valid N (listwise) | 50 | | | | |

Source: SPSS Output

Table 2 indicates that the mean size of the firm is 1.1613 and maximum is 1.71 while the minimum is 0.57.The average rate of profitability is 26.34 percent and maximum profitability is 125 percent from Cargills(Ceylon)PLC in 2014/2015 period while minimum profitability is 1 percent from Sri LankaTelecom in 2013/2014 period. The mean growth is 17.01 percent and maximum growth is 78 percent of Asiri Hospital Holding in 2006/2007 period while minimum growth is -3 percent from Cargills(Ceylon)PLC in 2014/2015 period.

The mean rate of dividend payout ratio is 0.5577 and the maximum dividend payout ratio is 1.33 from Singer Sri Lanka PLC ltd in 2009/2010 period while the minimum dividend payout ratio is 0.17 from Royal Ceramics Lanka PLC in 2005/2006 period. The mean rate of liquidity is 1.0568 and maximum liquidity is 2.50 from Sri Lanka Telecomto 2006/2007 period while minimum liquidity is 0.28 from Asiri Hospital Holding to 2009/2010 period. The mean rate of tangibility is 52.91 percent and maximum tangibility is 82 percent from Singer Sri Lanka PLC ltd in 2013/2014 period while minimum tangibility is 22 percent from Sri LankaTelecom in 2008/2009 period. The companies have an average mean of long term debt 16.71 percent and maximum long term debt is 71percent and the minimum is 2 percent in any of the year in the study period.

**Table 3 Correlation Analysis**

| | Size | Profit | Dividend payout | Liquidity | Growth | Tangibility | L.debt |
|---|---|---|---|---|---|---|---|
| Size | 1 | -.303* | -.259 | -.219 | .048 | .187 | .962** |
| Profit | -.303* | 1 | -.098 | -.100 | -.129 | -.262 | -.288* |
| Dividend | -.259 | -.098 | 1 | .132 | .152 | .209 | .303* |
| Liquidity | -.219 | -.100 | .132 | 1 | .080 | -.102 | -.206 |
| Growth | .048 | -.129 | .152 | .080 | 1 | -.029 | .026 |
| Tangibility | .187 | -.262 | .209 | -.102 | -.029 | 1 | .150 |
| L.Debt | .962** | -.288* | -.303* | -.206 | .026 | .150 | 1 |

Source:

SPSS output

The above mentioned table 3 indicates the relationship between the various independent and dependent variable used in the study. As it is observed in the table, the correlation values were found to be mixed (both positive and negative) between the variables.The result indicatesthat there is a strong and positive correlation between firm size and long term debt (r=0.962).This support the hypothesis that there is a relationship between firm size and leverage. There is a low and a negative correlation between profitability and long term debt (r=0-.288), supporting that there is a relationship between profitability and leverage.There is a positive correlation between dividend payout and long term debt (r= 0.303), supporting that there is arelationship between dividend payout and leverage. A low and negative correlation exists between liquidity and long term debt (r=-0.206). This supports the hypothesis that there is arelationship between liquidity and leverage. There was a weak positive correlation between growth and long term debt (r=0.26), Supporting that there is a significant relationship between growth and leverage. A low positive correlation exists between tangibility and long term debt(r=0.150), supporting that there is a relationship between tangibility and leverage.

Regression analysis is used to test the determinants of capital structure of the companies in different sector in CSE. It is a useful technique that can be used to analyze the relationship between independent and dependent variables. Durbin-Watson test carried out to check the auto correlation among the independent variables. The Durbin-Watson statistic range in value near 2 indicates non-autocorrelation. The model has the value is 2.217. This indicates that there is no auto correlation.

The model explains the R Square value of 0.930, which indicates that 93% of the observed variability in LTD is explained by the independent variable of firm size, profitability, growth, dividend payout, liquidity and tangibility. Further finding reveals that other factors have 7% impact on trading, beverage, food and tobacco, health, manufacturing and telecommunication sectors in the CSE in Sri Lanka.An examination of the model summary in conjunction with ANOVA (F–value, 95%) indicates that the model explains the most possible combination of predictor variables that could contribute to the relationship with the dependent variable. The model indicates the significant combination of selected variables which is statistically significant at the 5 % level of significance.

