Capital Structure and Competitive Behaviour: Equity Financing and Earning Pressure in Sri Lanka

YATIWELLE KORALALAGE WEERAKOON BANDA[1], PRETHEEBA, T.[2]

[1]Department of Finance
University of Sri Jayewardenepura
Nugegoda
SRI LANKA
weerakonyatiwella@yahoo.com

[2]Department of Business and Management Studies
Trincomalee Campus, Eastern University Sri Lanka
Koneshapuri, Nilaveli
SRI LANKA
pretheebat@yahoo.com

Abstract:-

This study examined the effect of capital structure on a firm's competitive behavior. It substantiates that a firm's equity financing enhances its competitive capacity with proper management activities and the pressure for higher earnings shrinks the capacity to compete. The variables used in the study are equity financing and earning pressure that is associated with competitive behavior. Fixed panel data model was employed for the multiple regression analysis. The sample of 81 companies representing 8 sectors for the study was derived from the companies listed in the Colombo Stock Exchange.

The findings of the study reveal that equity financing support to enhance the competitive power and the earning pressure tend to make the firms compete less aggressively in Sri Lankan market. Though, the study of the intensity of earning pressure on competitive behaviour is not straightforward but much attractive. Results are found to be sensitive to industry and to some of the firms, in explaining the competitive power while time period of equity issue towards competitive actions is not much significant.

Key Words:- Equity Finance, Earning Pressure, Capital structure, Competitive behavior, panel data.

1 Introduction

The study examined the market-level information about the relationship between equity financing; earning pressure and the competitive behavior of the firms in Sri Lankan Market. The study intended to address two sets of questions. First, 'whether the equity financing support the organizations to succeed in the business environment due to the absence of repayment obligation?' Secondly, 'does the earning pressure hinder the aggressiveness?' Econometric qualitative approach has been used to address these questions. This study summarizes some of the descriptive information, regression information, as well as information from the historical record, in an attempt to describe the effect of equity and earning pressure in the competitive environment.

An extensive body of research examined the effect of capital structure on firms' value focusing on debt. There are limited numbers of studies that analyze capital structure and

competitive behavior which are focused on equity. The role of equity financing has to be better understood in the competitive environment.

Management utilizes the funds raised through equity, does not tend to repay them as long as the business exists. Further, the managers do not have any statutory obligation to distribute earnings as dividends to the stockholders and they can reinvest the entire earnings back into the business. Stockholders have no legal rights to compel the management to pay dividend. The effective and efficient reinvestment opportunities enable the organization to compete effectively in the market.

On the other hand, earning forecasts are widely used by investors for stock valuation that affect the competitive position of the firm. The future earning of a company (the "consensus" earning forecast) creates a powerful force that influences a firm's competitive behaviour. If a firm fails to meet the expectations of future earnings, even by a small margin, it creates a big impact over the survival of the firm.

Yu Zhang, Javier (2006) evidenced, the financial structure and the earning pressure have significant effect on competitive strategies pursued and indirectly on performance achieved by firms. In addition, Bancel and Mittoo (2000) evidenced that there is common belief among managers that issuing shares has negative impact on earnings per share as a result of dilution effect and managers select timing of equity issue based on their firm's share price. In timing of equity issue context, forecasting models may be used to time the market predicting periods when investors have abnormal profits. Consequently, predictability of market timing strategies is important.

Stein (1989) showed that, as long as the investors use a firm's current profit level and stock price to forecast the firms' future performance, managers will have the incentive to boost current earnings in order to raise stock prices. In this case, the effect of earning pressure parallels the effect of earning pressure parallels the effect of repayment requirements in debt contracts. Bolton and Scharfstein (1990) states, periodical performance requirements by the creditors will lead firms to compete less aggressively as they face the constraint of meeting the performance requirements imposed by creditors.

Prior researches in US market showed that the debt financing tends to make firms compete less aggressively in the product market (Phillips, 1995; Chevalier, 1995a, 1995b). Further empirical evidence predicts that equity will be issued when stock prices and agreement with shareholders are high and debt will be issued when the share prices and agreement with share holder are at minimal level.

