



Capital structure and investment growth: A case study of listed manufacturing companies in Sri Lanka

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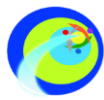
Abstract

The study aims to investigate the impact of firm capital structure on the investment growth of listed manufacturing firms in Sri Lanka. The data was gathered by using secondary sources and the sample is confined to the manufacturing sector consists of 27 firms listed in the Colombo Stock Exchange using a random sampling method, whereas Pearson's correlation and multiple regression analysis were employed to analyse the data for the period of 2012 to 2018. The independent variable, capital structure, is measured by short-term debt, long-term debt and total debt, whereas the dependent variable is investment growth. The results reveal that firm capital structure has a strong and significant influence on listed manufacturing firms' investment growth in Sri Lanka. Further, it shows that short-term debt and long-term debt were found to have a significant and positive impact on investment growth while control variables of profitability and firm size have no significant impact on the investment growth of listed manufacturing firms in Sri Lanka. The study recommends that the management of listed manufacturing firms increase the level at which the organization uses long-term debt or short-term debt to finance its business activities. This may increase the investment opportunity potentials of the organizations. Few studies have addressed this area in the Sri Lankan economy.

Keywords: investment growth, long term debt, short term debt and total debt

Introduction

Capital structure is the mixture of debt and equity that a firm uses to fund its operations and expansions (Abor, 2005). It has a significant part in the firm's financial operations. Every business can combine debt and equity in various ways to maximize ordinary shareholder capital. There are many forms of debt and equity, including common shares, preferential securities, derivatives, preferred shares. Therefore, in various configurations, the companies collect the debt and equity financing as they need to consider the right mix to reduce the weighted average cost of capital and meet the management goal to increase the business value. Then businesses will seek to establish the optimum capital structure that allows the company's profitability to be maximized. However, no strict theory to decide the exact optimal capital structure has yet been established (Safeena & Hassan, 2015). So, it is about managers recognizing those variables affecting capital structure decisions

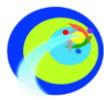


from which they will profit from having an optimum balance of debt and equity to increase the business's value. Capital structure theorists assume that the company's management with appropriate investment prospects will prefer lower leverage because if they raise their external obligations, they cannot take advantage of the gains of their investment opportunities. A negative relationship is thereby established between future growth and leverage since lower leverage would be preferred by managers of businesses with strong growth prospects (Noraversh & Yazdani, 2010).

With the past studies related to capital structure and investment growth, the results are inconclusive. Under the capital structure and investment growth Mcconnel (1995), Lang, Ofek and Stulz (1996), Rajan and Zingales (1995), Barclay and Smith (1999), and Graham (2000) have found negative relationship. Also Degryse, Goeji and Kappert (2012), Bearse, Carol and De Jong (2008), De Bie and De Haan (2007) have found a positive relationship while Jong and Dijk (2007) stated that there is no relationship between capital structure and investment growth. As a developing country, Sri Lanka has become an emerging market with many investment opportunities that draw interest from investors and managers to think about the factors driving of debt use and its level of control on firms. This study helps firms to understand how capital structure influences the investment growth opportunities in the context of Sri Lanka. The study's objective is to investigate the impact of capital structure on investment growth opportunities of the listed manufacturing companies in Sri Lanka.

Literature Review

Over the past century, the problem of capital structure and the firm leverage was frequently debated in finance. Beginning with Modigliani and Miller's (MM's) theory on the irrelevance of capital structure, researchers introduced numerous models and hypotheses defining ideal capital structures and discussing companies' choices capital structure and its importance and impact on the investment growth opportunities. Vijayakumarn (2019) noticed a negative connection between the opportunities for growth and leverage. Furthermore, the proportion of short-term debt mitigates the adverse impact of growth opportunities on leverage affecting the leverage adversely. Lupi, Myint and Tsomocos (2017) found that the company's leverage impacts its capacity to capture investment prospects in an environment where those opportunities are rare. Companies with too high leverage, have limited ability to spend. Reducing cash flow uncertainty through hedging typically strengthens investment capacity.



