INTERRELATIONSHIP BETWEEN CAPITAL STRUCTURE AND PROFITABILITY OF PHARMACEUTICAL COMPANIES IN INDIA

Ruchi Malhotra

ABSTRACT

Capital structure of a company represents the mix of securities that a company has to sell in order to finance its assets (generally fixed assets). It is a significant financial decision as it affects the shareholders risk and return, consequently the market value of shares. This paper focuses on interrelation between capital structure and profitability of listed Pharmaceutical companies of India. Afterword's the capital structure of listed companies has been analyzed by adopting an econometric framework over a period of five years. Through regression analysis and by checking the relationship of the through Correlation Coefficient Test, it was found that the profitability of the company and its financial leverage have an insignificant impact on the capital structure or leverage of the sample company's during the examined period. Hence, the study is not able to establish any kind of significant relation between financial leverage and profitability effect on the capital structure of the sample company's.

Key Words : Capital Structure, Profitability, Financial Leverage, Pharmaceutical Companies, Sharholders Peril (Risk).

INTRODUCTION

Capital structure is considered to be the different combinations used by a company for financing its fixed assets. Generally, a company can opt for different blends of debts, equity, or other financial arrangements. It can combine debentures, bank loans along with equity in an overall attempt to boost the market value of the company. In order to maximize the wealth of the shareholders and to minimize the overall cost of capital,

companies differ with respect to capital structures. This has led to appearance of varied theories of capital structure. This clears the idea of capital structure adopted by various companies.

This paper tries to answers the question that how capital structure impact profitability of listed Indian companies belonging to the pharmaceutical industry.

The study by Modigliani and Miller (1958), Modigliani and Miller (1963) are generally perceived as milestones among capital structure studies. They construct the role of taxes, market value of company and cost of capital in capital structure decisions.

Even, Jensen and Meckling (1976) and Myers (1977) have given epic works on the concepts of bankruptcy and financial distress costs and agency costs, respectively. These concepts are considered as the basics of trade-off theory. According to this theory, any increase in debt level causes an increase in bankruptcy, financial distress and agency costs, and hence decreases the company value. Thus an optimal capital structure may be acquired by establishing equilibrium between tax advantage and financial distress and bankruptcy costs of debt. In order to establish this equilibrium, companies should seek debt levels at which the costs of possible financial distress offset the tax advantages of additional debt.

Hijazi and Tariq (2006) made an attempt to determine the capital structure of 16 of 22 companies from cement sector listed in the Karachi Stock Exchange, for the period of 1997-2001 by using pooled regression in a panel data analysis. The researchers choose four independent variables i.e. company size, tangibility of assets, profitability and growth. The study found that a specific industry's capital structure exhibits unique attributes which were usually not apparent in the combined analysis of many sectors. The results of the study concluded that all variables included in study except size turn out to be highly significant.

Deepa (2012) conducted a study on determinants of capital structure and profitability. The study was based upon the data collected for a period of 10 years ranging from 1999-2000 to 2008-2009 of 86 sample company's of food industry of India with the main objective to analyze nature of relation between PBITD and different constituents of capital structure. For the purpose of collection of data Centre for Monitoring Indian Economy Pvt. Ltd. (CMIE) Prowess package was used. Correlation co-efficient, liner trend line and least square regression techniques were used to find out the relationship between PBITD (profit before interest, taxes and dividend) and capital structure. The results indicated that PBITD has significant positive relation with various constituents of capital structure, which shows that the profit earned by the company's has significant impact on determining the size of insiders as well as outsiders funds in their Capital

structure. The trend line of small size companies, medium size and large size company's shows that the small size company's maintain relatively the same level of PBITD over the years of study. On the other hand, the large size company's 'PBITD shows a precipitous rise after the year 2004-05.

Goyal (2013) in his study, made an attempt to show the impact on capital structure on profitability of public sector banks in India listed in NSE for a period from 2008 – 2012. Return on Equity, Return on Assets & EPS was taken as the major basis for calculating profitability and long-term debt to capital, short-term debt to capital, and total debt to capital were taken as the basis of leverage. The study inferred that long term debt to equity and total debt to equity had negative relation with profitability but short term debt to equity had positive relation with EPS, ROI and ROE. It means that issuing more long term debt in the capital structure of public sector banks will result in reduction of their profitability. The study concluded that debt was not the cheaper source of finance for PSB for long term financing so they should move towards equity.

Singh (2014) studied the impact of significant factors on capital structure of Indian corporate sector. Further the researcher examined the impact of capital structure on cost of capital, EPS and market price per share of 133(modern and traditional) listed companies of BSE for the period from 2001-11. The study revealed that the modern industries used lower amount of debt as compared to traditional industries in their capital structure. It was concluded that the impact of leverage on cost of capital was negative in case of modern industries and positive in case of traditional industries and the capital structure had negative impact on EPS and market price per share in the case of modern industries and positive impact in case of traditional industries.