In view of these facts, association of equity financing and earning pressure has significant influence on firm's competitive behaviour. Equity capital provides long-term funding with the minimal cash flow drains typically associated with a debt financing. Moreover, investments by equity investors also enhance the credibility of a firm by indicating that the firm has the winning approval of sophisticated financial professionals.

2. Conceptualization

Various factors are likely to determine capital structure policies that influence firm's competitiveness. Three sets of factors are taken into account based on a review of literature. The first, set is based on the implications of different capital structure theories such as traditional theory, the MM theory and other related theories; trade-off theory, the pecking order theory, and the agency cost theory. The second set relates to the timing of debt or equity issues since literature suggests that managers are concerned about financial flexibility and use windows of opportunities to issue debt or common stock. The last set is based on commonly held beliefs among managers about the impact of capital structure changes on financial statements such as the potential impact of equity issue on earnings.

Equity financing and earning pressure are not only the determinants of capital structure policy, but also have a direct impact over competing capacity of firms. Hence both variables are considered in the study as key determinants of competitive behaviour.

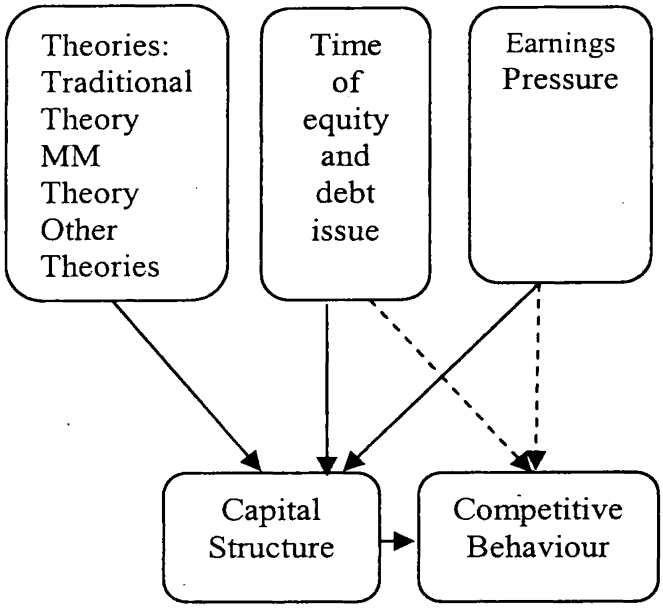

Figure 1: Capital Structure and Competitive Behaviour

Based on the conceptual model and previous studies the following hypotheses have been formulated;

Equity Financing and Competitive Behaviour:

The capital structure of debt and equity can be compared with respect to the characteristics of control and property rights. The debt instrument carries with its fixed rules and covenants that usually monitor the lending process. The repayments of the loan amount and the interest payments are stipulated in contract with debt-holders having primary claim over the firm's cash flows from the assets. The firm is often required to maintain liquidity level to ensure that the lender's investment is not jeopardized.

Equity owners, on the other hand, have a residual claimant status over the cash flow from assets' earnings and their liquidation. That is, they obtain the cash flows that are left after paying off more senior claims such as debt. Thus, equity-holders have weaker property rights, similar to hierarchical control.

The control rights of the two instruments are however, reversed. The equity contract is not for a fixed period but runs until the life of the firm. Thus, debt financing would reduce the aggressiveness of firms' competitive behavior in the short-term due to repayment obligations. Compared with debt, the two components of equity financing, retained earnings and issuing of common stocks, are not constrained by the repayment requirement. The freedom of no repayments will provide the firm with more opportunity to buffer their strategic actions, which allow firms to involve in competitive actions.

Hypothesis – 1: The higher the firm's equity, the more aggressive its competitive action.

Earning Pressure and Competitive Behaviour:

Earnings forecasts are widely used by investors for stock valuation, has becomes almost an imperative for firms to meet the forecast, since companies fail to meet the earnings forecast, even by small margins, will face a negative response from the stock market (Kasznik and McNichols, 2002). With regard to competitive behavior, earnings pressure could also have a negative impact as it causes firms to focus more on stock price and current period earnings.

Hypothesis – 2: The higher the earnings pressure the less aggressive its competitive action will be.