Hassan and Aitimon (2017) revealed that short-term debt and total debt have a significant negative correlation with Listed Pharmaceutical firms' investment growth in Nigeria and long-term debt has no relationship on investment growth opportunities. Wagenvoort (2016) claimed that a company's growth prospects would decide how capital is organized. The Trade-off theory argues that high growth firms are subject to increasing bankruptcy costs, which suggests a negative association (Baskin, 1989). Preferring debt over equity in the power of the Pecking Order system would rise with opportunities for development suggesting a favourable connection. Dasgupta and Sengupta (2002) show that companies with strong external investment prospects appear to spend more on maintaining their debt potential and financial slackness or liquidity with these firms holding low leverage. Myers (1977) states that more equity can be used to fund businesses that are seeing strong growth. Rajan and Zingales (1995) notice that businesses with a more excellent market-to-book ratio face higher financial risk costs, which contributes to a negative leverage relationship. In view of the negative association between growth opportunities and leverage, Fama and French (2002) make the same claim that businesses with strong investment prospects do not consider debt as a concern while pursuing fund to invest such plans.

Billett, King and Mauer (2007) conclude that while growth opportunities directly negatively impact the leverage, there is a positive relationship between leverage and growth opportunities due to protection by the covenant. Lucas and McDonald (1990) suggest that managers prefer to postpone equity problems optimally until they have an investment opportunity that allows their stock price to increase or surpass its true worth. Since executives have internal knowledge regarding the importance of their product, they may do so.

Methodology

This study's sample is confined to the manufacturing sector consists of 27 manufacturing companies out of 41 listed in the Colombo Stock Exchange (CSE) using a random sampling method. The secondary data is collected from audited financial statements of listed manufacturing companies in CSE and the study covers seven years between 2012 and 2018. Information extracted from financial statements is fully audited and therefore, data are considered reliable. The following measurements of the variables in this study are as follows.

- Investment Growth = Market value of equity / Book value of equity
- Short term debt = Short term debt / Total assets
- Long term debt = Long term debt / Total assets
- Total debt = Total debt / Total assets



- Profitability (ROA) = Profit after tax / Total assets
- Firm size = Log of total assets.

Conceptual Model

The following conceptual model was developed to represent the relationship between firm capital structure and investment growth. The firm capital structure, consists of short-term debt, long-term debt and total debt.

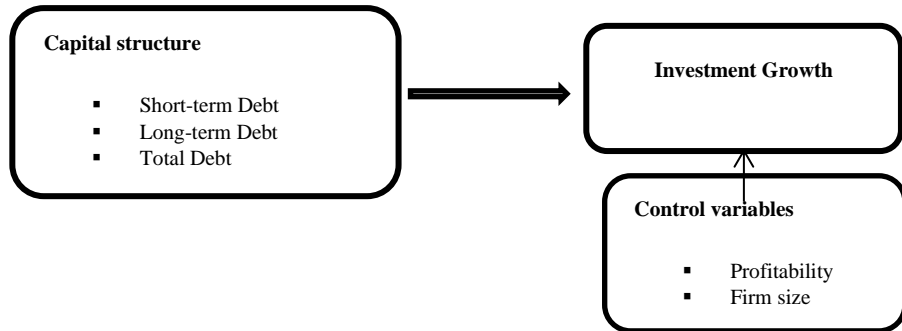


Fig 1. Conceptual Framework

To examine the extent to which capital structure impacts on investment growth, the study estimates the following panel data regression model that links capital structure with investment growth.

$$IGO_{it} = \beta_0 + \beta_1SD_{it} + \beta_2LD_{it} + \beta_3TD_{it} + \beta_4PRFT_{it} + \beta_5FSZ_{it} + \varepsilon_{it}$$

Where, IGO – Investment Growth; SD –Short term Debt; LD – Long term Debt; TD – Total Debt; PRFT – Profitability; FSZ –Firm size; ε – Error; i - Firms; t Years

Hypotheses of the study

- H₁: Short term debt significantly impacts the investment growth.
- H₂: Long term debt significantly impacts the investment growth.
- H₃: Total debt significantly impacts the investment growth

Results and Discussions

Table 1. Descriptive statistics

	Short term debt	Long term debt	Total debt	Profitability	Firm size	Investment growth
Mean	0.301	0.103	0.404	0.065	9.425	48.393
Median	0.274	0.065	0.407	0.059	9.299	4.092
Maximum	0.758	0.804	0.933	0.565	11.564	1599.900
Minimum	0.001	0.002	0.033	-0.244	8.273	0.087
Std. Dev.	0.162	0.116	0.176	0.097	0.620	234.872

