



EFFECTS OF CAPITAL STRUCTURE ON FIRMS' FINANCIAL PERFORMANCE: EVIDENCE FROM LISTED PLANTATION COMPANIES OF COLOMBO STOCK EXCHANGE (CSE) IN SRI LANKA

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Abstract

Capital structure decisions are important in achieving the performance of firms. These decisions affect the firms' cost of capital, capital budgeting decisions, and firm value. Financing decisions are one of the most critical areas for finance managers. It has a direct impact on capital structure and financial performance of the companies. It has always been an area for interest for researchers to understand the relationship between capital structure and financial performance of the company. This paper investigates the impact of capital structure on financial performance based on the data concerning nine (09) listed plantation companies in Sri Lanka during the five year period ranging from 2007 to 2011. The study measures financial performance in terms of Return on Equity (ROE) and Earning Per Share (EPS) where as capital structure is measured in terms of Debt to Equity Ratio (DER), Total Debt Ratio (TDR) and Debt to Total Assets (DTA). Based on the Regression Analysis, the study indicates that ROE and EPS have been positively affected by the capital structure and considering the R² values, capital structure variables; TDR, DER and DTA affect to the firms' financial performance between 15% - 30%. Therefore, the financial managers should make trustful decisions concerning the capital structure changes.

Keywords: Financial Performance, Capital Structure, Colombo Stock Exchange, Plantation Companies

1. Introduction

Capital structure is one of the most puzzling issues in corporate finance literature (Velnampy & Niresh, 2012 Brounen & Eichholtz, 2001). This is a general combination of debt & equity that composite the total capital of firms. The proportion of debt to equity is a strategic choice of corporate managers (Velnampy & Niresh 2012). Capital structure decision can be considered as an utmost since the profitability of an enterprise is directly affected by such decision. The financial managers of firms should keep promulgate attention in time on determining capital structure decision. The capital is a vital part of the balance sheet as it represents all kinds of assets, liabilities and capital. The term “capital structure” of an enterprise is actually a combination of equity shares, preference shares and long-term debts. Also, the financial managers should give an utmost care in case of the optimum capital structure is concerned. The firms have to be systematically formulated

the capital structure mix unless they may fail to economize the use of their funds. As a result, it is being increasingly realized that a company should plan its capital structure to maximize the use of funds and to be able to adapt more easily to the changing conditions in order to achieve the firms goals and objectives. In Sri Lanka, the plantation sector is most important and landmark of existing business environment from the late British colonial period in 1796 to 1948, and they have been engaging in financial investment and mobilization to ensure efficient and proud marketable production sector in our economy. An ultimate goal of a firm is the maximization of wealth or value of that firm (Miller & Modigliani, 1958, 1963; Miller, 1977). The relationship between capital structure and profitability has been the subject of remarkable milestone over the past decade throughout the irrelevance theory. In the seminal article, presented by MM's (1958) irrelevance theory, they argued that capital structure is unrelated to firm's value. In the presence of corporate income tax and the cost of capital in MM's (1963) they argued that the market value of the firm is positively related to the amount of long term debt used in its capital structure. The relationship between capital structure and firm's financial performance is one that received considerable attention in the finance literature. This research regarding the effects of capital structure on firm's financial performance will help us to know adhering in firm's financial performance and capital structure. The modern industrial firm must conduct its business in a highly complex and competitive business environment. Therefore, these types of research findings will be benefited in selecting the optimum capital structure to achieve the optimum level of firm's profitability with considering proper level of capital intensity, tangibility, firm size and non-debt tax shield etc. This study shows the statistical analysis carried out seeking to discover is there any impact between capital structure and firms financial performance of the listed plantation sector companies. This study seeks to provide answer to the question, "does capital structure affects firms' financial performance of firms?" Data of nine Plantation companies listed on the Colombo Stock Exchange (CSE) between 2007 and 2011, representing 35 firm year observations would be used for the study. The rest of the paper is organized as follows: Section two provides the literature review on capital structure and firms' performance. Section three formulates the research problem. The research objectives, hypothesis and research design / methods are presented in section four, five and six respectively. Section seven discusses the data analysis and discussion. Lastly, section eight concludes the study with recommendations for future research.

2. Literature Review

Capital structure is the firm's financial framework of the debt and equity used to finance the firm. Capital structure is one of the popular topics among the scholars in finance field. First, the proposition by Modigliani and Miller (1958) theorem submitted that firms in a given risk class would have the same applicable discount rate, differing based on "scale factor" only and would be unaffected by financial gearing (Weston & Copeland, 1998). However, the arguments made by Brigham and Gapenski (1996), an optimal capital structure can be attained. If there is exist a tax sheltering benefits provided an increase in debt level is equal to the bankruptcy costs.