**Table 4Coefficient Analysis of Determinants of Capital Structure**

| Model | | Unstandardized Coefficients | | Standardized Coefficients | | |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | t | Sig. |
| 1 | (Constant) | -.905 | .074 | | -12.230 | .000 |
| | Size | .958 | .047 | .952 | 20.443 | .000 |
| | Profit | -.003 | .012 | -.011 | -.237 | .014 |
| | Growth | -.025 | .074 | -.014 | -.341 | .005 |
| | Dividend | -.045 | .039 | -.052 | -1.159 | .063 |
| | Liquidity | .003 | .019 | .008 | .178 | .050 |
| | Tangibility | .024 | .056 | -.019 | -.440 | .062 |
| | R | .964 | | | | |
| | R square | .930 | | | | |
| Adjusted | R square | .920 | | | | |
| | F | 95.008 | | | | .000 |
| N= | | | | Durbin-Watson = 2.217 | | |

Dependent Variable: L.DEBT

Source: SPSS Output

To identify the impact of the determinants and its capital structure discussed data from the regression model coefficientmatrix. The regression model coefficient matrix contain essential information for interpreting regression analysis. Here elaborate significance of the individual variables. Based on that regression model was estimated equation is shown below.

***CS =-0.905+ 0.958SIZ-0.003PRO-0.025GRO-0.045DPO+ 0.003L+ 0.024TAN+e***

This multiple linear regression equation shows that ß equals to,0.958, -0.003,-0.025, -0.045,0.003,-0.024 which indicates the slope of the regression line, which simply indicates that there is a significant impact of firm size, profitability, growth and liquidity since the significant value is 0.000, 0.014, 0.005, 0.050 respectively which is less than 0.05 and dividend payout and tangibility is insignificant at 5% level. There for the findings revealed that size, profitability, growth and liquidity have high significant impact on LTD than dividend payout and tangibility in trading, beverage, food and tobacco, health, manufacturing and telecommunication sectors in the CSE in Sri Lanka.

Multiple linear regression equation shows that beta value of firm size is 0.958 which The Capital Structure decision is essential for the every organization to maximize their return and compete with changing business environment to sustain competitive advantages. evel long term debt will change by 3%.Dividend payout and tangibility is insignificant at 5% level.

**Conclusion and Recommendation**

Capital Structure and their determinants have been one of the primary subjects of research in corporate finance. The findings of this study contribute towards a better understanding of capital structure decisions top companies in the Sri Lankan context. The objective of this study is to find out the significance determinants of capital structure of listed companies in Sri Lanka. The findings are based on collecting data from sample of five listed companies in Sri Lankan stock market for the period of 2006-2015.

A positive relationship between company size, as measured by the total assets of the firm, and leverage is found in the 2006 to 2015. This result is consistent with the results of the majority of other empirical studies. The model explains around 93% of variation in financial leverage. The incorporated variables except dividend payout and tangibility have significant effect on the leverage. This study investigated the determinants of leverage in Sri Lanka using a sample of 5 firms listed in Colombo Stock Exchange.

As per results of this study firm size, growth, dividend payout and tangibility have positive relationship with leverage while profitability and liquidity have negative relationship with leverage. It is evident from the study that out of six explanatory variables such as size, growth, profitability, liquidity, tangibility and dividend payout, four- size, profitability, liquidity and growth are statistically significant determinants of capital structure in CSE in Sri Lanka. These facts conclude that firm size, profitability, growth rate and liquidity play a major role in determination of the financial leverage in Sri Lankan firms; and dividend payout and tangibility do dismal role.

Capital structure choice is essential for every organization to maximize return as well as sustain competitive advantages since it directly influenced to cost of capital in the firm. According to this study size, profit, liquidity and growth were significant determinants to determine capital structure of companies in CSE. So when determining capital structure if the companies concern those determinants, they able to obtained competitive advantages rather than existing rivals. Thus when take decision, whether add equity or debt, these industries have to consider impact coming from discussed determinants.The result of this study will contribute to the all level of management to make their financial decisions. And also this study provides a valuable knowledge about broad comparison of the capital structure determinants of different companies in the growing market. This study will contribute to improvement of the managerial capacities of all industries by exploring about different financing sources available for them to continue their planned activities.Further finding of this study revealed that determinants of capital structure which were taken in this study firm size, profitability, growth, dividend pay-out and tangibility. Therefore the future researchers can take more factors in their study.

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