3. Data and Methodology

To construct the data sample, study stared with all Sri Lankan companies listed in the Colombo Stock Exchange. Sample set excluded financial and banking firms because their equity financing are highly constrained by the nature of their business. Study eliminated firms that are with continuously negative earnings per share. The selection criteria yields finally eight industries and a

total of 81 firms listed on the Colombo Stock Exchange during the period from 2003 to 2007. The data were mainly obtained from the Hand book of Listed Companies, 2007.
Since the data relate to individual firms and industries over time it is bound to be heterogeneity in these units. The technique of panel data estimation can take such heterogeneity into account by allowing the specific individual variables.

Regression Models for Fixed Effect Panel Data:

The study uses fixed effects panel data model to capture the individual firm, industry and time period effects of capital structure and its competitive behaviour. Pooling of all the sample observations, the model can be written as;

$$\log (yield_{it}) = \beta_{i1} + \beta_1 X_{1it} - \beta_2 X_{2it} + \varepsilon_{it} \text{ --(M-1)}$$

Where X_1it represents the equity financing, X_{2it} earning pressure for a firm i in a particular industry at time period t. $Yield_{it}$ represents the yield for the firm, at time period t.

The model considers that there are maximum of n cross-sectional unit has the same number of time series observations, for the t time periods. In the first model the intercept and slope coefficient are constant across time, and individual firm and the error term captures the differences overtime and individuals.

Let's consider that the intercept vary across individual firms. The managerial style, employee skills vary across individual firms. When considering these differences the model as follows where the intercept for time does not vary over time, which is time invariant. In the model F represents effect of individual firm in each sector.

$$\log (yieldit) = \alpha_1 + \beta_1 X_{1it} - \beta_2 X_{2it} + \alpha_2 F_{1t} + \alpha_3 F_{2t} + \ldots\ldots \alpha_{(n-1)} F_{(n-1)t} + \varepsilon_{it} \quad \text{(M-2)}$$

Where F_{1t} = 1 if the observation belongs to firm 1; 0 otherwise. F_{2t} = 1 if the observation belongs to firm-1, 0 otherwise; $F_{(n-1)t}$ = 1 if the observation belongs to firm (n-1), 0 otherwise. Study uses (n-1) dummy variables to avoid falling into the dummy-variable trap that is the situation of perfect co-linearity. The $\alpha 1$ represent the intercept of the left firm and the α_1 α_2, and $\alpha_{(n-1)}$ the differential intercept coefficient, tells how much the intercept of F_1, F_2, and $F_{(n-1)}$ differ from the intercept of base company.

Factors such as technological changes, changes in government regularity and/or tax policies and external effect such as wars or other disasters vary over time. Such time effect can be easily accounted for variation in yield. The study allows these time effect into the function by introducing dummies, one for each year. Since the study has five years from 2003 to 2007 introduce four dummies and write the model as;

$$\log (yieldit) = \lambda_0 + \beta_1 X_{1it} - \beta_2 X_{2it} + \lambda_1 Dum06 + \lambda_2 Dum05 + \lambda_3 Dum04 + \lambda_4 Dum03 + \varepsilon it \text{----------} \quad \text{(M-3)}$$

Where Dum_{03} takes a value of 1 for observation in year 2003 and otherwise 0; Dum_{04} takes a value of 1 for observation in year 2004 and otherwise 0; study treats the 2007 as the base year, whose intercept value given by λ_0.

Due to various reasons the industry category also influences in price determination. When considering this industry behaviour the model can be written as follows.

$$\log (yieldmt) = \theta_1 + \beta_1 X_{1mt} - \beta_2 X_{2mt} + \theta_2 I_{1t} + \theta_3 I_{2t} + \ldots\ldots \theta_7 I_{7t} + \varepsilon mt \text{ ---------- (M-4)}$$

Where I_{1t} = 1 if the observation belongs to food and beverage sector; 0 otherwise. I_{2t} = 1 if the observation belongs to chemical and pharmaceutical sector, 0 otherwise; I_{7t} = 1 if the observation belongs to motors sector, 0 otherwise. Here the trading sector considered as a comparative sector.
Dependent Variable. The dependent variable is competition intensity, which is measured by a scale of "Yield". The price level in a market is proxies by the natural logarithm of the yield. Yield is defined as the average share price.