They further indicated that the manager of the firm should be able to identify when the optimal capital structure is attained and try to maintain it at that level. This is the point at which the financing costs and the cost of capital (WACC) are minimized, thereby increasing firm value and performance. According to Onadopo & Kohoto (2010) in research done by selecting thirty listed non- financial firms in Nigeria from 2001 to 2007, there is a negative and significant relationship between asset tangibility as a determinant of capital structure and Return On Assets (ROA) as a measure of performance in the two models. The implication of this is that the sampled firms were not able to utilize the fixed asset composition of their total assets judiciously to impact positively on their firms' performance. However, it provides evidence that asset

tangibility is a major determinant of firm's performance. Meanwhile, Saeedi and mahmoodi (2011) revealed that there is a negative relationship, between capital structure and ROA and there is no significant relationship between ROE and capital structure. Altogether, this study provides evidence that indicates capital structure is positively or even negatively related to firms' performance. This research was conducted by selecting a sample of 320 listed companies in the Tehran Stock Exchange (TSE) over the period 2002-2009. Gupta, Srivastava & Sharma in their research on capital structure and financial performance by selecting 100 companies listed on National Stock Exchange (NSE) of India from 2006-2010 strongly pointed out that the Financing decisions are one of the most critical areas for firms' finance managers. The capital structure is directly affected for the firms' financial performance. In this research, they used definition of capital structure in scope of book value to market value and measures were assumed for financial performance. In this paper, they have ultimately found that the capital structure influences financial performance. The significance of the influence of capital structure on performance is respectively belonged to measures of adjusted value, market value and book value. Even though, the results of a research conducted by Norvaisiene and Stankeviciene (2012) in their studies of the relationship of corporate governance decision on capital structure and business performance: evidence from Lithuanian food & beverages industries companies in 2005 2010 confirmed that the selected indicators such as ROC, ROE, ROA, EPS, OPM and NPM are negatively correlated with the companies' performance. They also concluded that the firms' efficiency is related to debt level to a large extent Moreover, the capital raised in this way did not condition more effective performance and is not associated with the implementation of fast-track, profitable projects, that would allow these companies to ensure the growth of performance efficiency. Simultaneously, Pratheepkanth (2012) found that the capital structure is most significant discipline of company's operations in his research by selecting 30 listed companies of CSE from 2005 – 2009 to identify the impact between capital structure and companies performance, taking into consideration the level of companies' financial performance. The results indicated that the relationship between the capital structure (Debt to Equity) and financial performance (Gross Profit, Net Profit, ROA, ROI/ROCE) is negative. In trying to determine the firms' financial performance in Sri Lanka, the capital structure is strongly affected to firms' operational performance so that the field of capital structure is to help decision makers pay more attention to the relevant activities that exert potential and strong impact on their operating performance. The expected contribution of this research to the business filed is to provide a comprehensive mechanism for evaluating operating performance and to fill an important gap in literature.

3. Research Problem

Given the importance of the capital structure into firms' performance in the literature review and sector set of data, the financial managers should purely consider taking optimal capital structure decisions in order to achieve the business results thereby maximizing the profitability of the firm. Therefore, it is vehemently emphasized that the Financing decisions are one of the most critical areas for finance managers. The impact of such decisions has a direct impact on capital structure and firms' financial performance. Hence, this topic has always been an area for interest for researchers to understand the relationship between capital structure and financial performance. Even though the plantation sector is a predominant business sector since the colonial period and the importance on financial management is vital for their stand of business performance. But, it is very difficult to find out the direct literature or any empirical research/study performed to show the capital structure and financial performance in plantation sector in Sri Lanka or abroad. Therefore, the research problem is formulated as.

“Does the capital structure affect the firm’s financial performance of the Sri Lankan Listed Plantation Companies?”

There are two following objectives to achieve the above research problem;

- To understand the relationship between capital structure and financial performance.
- To investigate the effects of different components of capital structure on firms financial performance of Sri Lankan listed plantation companies.

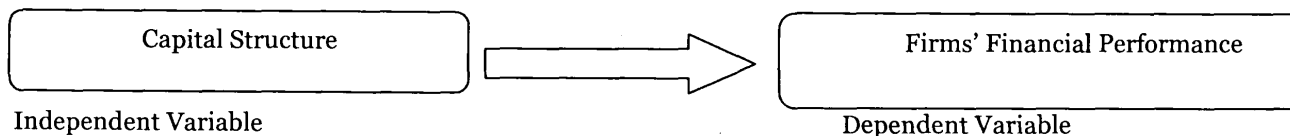
4. Research Design and Methods

The data was collected from nine (09) listed plantation companies in CSE, Sri Lanka for the period of 2007 to 2011 and consisting 45 observations. Secondary data was extracted from the statutory financial statements of the selected companies. To investigate the relationship that may exists between the capital structure and the firms’ financial performance, the following hypothesis was formulated in this research are as follows;

