IMPACT OF CAPITAL STRUCTURE
ON ECONOMIC VALUE ADDED

(A COMPARATIVE STUDY OF SELECT CEMENT COMPANIES IN INDIA)

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ABSTRACT

Several studies have attempted to study the impact of important financial variables on economic value added of a firm. The present study attempts to study the impact capital structure on economic value addition of select cement companies in India. The study considers D/E ratio as proxy for capital structure of select cement companies. Further, the study also aims at examining the relationship capital structure (D/E ratio) and other important financial variables such as Cost of equity, and overall Cost of capital. The important findings of the study are as under;

1. *D/E ratios of all the cement companies have positive relationship with cost of equity.*
2. *Overall cost of capital has negative relationship with D/E ratio of select cement companies under study*
3. *Relationship between D/E ratio which is a proxy for capital structure and Economic value added of select cement companies has a negative relationship i.e. 'r', coefficient of correlation computed for all the firms of select industry over the study period is negative. This implies that capital structure and EVA has inverse relationship.*

Keywords: Capital structure, cost of equity, Cost of debt, Cost of capital, Debt-equity ratio, Economic value added.

INTRODUCTION:

The term capital structure refers to the relationship between the various long-term forms of financing such as debenture, preference share capital and equity capital. Financing the firm's assets is very crucial problem in every business and in general there should be a proper mix of debt and equity capital in financing the firm's assets. Combination of debt and equity which leads to the maximizations of the firm value is called as optimum capital structure. Optimum capital structure aims at minimizing the firm's overall cost of capital and maximizing the value of the firm. Use of debt funds in capital structure results in increased earnings per share as the tax is deductible on interest payments. However, increased use of debt funds in the capital structure may increase the financial risk of a business concern.

Increased financial risk may result in increased overall cost of capital which leads to decrease in market price of the share. Therefore, a firm should maintain an optimum capital structure which aids in maximizing the value of the business concern. The debate over the significance of a company's choice of capital structure is esoteric. But, in essence, it concerns the impact on the total market value of the company (i.e.; the combined value of its debt and its equity) of splitting the cash flow stream into a debt component and earn equity component.

Financial experts traditionally believed that increasing a company's leverage, i.e. increasing the proportion of debt in the company's capital structure, would increase value up to a point. But beyond that point, further increases in leverage would increase the company's overall cost of capital and decrease its total market value. (Anup Chowdhury, and Suman Paul Chowdhury 2015). It is generally believed that in order to maximize value for shareholders, companies should strive towards maximizing Market Value. The best way to do so is to maximize the EVA, which highlights a corporation's ability to earn returns above the cost of capital, which heavily depends on the capital structure. (Dr. Thejio Jose & Mr Abhishek Ashok, 2015).

In view of this the present paper makes an attempt to study the impact of capital structure on the economic value added of select cement companies in India. The reminder of the paper is arranged in five sections, Section II deals with literature review and research gap. Objectives and methodology of the study is covered in section-III. Section IV covers the Results and analysis, and finally, suggestions, limitations and conclusion are subject the matter of Section-V.

REVIEW OF LITERATURE:

Existing literature show that, several authors have attempted to study the impact of different financial variables on economic value addition of the firm. Following are some the recent literature which are reviewed for the present study.

OGBULU, Onyemachi Maxwell and EMENI, Francis Kehinde (2012): The aims at examining the impact of capital structure on a firm's value. The study included total of 124 companies listed at Nigerian Stock Exchange for the year ended 31st December 2007. In order to achieve the stated objective the study employed statistical tools such as least square method of regression. The result of the study reveals that in an emerging economy like Nigeria, equity capital as a component of capital structure is irrelevant to the value of a firm, while Long-term-debt was found to be the major determinant of a firm's value.

Maryam Alhani Fumani and Dr. Abdolkarim Moghadam (2015): In this study, the effects of capital structure of the company value, the rate of return on equity and earnings per share of listed companies in Tehran Stock Exchange during the years 2010-2014 were studied, due to limitations in total, 55 companies, was selected. In order to test the hypothesis of multiple regression analysis and evaluation of the significance of values and model of 95% of F-statistics and t-test were used. The results suggest that the rate of return on equity has a negative impact significantly on financial leverage and the markets value of the company's earnings per share has significant effect on the financial leverage it.

Ahmad Mohammad Obeid Gharaibeh, and Adel Mohammed Sarea (2015): The study attempt to study the impact of leverage and some significant decisions to use debt on the value of the firm. Total 239 observations were included in the study for the period from 2006 to 2013. The study uses

statistical tools such as correlation and multi-regression analyses. The study reveals that capital structure (leveraging) is the most influential factor on firm's value. Where the study concludes that Business risk, previous year's value (one-year lagged ROA), dividends payout ratio, size, growth opportunities and liquidity of the firm are found to have significant influence on the firm's value.