In India no doubt many studies have been conducted on capital structure but there are only few studies which are particularly related with pharmaceutical Industry of India, the only work found in this regard is by Zubairi and Rashid. In both these papers, once again Profitability of this sector has been checked through different variables. Present paper aims at pointing the knowledge gap by checking how profitability in turns impacts capital structure along with financial leverage.

DATA AND VARIABLES

Source of Data

The study is based on the data taken from the State Bank of India publication "Balance Sheet Analysis of Joint Stock Companies Listed on The Bombay Stock Exchange (BSE) 2007-2012". This publication provides useful information on key accounts of the financial statements of all listed company's of BSE for six year period.

Sample Size

The study has focused on the Pharmaceutical Sector of India. The study used the financial data of 30 companies listed in BSE from 2008-13.

VARIABLE DESCRIPTION

Dependent and Independent Variables

We take debt to equity ratio as a dependent variable and on the other hand there are mainly two independent variables one is profitability (EBT/TA) and other is Financial leverage (EBT/EBIT).

Capital Structure

Capital Structure has been individually captured as the dependent variable here. It reveals the blend of equity financing and debenture financing supporting the assets side of the company's balance sheet. In previous studies, it has never been taken as a dependent variable. The focus is to ascertain the effect of profitability or degree of financial leverage on capital structure decision or to see whether there will be any change in debt equity mix due to change in profitability and financial leverage.

Profitability

The ratio of net income before taxes divided by total assets is taken while calculating profitability of the company's. Many studies have used earnings before interest and taxes (EBIT) divided by total assets, as a measure of profitability as it is independent of leverage effects.

Financial Leverage (DFL)

The magnitude of the existence of permanent financial costs in a company's income is measured by the Degree of financial leverage. Financial leverage raises anticipated return on equity, but it also increases the peril faced by the investors. The business peril part of total peril is influenced by operating leverage, whereas financial leverage influences financial peril ultimately affecting the total peril of the company. In present study degree of financial leverage (DFL) is measured as the ratio of earnings before taxes (EBT) to earnings before interest and taxes (EBIT).

Null Hypothesis

HO1: Profitability does not significantly affect Capital Structure of pharmaceutical companies.

Ho2: Financial Leverage does not significantly affect Capital Structure of pharmaceutical companies.

Alternative Hypothesis

HA1: Profitability does significantly affect Capital Structure of pharmaceutical companies.

HA2: Financial Leverage does significantly affect Capital Structure of pharmaceutical companies

RESEARCH METHODOLOGY

The Regression Model

Regression analysis is a statistical process for estimating the relationships among variables. The present study uses panel regression analysis. Panel data analysis is applicable in social science, epidemiology, and econometrics, which deals with two and "n"-dimensional cross sectional/times series data. I use the pooled regression type of panel data analysis in which both intercepts and slopes are assumed constant. The cross section company data and time series data are pooled together in a single column assuming that there is no significant cross section or inter temporal effects. Panel data combines the features of time series and cross-section. It provides information on a number of statistical units for a number of years. Panel data usually provides the researcher a large number of data points, increasing the degrees of freedom and reducing the co-linearity among explanatory variables; hence improving the efficiency of econometric estimates.

Correlation Coefficient

The most common method of "correlation" is Pearson's coefficient of correlation which is followed in the present study. Correlation coefficient "r" as it is often symbolized, can have a value between -1 and +1. The larger value of r, ignoring sign, the stronger the association between the two variables and the more accurately you can predict one variable from knowledge of the other variable. At its extreme, a correlation of 1 or -1 means that the two variables are perfectly correlated, meaning that you can predict the

values of one variable from the values of the other variable with perfect accuracy. At the other extreme, an r of zero implies an absence of a correlation i.e., there is no relationship between the two variables. This implies that knowledge of one variable gives you absolutely no information about what the value of the other variable is likely to be. The sign of the correlation implies the "direction" of the association. A positive correlation means that relatively high scores on one variable are paired with relatively high scores on the other variable, and low scores are paired with relatively low scores. On the other hand, a negative correlation means that relatively high scores on one variable are paired with relatively low scores on the other variable.

ANALYSIS AND INTERPRETATION

This section presents the descriptive statistics, the results of regression analysis and correlation coefficient and the interpretation of the empirical. After words important conclusions about the results of the study have been drawn.

Descriptive Statistics

Before starting formal analysis, we present descriptive statistics in Table 1. The table shows the information at the level of the variables. Table 1 presents the mean, median,

Table 1: Descriptive Statistics

	Capital structure	Profitability	Financial leverage
Mean	143.1424	0.084099	1.007774
Median	123.0000	0.123546	0.995563
Maximum	365.7000	0.40445	3.376117
Minimum	0.00000	-346779	0.155778
Std. Dev	115.6834	0.14666	0.657577
Skewness	1.234547	-761287	2.156306
Kurtosis	4.33304	3.990145	9.083162
Jarque bera	15.45308	7.133330	123.737
Probability	0.000667	0.027756	0.000000

Correlation Coefficient

In order to check the multi-co-linearity among the independent variables, Pearson's co-efficient of correlations is calculated for the independent variables. Table 2 presents the results of correlation co-efficient. Table 2 explains that the multi-co-linearity problem is not too severe among the selected independent variables. It is observed from the analysis that capital Structure and Profitability are negatively correlated. As debt to equity ratio increases, a firm's profitability decreases.