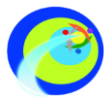


Table 1 presents descriptive statistics for the variables used in this study. The pooled mean and median of investment growth are 48.393 and 4.092 respectively. The pooled mean and median of short-term debt are 0.301 and 0.274 respectively whereas the average of long-term debt is 0.103 with the median of 0.065. The average of total debt is 0.404 (the median is 0.407). With respect to the control variables included in the model, the firms' average profitability is given by 0.065 and average firm size is 9.425.

Table 2. Correlation Matrix

Probability	Short term debt	Long term debt	Total debt	Profitability	Firm size	Investment growth
Short termdebt	1.000					
Long term debt	-0.2305	1.000				
	0.0014	----				
Total debt	0.7684	0.4455	1.000			
	0.0000	0.0000	----			
Profitability	-0.2672	-0.0052	-0.2493	1.000		
	0.0002	0.9427	0.0005	----		
Firm size	-0.1521	0.1215	-0.0600	-0.1618	1.000	
	0.0366	0.0957	0.4118	0.0260	----	
Investment growth	0.3779	-0.0561	0.310808	-0.1405	-0.1272	1.000
	0.0000	0.4429	0.0000	0.0538	0.0810	----

Table 2 reports the Pearson correlation coefficients between the variables. To find out the relationship among the variables, correlation analysis was carried out. The short-term debt ($r=0.3779$) and the total debt ($r=0.310808$) show a significant positive relationship with investment growth opportunities at 0.01 significant level while there is no significant relationship between the long term debt and investment growth opportunities. In the case of control variables, both the profitability and firm size are not significantly correlated with the investment growth opportunities at 0.05 levels.

Table 3. Regression

Variables	Coefficient	Std. Error	t-Statistic	Prob.
Constant	-324.5176	302.4634	-1.072915	0.2847
Total debt	-562.0519	171.6670	-3.274083	0.0013
Short term debt	1252.970	247.4280	5.063980	0.0000
Long term debt	782.0858	256.9101	3.044200	0.0027
Firm size	-34.67169	26.01156	-1.332934	0.1842
Profitability	-158.8076	170.9798	-0.928809	0.3542
R-squared	0.199267		Mean dependent var	48.39273
Adjusted R-squared	0.177389		S.D. dependent var	234.8722
F-statistic	9.108116		Durbin-Watson stat	0.468745
Prob(F-statistic)	0.000000			



As observed in table 3, the R-squared value implies that 19.92 % of total variations of investment growth can be explained by firm capital structure and control variables such as profitability and firm size and the remaining 80.08 % of the variation is not explained in this model. The table shows that the F-statistics indicates the value of 9.108116 ($p < 0.05$), which indicates that the model perfectly fits for the study. Further the results show that total debt has a coefficient of -562.0519 with t statistics of -3.274083 and a p-value of 0.0013. Thus, it can be stated that there is a significant negative impact of total debt on investment growth opportunities. Hence H_3 is accepted. This finding collaborates with previous studies such as Vijayakumarn (2019), Hassan and Aitimon (2017), Myers (1977) Rajan and Zingales (1995) Short term debt has a coefficient of 1252.970 with t-statics of 5.063980 and a p-value of 0.0000. Short term debt has a significant positive impact on investment growth. So H_1 is accepted. Long term debt has a coefficient of 782.0858 with t statistics of 3.044200 and p-value of 0.0027. Long term debt has a significant positive impact on investment growth. Therefore, H_2 is accepted.

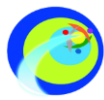
Conclusions

Short-term debt was found to have a significant, positive and strong effect on the investment growth of listed manufacturing firms in Sri Lanka. Therefore, it is concluded that any firm with a short-term debt is likely to increase investment growth. Long-term debt also has significant positive influence on the investment growth of listed manufacturing firms. Therefore, it is concluded that any highly levered firm is likely to have positive significant changes in their investment growth. Because higher financial leverage, businesses adjust their investment decisions. Companies with more massive growth opportunities are spending more than other businesses. Besides, total debt has a significant negative impact on listed manufacturing firms' investment growth in Sri Lankabecause a bigger leveraged company may have a higher risk of missing attractive investment prospects. The study's findings indicate that capital structure has a strong and significant influence on the investment growth of listed manufacturing firms in Sri Lanka. The study contributes to the literature on investment growth and capital structure by the authors providing evidence from Sri Lanka, a developing country that has not been explored. It shows how Sri Lankan firms' conservative capital structure, which have been reported to be rising, is impacting investment growth.