Merugu Venugopal, Dr. M Ravindar Reddy (2016): this study investigated the impact of capital structure on the profitability and shareholder wealth of the listed cement manufacturing companies using a panel data methodology. To analyze the data various statistical techniques include descriptive statistics, correlation analysis and regression analysis were used. Two kinds of variables were used in the study. The study reveals that the capital structures (debtequity ratio) positively impact the firm's profitability, market value and shareholder wealth but statistically this relation is not significant.

Aggarwal D and Padhan P.C. (2017): This study examines the effect of capital structure and firm quality on firm value of selected BSE listed Indian hospitality firms over a time frame of 2001-15. The findings of the study reveal a significant relationship of firm value with firm quality, leverage, liquidity, size and economic growth. The study shows that Modigliani miller theorem of capital structure irrelevance does not hold for Indian hospitality sector. It is of practical significance for hotel owners to reassess their capital structure to improve firm quality and firm's market performance.

Nguyen Minh Ha and Le Minh Tai (2017): This study analyses the impact of capital structure on cash holdings and the impact of capital structure and cash holdings on the value of firms listed on the Ho Chi Minh stock exchange (HOSE). With data from the financial statements of 105 firms listed on HOSE since 2009-2014 and using the generalized least square method, results show that cash holdings are positively related to the firm value; short-term debt is negatively related to firm value; the impact of long-term debt on the firm value is not statistically significant; short and long-term debt are negatively related to cash holdings.

Dr. Shivappa and Mrs. Jyothi N Talreja (2014): Conducted a study on Performance Evaluation of Selected Banks Using Economic Value Added. The study concluded that EVA can be used to value bank performance from shareholders point of view. Shareholders can use EVA values to decide on their investment decisions in different banks.

Dr. T. Narayana Reddy and Dr. M. Rajesh (2013): conducted a study on Analysis of Indian Cement Industry through Selected Traditional And Modern Measures. The study found that the performance of select cement units in terms of profitability cannot be increased unless the interlinked problems like modernisation, cost reduction, control, taxes etc. are solved.

After reviewing the above Literature the Following Observations were made:
1. In the emerging economy like Nigeria, equity capital as a component of capital structure is irrelevant to the value of firm, while long-term debt was found to be major determinant of firm's value.
2. Return on equity has significant negative impact on the financial leverage. Market value of the company's earnings per share has significant effect on the financial leverage.
3. Business risk, previous year's value (one year lagged ROA), dividend payout ratio, size, growth opportunities and liquidity of the firm are found to have significant influence on the firm's value.
4. Capital structure (debt-equity ratio) positively impacts the firm's profitability, market value and shareholder wealth but statistically this relation is not significant.
5. Modigilian Miller theorem of capital structure irrelevance does not hold for Indian hospitality sector. It is of practical significance for hotel owners to reassess their capital structure to improve firm's quality and firm's market performance.
6. Cash holdings are positively related to the firm value, short-term debt is negatively related to firm value, the impact of long-term debt on the firm value is not statistically significant, short and long-term debt are negatively related to cash holdings.
7. Economic value added can be used to value bank performance from shareholders point of view. Shareholders can use EVA values to decide on their investment decisions in different banks.

8. Performance of select cement units in terms of profitability cannot be increased unless the interlinked problems like modernisation, cost reduction, control, taxes etc. are solved

RESEARCH GAP:

After reviewing the above literature it is clearly evident that no specific study is conducted to study the impact of capital structure on the economic value added of select cement companies in India. In view of this the paper makes fresh attempt to study the impact of capital structure on economic value added of select cement producing companies in India.

OBJECTIVES OF THE STUDY:

The following objectives are set for the study
1. To determine the cost of equity, and overall cost of capital.
2. To determine the relationship between debt-equity ratio important financial variables such as cost of equity and overall cost of capital.
3. To know the relationship between capital structure and economic value addition.
4. To offer suggestions, to improve the performance of select cement companies in enhancing EVA which is the best proxy for performance measurement in the contemporary world of finance.

METHODOLOGY:

The proposed methodology of the study is as follows.
Firstly, the Debt-equity ratio is calculated which represents the capital structure of select cement companies in India. Secondly, the study attempts to establish relationship between capital structure (D/E ratio) and some of the important financial variables such as cost of equity and overall cost of capital. Finally, economic value added is calculated in to order study the impact of capital structure on economic value added of select cement companies in India.