- H1: There is a positive relationship between the TDR and the ROE.
- H2: There is a negative relationship between the TDR and the ROE
- H3: There is a positive relationship between the TDR and the EPS.
- H4: There is a negative relationship between the TDR and the EPS.
- H5: There is a Positive relationship between the DER and the ROE.
- H6: There is a negative relationship between the DER and the ROE.
- H7: There is a positive relationship between the DER and the EPS.
- H8: There is a negative relationship between the DER and the EPS.
- H9: There is a Positive relationship between the DTA and the ROE.
- H10: There is a negative relationship between the DTA and the ROE.
- H11: There is a Positive relationship between the DTA and the EPS.
- H12: There is a negative relationship between the DTA and the EPS.

Accordingly the conceptual framework is prepared as follows.

Figure 1: Conceptual Model



In this conceptual frame work, the independent variable “capital structure” is measured by three indicators; Total Debt Ratio (TRD), Debt to Equity Ratio (DER) and Debt to Total Assets Ratio (DTA) where as the dependent variable firms’ financial performance is measured by two indicators; Return on Equity (ROE) and Earnings per Share (EPS). Specially, for the purpose of streamlining the analysis, the researchers used two control variables; Firm Size (SIZE) and Economic Growth Rate (EGR).

The following two data analysis models have been formulated in order to analysis the relationship between capital structure and firs’ financial performance.

$$ROE = \alpha + \beta_1 TDR_{it} + \beta_2 DER_{it} + \beta_3 DTA_{it} + \beta_4 SIZE_{it} + \beta_5 EGR_t + \epsilon$$

$$\text{EPS} = \alpha + \beta_1 \text{TDR}_{it} + \beta_2 \text{DER}_{it} + \beta_3 \text{DTA}_{it} + \beta_4 \text{SIZE}_{it} + \beta_5 \text{EGR}_t + \epsilon$$

Where α , is constant, $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$ are coefficients of variables.

ROE = Profit after Tax / Equity Capital

EPS = Earnings per Share

TDR = Non Current Liabilities / (Total Equity + Non-Current Liabilities)

DER = Non Current Liabilities / Total Equity

DTA = Non Current Liabilities / Total Assets

SIZE = Log of Total Assets

EGR = Economic Growth Rate of the Country

ϵ is residual term, i is the company and t is time.

5. Data Analysis and Discussion

The multiple regression analysis is applied to identify the effect of capital structure on the firms' financial performance of the listed plantation companies at the Colombo Stock Exchange in Sri Lanka.

According to the above formulated data analysis models, the results are explained under 5.1 and 5.2

5.1 Regression Model 01

The regression coefficients for ROE are expressed according to the above designed regression model as in table 1 below.

Table 1: Regression Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients Beta	t	Sig.
	B	Std. Error			
Constant	-1.349	0.703			-1.918
	0.062				
TDR	1.603	1.976	0.438		0.812
	0.422				
DER	-0.318	0.256	-0.597		-1.244
	0.221				
DTA	0.613	1.146	0.120		0.535
	0.596				
SIZE	6.344	2.738	0.389		2.317
	0.026				
EGR	0.039	0.043	0.122		0.897
	0.375				

a. Dependent Variable: ROE

Therefore on the basis of the results shown above, the regression coefficients for capital structure in relation to firms' financial performance can be expressed as;

$$\text{ROE} = -1.349 + 1.603 (\text{TDR}) - 0.318 (\text{DER}) + 0.613 (\text{DTA}) + 6.344 (\text{SIZE}) + 0.039 (\text{EGR}) + e$$

The above algebraic results predict the acceptance of hypotheses H1, H6 and H9 where as the hypotheses H2, H5 and H10 have been rejected. In this connection, it is to conclude that the capital structure variables; TDR and DTA affect positively to the firms financial performance and DER affects negatively to the firms' financial performance.

Table 2: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.538	0.290	0.198	0.41780

a. Predictors: (Constant), TDR, DER, DTA, SIZE, EGR

The model summary showed that there is a high relationship among dependent and independent variables. Moreover the R square value given that variation among variables shown by the model is not due to chance and about 29% of the changes in ROE are explained by the changes in capital structure of the firm and other 73% of the changes are due to the other factors.

5.1 Regression Model 02

The regression coefficients for EPS are expressed according to the above designed regression model as in table 1 below.

