The Impact of Capital Intensity, Size of Firm and Firm's Performance on Debt Financing in Plantation Industry of Sri Lanka

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Abstract

This paper investigates on debt financing, considering as an important source of finance for firms' all long term and short term operating requirements of the firms. The percentage of debt financing in capital structure is affected by the profitability and growth of companies. This objective of the study attempts to find out the impact of capital intensity, size of the firm and firm's performance on debt financing in plantation sector in Sri Lanka. This study measures the capital structure determinants in terms of capital intensity(CI), size of firm (Log of Total Assets - LTA), financial performance (NPM, ROA and ROCE) where as capital structure is measured by debt to equity financing ratio (DER). The relationship is examined using the regression analyses by using a sample of 09 plantation companies (as a pioneering and well performing business industry in Sri Lankan economy) covering the period of 2007-2011. The results show that, there is significant impact of the variables on firm's debt financing. The study indicates that the proportion of debt financing in capital structure is affected by the profitability, size and capital intensity of the firms in plantation sector of Sri Lanka. The financial managers should therefore make trustful decisions must to be taken in terms of capital structure changes, keeping in view the impact of capital intensity, size of firm, firm's performance with concentrating macro economic factors as well as it would help in suggesting future financial reforms for the sector as required.

Key Words: Debt Financing, Capital Intensity, Size of Firm, Firm's Performance

1. Introduction

Plantation Industry is a key performing and landmark able industry of the share trading in Sri Lanka and it contributes significant revenue to the national economy of the country. It earns about 85% of total agricultural exports of the country. In Sri Lankan plantation sector, debt financing is a very important source of financing and almost all the firms of the sectored firms use debt financing in their capital structures in order to get income tax benefits, to increase profitability, to control leverage and to use as the strategy of paying their staff emoluments of the plantation companies. Most of the firms would like to initial utilize their own but if that is not available then they will have to go for a way in choosing external sources of funds between issuing preferred shares and debt financing as it will affect the firms market stance and business segment. Therefore, the management of firms should utmost care in view on the risk factor associated with debt financing, since more debt means more risk of insolvency for the current and potential investors. It also affects the overall value of the firm.

Capital intensity is the amount of money invested in order to get one dollar worth of output (Shaheen & Malik, 2012). In the senses, the more capital applied to produce that same unit the more capital intense the firm is said to be. There are some industries that are considered to be more capital intensive and in those industries, increasing the capital intensity results in improved quality of production and on time production. At present, for the purpose of increasing the capital intensity of a firm, the managers should have to consider for the right financing alternative, to increase their market share and at the same time the market value. Firms are preferred to increase their capital intensity and improve quality as a result, but getting the right mode of financing for this purpose becomes significant, because if the right mode is not selected it might prove counter productivity and might adversely affect the standings of the firm.

Size of a firm is the amount and variety of production capacity and capability a firm possesses or the amount and variety of services a firm can provide simultaneously to its clients. The size of a firm is very important in today's world due to the considering as the determinants of capital structure. In the production mechanisms, the larger firms are producing items at lower costs in comparison to smaller firms. Firms of the modern era look to increase their firm size as a market oriented strategies in order to get a competitive edge on their competitors by lowering production costs and increasing their market share. The willingness of firms to expand in terms of size depends upon a number of external and internal factors such as the political and judicial situation of the country in which the firm is operating but in stable countries it largely depends upon the availability of internal and external sources of financing and the current market standing of the firm and the effect of applying those new resources upon the share price and market standing of the firm. Large sized firms are in a position to generate both internal and external sources of financing. Hence, the firms have the option to decrease the debt which would result in a better market standing, firm value and share prices. On the other hand employing debt might provide leverage and increase profitability.

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Profitability is the amount of money a firm can generate with whatever resources the firm possesses (Input vs. Output). Increased profitability is the most desired and ultimate reward for all the hard work and planning of a firms management and they are constantly on a look to find ways to increase it. Profitable firms can expand in size by generating internal sources of financing. They attract investors from the market and are better able to negotiate the prices of additional financing and get better bargains. However they have to be careful in the choice and price of financing as it affects their market standing and share price. The more they go for debt financing the more risk gets involved and the future gets uncertain which affects their share prices and market standing as the investors get detracted. Considering the challenges associated with debt financing for the firm, and the benefits associated to size, capital intensity and profitability. Finally this study exposes into how capital intensity, size of firm and profitability affect the debt a company employs in its capital structure and how does a firm debt financing is affected when the size, capital intensity and profitability of the plantation sector is changing.