A share price is the price of a single share of a company's stock. This measurement used in research which theoretically reveals the changes for stock price of companies that report earnings that differ substantially from consensus which would affect the aggressiveness of competition. Yield commonly used to measure price revenue generation in the industry. The study applied a log transformation to share price to generate a more systematic distribution.

Independent Variables: In order to test the hypothesis, the study defined equity level (Equity) as the firm's total shareholder equity divided by its total assets. To test earning pressure effect, the study depends on linearity on the forecast of firms' earnings per share (EPS) and firms' current EPS at time t. In order to smooth possible cyclical patterns of earnings forecasts, the study estimated average of EPS forecast consensus for three future periods (as the level of future forecasting of EPS) and average of EPS performance for the past four year period (as the current level of EPS performance) as shown in the following formula:

$$EP_t = EPS_t - Forecast \quad of \quad EPS_t$$

$$EP_t = \frac{\sum_{i=t-4}^{t-1} EPS}{n} - \frac{\sum_{t=1}^{t+3} EPS}{n-1}$$

EP represents earning pressure at time period t and EPS denotes earnings per share. So that, earning pressure exists when there is a gap between the earnings expectations and the earnings that the company would achieve in a steady state conditions. Analysts differ in their forecasts in future earnings.

4. Analysis of Data

Analysis contains summary statistics, correlation analysis and regression results for fixed panel data. Table 1 presents the descriptive statistics for the data for the sample period.

Table 1 reports the mean, standard error of mean, standard deviation, maximum and minimum values for variables used in the study. These figures indicate that though standard deviations are almost similar to mean values except share price standard error of means are relatively small.

Table 1
Descriptive Statistics

	Min	Max	Mean	Std.D	Std.error -mean
Equity	-3.174	-.005	-.309	.3056	.01537
Earning Pressure	-1.07	2.32	.8179	.7036	.0409
Share Price	.3222	4.1761	1.782414	.5577	.02785

Results

The effect of capital structure on competitive behavior is tested using correlations of the variables and ordinary least squares regressions. Table 2 indicates that the correlation between yield and the equity financing is positive and statistically significant at 10% level. This shows, as predicted, that if there is an increase in equity financing, there is a corresponding increase in share price. The correlation between yield and earning pressure is negative and statistically significant at 1% level. This shows increases in earning pressure, there is a corresponding decrease in share price as predicted. The correlation between equity financing and earning pressure is negative and statistically significant at 5%. This explains higher the use of equity financing tends to reduce the pressure.

Estimation regression results are reported in Table 3 to 6. Results from model 1 (Table-3) indicates that R-square for regression with combination of equity financing and earning pressure is 59.7% with its F value is at 1% level of significant. Financing level of equity has a positive sign and significant at 1% level. This result is as expected and consistent with Hypothesis one. This result indicates that when the firm uses equity as their source of financing it enables them to increase the share price, which increases the competitive power

of the firms. Earning pressure has negative effect on yield and significant at 1% level as the study expects in Hypothesis 2. On the other hand higher the pressure for earnings decreases the share price, which reveals decline in competitive capacity of the firms in the market.

Table 2
Pearson Correlation Coefficients, 2003-2007

Variable		Equity financing	Earning Pressure
Share Price	Coefficient	0.07*	-0.637***
	P-value	0.084	0.000
Equity	Coefficient		-0.103**
	P-value		0.041

*** Correlation is significant at the 0.01 level.
** Correlation is significant at the 0.05 level.
* Correlation is significant at the 0.10 level.

Table 3
Regression Results, 2003-2007

Variable	Coefficient
Constant	1.597* (37.773)
Equity	0.416* (5.029)
Earning Pressure	-0.473* (-14.436)
R^2	0.597
F	109.381*

T-values are in parentheses
Significant at 1% level

Individual firm effect

Other than equity and earning pressure the individual firm activities (Table – 4) also influences in share price determination. The value of R-square reveals the combination of equity financing, earning pressure and firm effect accounts more than 79% variation on yield.[1] Model-2 indicates when there is firm influences in equity level decision making, it help to increase the share price which shows firm activities tends to increase the competing power of the firms. But on the other hand the increase in earning pressure reduces the competing power of firms. Majority of the firms in the business environment have significant negative correlation, indicates that individual firm takes their own effort to increase their competing power. This would be a consequence of the certain practices such as institutional investor activism restraining firms' from competition.