Table 2: Estimated correlation between variables

	Capital structure	Profitability	Financial leverage
Capital structure	1		
Profitability	-121195087	1	
Financial leverage	0.12433456	-0.26033627	1

In next session it is seen that capital structure and degree of financial leverage are positively correlated. Hence as the debt in capital structure increases, so does the financial payable burden on the company's assets. Lastly, profitability and financial leverage are negatively correlated. Thus as one increases, the other one decreases. So profitability is in negative relation with both capital structure and degree of financial leverage.

Regression Analysis

Using pooled regression technique, we ran the regression of the capital structure on the degree of financial leverage and the profitability of the firm with the aim to investigate whether these two variables have significant explanatory power. The estimated results are reported in Table 3.

Table 3: Regression results

Variable	Coefficient	Std. Error	t-Statistic	Probability
Profitability	-108.7699	114.0920	-0.980617	0.3344
Financial leverage	1.54404	27.55040	0.056894	0.9667
c	164.8647	35.70173	4.660846	0.0000

R-squared	0.034277	Mean dependent Variable	154.2433
Adjusted R-squared	-0.018871	S.D. dependent Variable	106.6734
S.E of regression	107.6330	Akaike info criterion	12.24150
Sum squared residual	579512.7	Schwarz criterion	12.34299
Log likelihood	-341.13320	F-statistic	0.553866
Durbin-Watson stat	1.222178	Prob(F- statistic)	0.563855

It can be observed from the table that the estimated value of the R-squared is approximately 0.03. This implies that the capital structure of the firm is very negligibly determined by the two said variables jointly. It shows that only 3% of the variations in dependent variable (CS) are explained by the given two independent variables.

The value of F-statistic (0.55) shows the validity of the model. Its value is 0.55 which is below its probability (F-statistic) value of 0.56. Thus the overall model is not good. The Durbin-Watson statistic (1.22) is also close to 2, which implies that the successive values of estimated residuals are not dependent on each other. This means that there is evidence to accept the null hypothesis that there is no autocorrelation problem in the estimated model. Regarding the significance of individual variables, the empirical results show that the firms' capital structure is very significantly negatively associated with profitability. The P-value is 0.33, as can be seen from the table. This implies that the null hypothesis (HO1: profitability has no significant impact on capital structure) is accepted at 1 percent level of significance. Thus empirically, profitability does not affect capital structure and we do not find much evidence that this relationship is statistically significant. The table also accounts for a positive relationship between capital structure and financial burden of firm, as is indicated by the co-efficient value (1.54). But taking the significance level of probability to be 0.1, the p-value of DFL was found to be 0.96. This shows highly insignificant results, the second null hypothesis is accepted which states that degree of financial leverage has no significant impact on capital structure.

CONCLUSION

Henceforth, it can be concluded that though firm's profitability is strongly negatively related to capital structure and financial leverage positively, as was found earlier through Pearson's correlation coefficient, but statistically in the light of p-value, both these findings were insignificant to establish any valid relationship of the two said independent variables with the dependent variable of capital structure. Therefore, it can be safely said that in FMCG sector of India, profitability and financial leverage of firms are insignificant in bringing about any changes in their capital structure.

REFERENCES

- Deepa, R. (2012). A Study on the Determinants of Capital Structure and Profitability: with Special reference to Food Industry in India. Ph.D. Thesis submitted to Department of commerce, Pondicherry University.

- Gill, A., Nahum B., Neil, M. (2011). The Effect of Capital Structure and Profitability: Evidence from the United States. *International Journal of Management*, *28*(4), 3-15.

- Goyal, A.M. (2013). Impact of Capital Structure on Performance of Listed Public Sector Banks in India. *International Journal of Business and Management Invention*, *2*(10), 35-43.

- Hijazi, S. and Tariq, B. (2006). Determinants of Capital Structure: A Case for Pakistani Cement Industry. *The Lahore Journal of Economics*, *11*(1), 63-80.

- Jensen, M. and Meckling, N. (1976). The Theory of the Firm: Managerial Behavior Agency cost and Ownership Structure. *Journal of Financial Economics, 3*, 305 – 360.

- Modigliani, F. and Miller, M. (1958). The Cost of Capital Corporate Finance and the Theory of Investment. *American Economic Review, 48*, 261-297.

- Modigliani, F. and Miller M. (1963). Corporate Income Taxes and the Cost of Capital. *American Economic Review*, *53*, 433-443.

- Singh, H. (2014). Capital Structure Practices in Indian Corporate Sector. Ph.D. Thesis submitted to Department of commerce, Punjabi university, Patiala.

- Velnampy, T. and Niresh, A.J. (2012). The Relationship between Capital Structure and Profitability. *Global journal of management and business research*, 12(13), 67-73.