2. Literature Review

In cosidering the debt financing, considering as an important source of finance for firms' all long term and short term operating requirements of the firms, The percentage of debt financing in capital structure is affected by the firms' financial performance. The finding of the recent literatures on this are as follows.

Fox (1998) studied to what extent leverage levels vary with the firm size and it was concluded that the small firms find it very difficult to find external sources of financing at good costs. With compared to debt financing, an internal source of financing was the most preferred source of financing for small firm.

According to the findings of Guney (2003), the profitability of firms exerts a negative impact on their capital structure and positive relation between leverage and tangible assets also the empirical findings supported the predictions in the literature that firms with greater growth opportunities have lower leverage ratios. The significant point of this study is that the size exerts uncommonly a negative impact on firms' debt ratios.

In a research by Mitoo (2004), he looked into how financial flexibility is viewed by managers while coping with the global financial recession and found that higher flexibility results in better handling of the situation. So, the firms should concentrate for optimal flexibility in order to takeover with extreme situations. Also, the researcher suggested that higher internal financing results in greater flexibility in such firms.

Bond and Scott (2006) tested two theories of the capital structure decision. Debt is generally used for financing the needs where firms employ external financing. Financing deficit variable of the pecking order theory is unable to alter the significance of other factors and offers no empirical significance in this context.

Almeida and Campello (2007) predicted that there is an inverse relationship among internally generated funds and the need for externally generated funds. The literature argued the consistency of this result with a preference for internally generated funds to finance investments, when externally generated funds are expensive. However, there are evidences suggesting the negative relationship among firms that are facing high costs of external financing.

Papadogonas (2009) found the relationship between size of firm, sales growth, investment, leverage and current assets with profitability. In this research, he concluded that profitability had positive relation with size of firm, sales growth, investment and negative relation with leverage and current assets.

Altunbas, Kara and David (2009) studied what financial factors are usually considered while issuing loans. The study was conducted on non-financial corporations, covering the period 1993-2006 and concluded that large firms having more financial leverage, extensive profits and more liquidation values generally prefer loan financing. Firms employing more short term debt are having more growth opportunities.

Haggar (2010) formulated a stochastic frontier production model in order to find out the sources of total factor productivity growth. It was found that negative changes in efficiency have brought the average productivity growth down.

Arlbjorn (2011) pointed out the different approaches of total cost of ownership and how it affects the size of the firm and the effective use of total cost of ownership can increase the size of firm.

Niresh (2012) in his study of on the capital structure and profitability by selecting 10 no of Sri Lankan Banks, pointed out that the total debt is the very important determining factor of profitability in the same industry. The research outcomes may guide banks, loan-creditors and policy planners to formulate better policy decisions as far as the capital structure is concerned. The research further reinforces and refines the body of knowledge relating to capital structure and profitability in Sri Lankan banks.

Velnampy & Niresh (2012) in a research on capital structure and profitability by selecting ten no of pointed out that the there is a negative association between capital structure and profitability except the association between debt to equity and return on equity. Also they have suggested that 89% of total assets in the banking sector of Sri Lanka are represented by debt, confirming the fact that banks are highly geared institutions.

Based on the above literatures, it was noted that the capital intensity, size of firm and profitability affect the debt a company employs in its capital structure and how does a firm debt financing is affected when the size, capital intensity and profitability of a firm is changing.

3. Research Problem

After identifying the research gap on the impact of capital intensity, size of firm, firm's performance to debt financing for the purpose of formulating capital structure decisions, the research problem is formulated as follows.

"Do the capital intensity, size of firm and profitability affect the debt financing in Sri Lankan listed plantation companies?"