Table 3: Regression Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients Beta	t Sig.
	B	Std. Error		
Constant	-9.584	9.354		-1.025
TDR	17.263	26.282	0.371	0.657
DER	-4.248	3.402	-0.628	-1.249
DTA	7.118	15.248	0.110	0.467
SIZE	54.308	36.430	0.262	1.491
EGR	0.142	0.573	0.035	0.248

a. Dependent Variable: EPS

Therefore on the basis of the results shown above, the regression coefficients for capital structure in relation to firms' financial performance can be expressed as;

$$\text{EPS} = -9.584 + 17.263 (\text{TDR}) - 4.248 (\text{DER}) + 7.118 (\text{DTA}) + 54.308 (\text{SIZE}) + 0.142 (\text{EGR}) + e$$

The above algebraic results predict the acceptance of hypotheses H₃, H₈ and H₁₁ where as the hypotheses H₄, H₇ and H₁₂ have been rejected. In this connection, it is to conclude that the capital structure variables; TDR, and DTA affect positively to the firms' financial performance and DER affects negatively to the firms' financial performance.

Table 4: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.470	0.220	0.120	0.555835

a. Predictors: (Constant), TDR, DER, DTA, SIZE, EGR

The model summary showed that there is a high relationship among dependent and independent variables. Moreover the R square value given that variation among variables shown by the model is not due to chance and about 22% of the changes in EPS are explained by the changes in capital structure of the firm and other 78% of the changes are due to the other factors.

With compared to the regression models, the independent variable DER is negatively affected to the firms, financial performance where as the TDR, DTA is positively affected to the firms' financial performance.

In this research, it was found that there is a relationship between the capital structure and financial performance according to the variables substituted. According to the above analyzed results, we found the relationship in order to find any positive or negative effect between the capital structure and financial performance of the listed plantation companies of Colombo Stock Exchange in Sri Lanka.

Considering the model algebraic expressions, the control variable SIZE is highly affected to EPS and slightly affected to ROE in the model 1 and 2 respectively where as the control variable EGR is slightly affected to both SIZE and EGR in model 1 and 2. Also this is to conclude that there is a positive insignificant relationship among the variables we have applied in the research so that the impact of SIZE and EGR in order to take capital structure decisions in financial management is slightly considerable.

6. Conclusions and Recommendations

Capital structure decisions are important in achieving the performance of firms. As financing decisions, these decisions affect the firms' cost of capital, capital budgeting decisions, and firm value.. It has a direct impact on capital structure and financial performance of the companies. Capital structure is a very sensitive area of finance that the firms compulsorily invest the finance for the long term essence. Accordingly, firms should get the capital structure decisions in an optimal manner. Therefore, capital structure would ultimately be affected to the firms' financial performance. According to the data analysis and the testing of

hypothesis on the financial data extracted from the annual financial statements of Sri Lankan listed plantation companies, there is a relationship by ROE, and EPS with TRD, DER, DTA in Plantation Sector. Also, in making capital structure decisions of the firms, the impacts of other factors are to be considered in the financial performance. Finally, it is strongly pointed out that the landmarkeble industry of the country called plantation sector is an indication of the CSE performance in considering financial performance. Also, the capital structure is too far beyond in managing financial resources in timely accurate and profitable manner. Therefore, the financial managers should make trustful decisions concerning the capital structure changes.

As far as the researchers' view is concerned, this is utmost important and sensitive business area to be considered for research about capital structure in Sri Lankan trading industry in future. This is due to the major landmark for the establishment of CSE and the most economic sensitive area of the Sri Lanka's business environment. Therefore, the researchers suggest that further researches should be conducted about the capital structure and performance in this sector in future. The scope of further research may be extended to the optimal capital structure including theoritical investigations, impact of dividend polycys and impact of industrial dynamics to capital structure decisions etc. In addition, the following recommendations can be made in order to ascertain the value addition of investors' speculation.

1. In this paper, the researchers found that there is a relationship between the capital structure and financial performance according to the variables substituted. Hence, the researchers applied the control variables as (EGR and SIZE) to find further strong relationship; it is proved in some cases. Even though, no strong evidences have been found to prove the significant effect between capital structure and financial performance, so that, the researchers would elaborate for further research to find out a strong impact on this in the Sri Lankan plantation sector or this space will be extended to anyone for future research.
2. Common financial performance parameters should be formulated and monitored to the firms. This will help them to achieve the pre-planned level of the performance gaps and take better financing & investment decisions.
3. Identifying weaknesses of investment may be best one to improve the firm's financial performance, because it indicates the area which decision should be taken and which level should be considered to achieve..
4. Motivating the financial managers to help to achieve the high level of firm's financial performance.
5. Environmental changes (Economic, Political, cultural, societal community affairs etc) are very important factors to be considered when the decision – making is being puzzled up in the share market and to determine the firm performance. These would be possible tips to increase the financial performance of the listed companies.
6. Government and the global financial authorities should consider situation on inflation and exchange rate factors in their economic & business policy making which directly affect the listed firms' financial performance.

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