References

- Abor, J. (2005). The effect of capital structure on profitability: An empirical analysis of listed firms in Ghana. *The Journal of Risk Finance*, 438-445.
- Baskin, J. (1989). An empirical investigation of the pecking order hypothesis. *Financial management*, 26-35.
- Barclay, M. J., & Smith Jr, C. W. (1999). The capital structure puzzle: another look at the evidence. *Journal of Applied Corporate Finance*, 12(1), 8-20.
- Billett, M. T., King, T. H. D., & Mauer, D. C. (2007). Growth opportunities and the choice of leverage, debt maturity, and covenants. *The Journal of Finance*, 62(2), 697-730.
- Dasgupta, P., & Sengupta, K. (2002). E-commerce in the Indian insurance industry: Prospects and future. *Electronic Commerce Research*, 2(1-2), 43-60.
- De Bie, T., & De Haan, L. (2007). Market timing and capital structure: Evidence for Dutch firms. *De Economist*, 155(2), 183-206.
- De Jong, E. J. & Bearnse, C., (2008). Cultural and linguistic investment: Adolescents in a secondary two-way immersion program. *Equity & Excellence in Education*, 41(3), 325-340.
- De Jong, A., & Van Dijk, R. (2007). Determinants of leverage and agency problems: A regression approach with survey data. *The European Journal of Finance*, 13(6), 565-593.
- Degryse, H., de Goeij, P., & Kappert, P. (2012). The impact of firm and industry characteristics on small firms' capital structure. *Small Business Economics*, 38(4), 431-447.
- Fama, E. F., & French, K. R. (2002). Testing trade-off and pecking order predictions about dividends and debt. *The Review of Financial Studies*, 15(1), 1-33.
- Graham, J. R. (2000). How big are the tax benefits of debt?. *The Journal of Finance*, 55(5), 1901-1941.
- Hassan, S. U., & Aitimon, J. (2017). Capital Structure and Investment Growth of Listed Pharmaceutical Firms in Nigeria. *Asian Business Research*, 2(1), 50.
- Lang, L., Ofek, E., & Stulz, R. (1996). Leverage, investment, and firm growth. *Journal of Financial Economics*, 40(1), 3-29.
- Lucas, D. J., & McDonald, R. L. (1990). Equity issues and stock price dynamics. *The Journal of Finance*, 45(4), 1019-1043.
- Lupi, A., Myint, S., & Tsomocos, D. P. (2017). How investment opportunities impact optimal capital structure. *Saïd Business School WP*, 6.



- Mcconnel, R. K., & Blau, H. H. (1995). Colour classification of non-uniform baked and roasted foods. *Proc. Food Processing Automation*, 4, 40-46.
- Myers, S. C. (1977). Determinants of corporate borrowing. *Journal of Financial Economics*, 5(2), 147-175.
- Noravesh, I., & Yazdani, S. (2010). The survey of the effect of financial leverage on investment in listed companies in the Tehran Stock Exchange. *Journal of Financial Accounting Research*, 2(2), 35-48.
- Rajan, R. G., & Zingales, L. (1995). What do we know about capital structure? Some evidence from international data. *The journal of Finance*, 50(5), 1421-1460.
- Safeena, S. & Hassan, M.G. (2015). Factors determining capital structure: an analysis of listed companies In the Colombo Stock Exchange in Sri Lanka. 5th International Symposium 2015, South Eastern University of Sri Lanka.
- Vijayakumaran, S., & Vijayakumaran, R. (2019). Corporate governance and capital structure decisions: Evidence from Chinese listed companies.
- Wagenvoort, M. L. J. (2016). The firm specific determinants of capital structure and the influence of the financial crisis: Evidence from Dutch firms (Bachelor's thesis, University of Twente).