4. Objective of the Research

This research is focusing on capital intensity, size of firm and profitability affect the debt financing in Sri Lankan listed plantation companies in a manner so that the researcher expects to analyze the above problem statement, by aiming the objective; to find out the determinants of debt financing in plantation sector in Sri Lanka

5. Hypothesis

In order to investigate the research problem, the following hypothesis has been formulated in this research are as follows;

H1. There is a positive relationship between DER to CI

H2. There is a positive relationship between DER to LTA

H3. There is a positive relationship between DER to NPM

H4. There is a positive relationship between DER to ROA

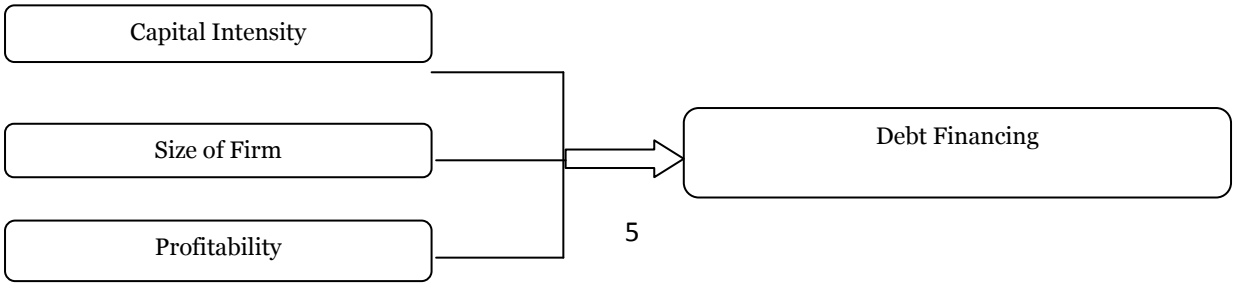
H5. There is a positive relationship between DER to ROCE

6. Research Design & Methods

In this research, the selected population is the listed plantation sector companies of Colombo Stock Exchange in Sri Lanka. The secondary data has been used for this study. There are nine listed plantation companies are in the CSE Reports in Sri Lanka which have been selected for the purpose of collecting data for conducting this research. The five year period from 2007 to 2011 has been selected and altogether 45 year observations (9x5) were taken to collect the data. The data was extracted from the audited financial statements as at 31st December in each year from 2007 to 2011.

In order to understand the relationships that exist among the capital intensity, firm size, profitability and the debt financing, the following conceptual framework is shown as follows;

Figure 1: Conceptual Model



Independent variable Dependent variable

According to the above conceptual model, the following data analysis model has been formulated and the variables are operationalized in order to analysis and interprit the results in this research.

DER = $\alpha i + \beta 1$ NPM + $\beta 2$ ROA + $\beta 3$ ROCE + $\beta 4$ LTA + $\beta 5$ CI + €it

Where α, is constant, β1, β2, β3, β4 β5 are coefficients of variables,.

NPM = Profit Before Interest & tax (PBIT) / Total sales

ROA = Profit Before Interest & Tax (PBIT)/Total Assets

ROCE = Profit After Tax (PAT) / Total Equity (TE)

LTA = Log of Total Assets (RS. 0.00 – RS. 50,000,000.00)

CI = Total Assets / Total Sales

DER = Non-Current Liabilities / (Total Equity (TE) + Non – Current Liabilities)

€ is residual term, i is company and t is time

7. Data Analysis and Discussion

The multiple regression analysis is applied to identify the impact of capital intensity, firm size and profitability on the debt financing of the listed plantation companies at the Colombo Stock Exchange in Sri Lanka. The regression coefficients for debt financing and size, profitability and capital intensity are expressed according to the above designed regression model as in table 1 below.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.734	2.401		1.555	0.218
	NPM	13.160	5.605	5.560	2.348	0.101
	ROA	-19.595	7.319	-6.857	-2.677	0.075
	ROCE	1.369	0.604	1.367	2.267	0.108
	LTA	-0.321	0.263	-0.390	-1.221	0.309
	CI	-6.60E-02	0.191	-0.128	-0.346	0.753

Table 1: Regression Coefficients

a. Dependent Variable: DER

Therefore on the basis of the results shown above, the regression coefficients for capital intensity, size and profitability in relation to debt financing can be expressed as;

DER= 3.734 -0.066 (CI) – 0.321 (LTA) + 13.160 (NPM) – 19.595 (ROA) + 1.369 (ROCE) + e

The above algebraic results predict the acceptance of hypotheses H3 and H5 where as the hypotheses H1, H2 and H4 have been rejected. In this connection, it is to conclude that the debt financing affects positively to NPM and ROCE, and negatively to CI, LTA and ROA.

Table 2: Model Summary

Model	R	R Square	Adjusted R Square	Std Error of the Estimate
1	0.919[a]	0.844	0.585	6.400E-02

a. Predictors: (Constant), CI, LTA, NPM, ROCE, ROA

The model summary showed that there is a strong 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 85% of the changes in debt financing are explained by the changes in capital intensity, size of firm and profitability of the firm.