Time effect

Table 5 reports regression results equity financing and earning pressure with time effect (Model – 3). The value of R-square explains the combination of equity, earning pressure and time effect accounts 46.7% variation on yield and its F value is at 1% level of significance. When considering time period of equity issue and earning pressure 2003 and 2004 are significant at 1% and 5% respectively. Except that there is no significant impact in other periods. When we compare with the previous model (model -2), the company actions tends to increase the competing power of the firms through equity funding.

Industry Effects

Because factors peculiar to an industry may have effects on the yield, the study partitions the sample by industry categories as defined by the Securities and Exchange Commission of Sri Lanka. The sample of 81 companies concentrated 8 sectors: Food and Beverage (9), Chemical (6), Hotel and Travel (12), Land and Property (13), Diversified Holding (8), Manufacturing (19), Motor (7), and Trading (6). Table 6 shows the value of R-square (Model - 4) for the combination of equity and earning pressure of the companies from different sectors is 56.7% of variation on yield. The significance level of the model itself is at 1%. In the model in view of all sectors equity financing has statistically significant positive relationship on yield. It shows when selecting equity as a source of financing increases the price of shares. In addition, the earning pressure also has statistically significant negative relationship with share price. Hence the higher the earning pressure tends to decline in competing power. This is significant in all sectors excluding Motor and Trading sector.

[1] The results for firm effect are not reported for those of insignificant statistics.

Table – 4
Regression Result with Firm Effect, 2003-2007

Variable	Coefficient	T value	Variable	Coefficient	T value
(Constant)	1.410*	14.355			
F11	.419***	1.820	F60	-.344**	-2.206
F16	.661*	2.815	F61	-.348**	-2.029
F24	-.622*	-3.809	F63	-.373**	-2.089
F35	-.438**	-2.073	F64	.672*	3.597
F38	-.458**	-2.177	F68	.360**	2.085
F45	.366***	1.736	F73	-.279*	-1.966
F46	.315***	1.845	F74	-.321**	-2.075
F48	.879*	4.040	F75	-.344*	-2.210
F49	.492*	3.026	F77	-.377*	-2.637
F51	-.040*	-.255	F80	-.540*	-3.422
F52	.532*	3.089	Equity	.133	1.122
F54	-.316**	-1.961	Earning Pressure	-.647*	-12.052
R^2	0.798				
F	11.378*				

* Significant at 1% level ** Significant at 5% level

Table – 5
Regression Results with Time effect, 2003-2007

Model	Coefficient
(Constant)	1.601* (24.271)
Equity	.278* (3.24)
Earning Pressure	-.537* (14.879)
2003	-.397* (-5.077)
2004	-.183** (-2.373)
2005	-.119 (-1.552)
2006	-.003 (-0.45)
R2	0.467
F	43.017*

T values are in parentheses under the regression coefficients.
*Significant at 1% level
** Significant at 5% level

Table – 6
Regression Result with industry effect

Variables and Sectors	Coefficients	T
(Constant)	1.473*	27.594
Equity	.377*	4.602
Earning Pressure	-.465*	-12.531
Food and Beverage	.162**	1.931
Chemicals and Pharmaceuticals	.401*	4.497
Hotel and Travels	-.184	-1.411
Land and property	-.140**	-2.156
Diversified Holding	.591*	7.151
Motor	.130	1.485
Trading	-.040	-.439
R2	0.567	
F	40.593*	

t –statistics are in parentheses
* . Significant at 1% level.
** Significant at 5% level

5. Conclusion

Study concludes that equity financing and earning pressure are useful in explaining the variation in yield of stocks in Sri Lanka. Overall results of the study show that equity financing support to enhance the competitive power and the earning pressure tend to make the firms compete less aggressively in Sri Lankan market. The study of the intensity of earning pressure on competitive behaviour is not straightforward but much attractive.

Results are found to be sensitive to industry and suggest that the industry effect is significant explaining the variation in yield except two sectors. Hence, the effort taken by the companies in particular sectors, aggressiveness of competition varies in Sri Lanka.

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