8. Conclusion and Recommendations for Future Research

In this study, it is concluded that the debt financing ratio (DER) in capital structures is affected by the capital intensity, size of firm and firms' financial performance of the listed plantation companies in CSE of Sri Lanka. This study is mush helpful to understand the effects of capital intensity, size of firm and firms' financial performance. The topic; capital intensity on debt financing would help the firms in suggesting financial reforms for the plantation sector in future. Debt financing is a very important source of financing in the field of any business entity. The specified plantation sector companies have to be very careful as it will affect the companies' market standing and therefore, the firms' management should keep attend on the risk associated with debt financing, as well as the overall value of the firm. Plantation companies should oversee to increase the optimum level their capital intensity and then to improve quality as a result, but getting the right way of financing for this purpose becomes significant. If the right mode is not selected it might prove counter productivity and might adversely affect the standings of the firm. In modern context, large scale business entities are in a position to generate both internal and external sources of financing. In this connection those firms may have a choice to decrease the debt, which would result in a better market standing, firm value and share prices. Also, profitable firms operating in the business environment are willing to expand their size of firm by investing internal sources of financing. But the firms should ultimately have to be careful on the choice and price of financing of sources due to its impact of market standing and share price.

As far as the researchers' view is concerned, this is very considerable reseach area to be considered in processing optimal capital structure decisions in Sri Lankan plantation 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 capiatl intensity, size of firm and profitability in this sector in future. The scope of further research may be extended in this area including theoritical investigations,impact of increasing firm size and impact of capiatl intensity in making the best suitable choice on the optimal capital structure decisions etc. In addition, the following recommendations can be made whch would assist for future research and operational overview.

1. In Sri Lanka, there is a stock market comprising between 200 – 300 companies covering 20 business sectors. But I have selected only the plantation sector. There is no any study in this topic considering our stock market has not been done so far. Due to fulfill this gap, an extended study will be done by the researchers in future.
2. The firms are require to optimally utilize their resources in order to maximize profits and sustain it according to the nature of business environment (business booms and recessions etc)
3. The timely accurate and reliable financial decisions ought to be taken in terms of capital structure changes, keeping in view the impact of financial performance, size and capital intensity of the firms.
4. The managers are always required to know how their decision of increasing capital intensity, size and the changes in firms' performance would feasibly affect the debt financing level.

References:

Almeida, H. and Campello, M. (2007), "Financing constraints, asset tangibility, and corporate investment", Review of Financial Studies, Vol. 20, pp. 1429-60.

Bergendahl.G, (1995), The profitability of banc assurance for European banks*, International Journal of Bank Marketing, Vol. 13, pp. 17-28.*

Bond, Shaun A. and Scott, Peter (2006). The Capital Structure Decision for Listed Real Estate Companies, Available at http://ssrn.com/abstract=876429

Guney, Yilmaz (2003). Dynamic Capital Structure Decisions: evidence from firms in an emerging economy, Available at http://ssrn.com/abstract=1517120

Hamit.H,Haggar(2010), TFP growth, technological progress and efficiencies change. Empirical evidence from Canadian manufacturing industries*, International Journal of Productivity and Performance Management,* Vol. 60 No. 4, pp. 360-371.

Fraering.J,Minor.M,(1994),The Industry-specific Basis of the Market Share Profitability Relationship, Journal of Consumer Marketing, Vol. 11, pp. 27-37.

Mye Niresh J.A., (2012), capital Structure and Profitability in Sri Lankan Banks, Global Journal of Management and Business Research Volume 12 Issue 13 Version 1.0

Niresh J.A., (2012), capital Structure and Profitability in Sri Lankan Banks, Global Journal of Management and Business Research Volume 12 Issue 13 Version 1.0

Saheen S., Malik Q. A. (2012) The Impact of Capital Intensity, Size of Firm And Profitability on Debt Financing In Textile Industry of Pakistan, Interdisciplinary Journal of Contemporary Research in Business, Volume 3, No.10, Pp. 1061-1066

Velnampy T., Niresh J. A. 2012, the Relationship between Capital Structure & Profitability, Global Journal of Management and Business Research, Vol. 12 Issue 13 Versions 1.0, pp 66-74