The following table presents the methodology adopted to achieve the stated objectives

Debt-Equity ratio	Degree Financial leverage (DFL)	Financial break-even point (FBIP)
$\text{D/E Ratio} = \dfrac{\text{Total Debt}}{\text{shareholder's equity}}$	$DFL = \dfrac{EBIT}{(EBIT-1)}$ EBIT = Earnings before interest and taxes I = Interest The Above mentioned formula can only be used when debt capital is used in the capital structure of the company.	FBIP = I + PD / (1-t) Where, I = Interest PD = Preference Dividend t = effective tax rate.
Cost of Equity (Ke)	**Cost of Debt(Kd)**	**Overall cost of Capital (Ko)**
Rj= Rf+ß(Rm-Rf) Where, Rj= Expected return on scrip j Rf = Risk free rate of return	$Kd = \dfrac{\text{Interest}}{\text{Debt}} (1-t)$ Where, Kd= cost of debt t = effective tax rate.	Ko = ke [S/V] + Kd [B/V] Ko = overall cost of capital Ke = specific cost of equity

Debt-Equity ratio	Degree Financial leverage (DFL)	Financial break-even point (FBIP)
ß = Beta representing the volatility of scrip j against market volatility. Rm = Expected stock market Return		S = Market value of equity Kd = specific cost of debt B = Market value of debt V = Value of the firm (S+V)
Economic value Added	**Earnings per share**	
EVA = NOPAT – Capital Charges Where, EBIT = Operating profit before interest and tax T = Effective tax rate Cost of capital = cost of equity +cost of debt	EPS = $\dfrac{\text{Net Income}}{\text{Average out standing commons shares}}$	

SOURCE OF INFORMATION:

To conduct the study, qualitative and quantitative data was gathered through the secondary source of information. The information is collected from annual reports of select cement companies in India, compendium of top 500 companies published by capital market, journals, business newspapers and from financial websites such as moneycontrol.com, valueresearchonline.com etc.

COVERAGE OF THE STUDY:

The coverage of the study is being classified into three categories. It consists of
 1. Companies coverage
 2. Time coverage
 3. Tools coverage

Firstly, in the companies coverage following four cement companies are selected for our study.
 a. ACC Company Ltd.
 b. Ambuja Cements Ltd.
 c. Birla Corporation Ltd.
 d. Ultratech Cements Ltd.

Secondly, the study covers the time period from 2007 to 2016. Finally, the Impact of Capital Structure on Economic value added is studied using accounting ratios and mathematical and statistical tools such as average, percentage, co-efficient of correlation and R-squared.

RESULTS AND ANALYSIS:

Table 1: Table showing coefficient of correlation 'r' for D/E ratio and cost of equity

Company	Cost of equity to D/E ratio
ACC Ltd.	0.43
Ambuja Cements Ltd.	0.44
Birla Corporation	0.29
Ultratech Cements	0.27

We can infer from the above table that D/E ratio of all the cement companies have positive relationship with cost of equity. Ambuja cements is found to have highest co-efficient of correlation value of 44% and Ultratech cements is found to have least correlation value of 27%. Since D/E ratio all the cement companies under study have positive relationship with cost of equity. It indicates that as D/E ratio increases the Cost of equity of select cement companies also increases and vice versa.

Table 3: Table showing coefficient of correlation 'r' for D/E ratio and overall cost of capital

Company	Overall Cost of Debt to D/E ratio
ACC Ltd.	-0.05
Ambuja Cements Ltd.	-0.14
Birla Corporation	-0.44
Ultratech Cements	-0.10

It is evident from the above table that D/E ratios of all the cement companies have negative relationship with overall cost of capital. Ultratech cements is found to have highest negative co-efficient of correlation value of -44% and ACC Ltd has is found to have least negative correlation value of -5%. Since D/E ratio all the cement companies under study have negative relationship overall cost of capital it indicates that as the D/E ratio increases the overall cost of capital decreases and vice-versa.

Table 4: Table showing coefficient of correlation 'r' and 'r2' for D/E ratio and Economic value added

Name of the company	R	r2
ACC Ltd.,	-0.17334	0.03
Ambuja Cements	-0.19024	0.03
Birla Corporation	-0.20205	0.04
Ultratech Cements	-0.19604	0.03

From table 4, it is so clear that the relationship between D/E ratio which is a proxy for capital structure and Economic value added of select cement companies has a negative relationship i.e. 'r', coefficient of correlation computed for all the firms of select industry over the study period is negative. This implies that capital structure and EVA has inverse relationship. Put it differently, higher D/E ratio yields lower EVA. This is because fact that the higher D/E ratio would increase the financial risk of the company. Accordingly, overall cost of capital will also increase. Due to this EVA will decline and vice-versa.

FINDINGS:

Following are the major findings of our study
1. D/E ratios of all the cement companies have positive relationship with cost of equity.
2. Overall cost of capital has negative relationship with D/E ratio of select cement companies under study
3. Relationship between D/E ratio which is a proxy for capital structure and economic value added of select cement companies has a negative relationship i.e. 'r', coefficient of correlation computed for all the firms of select industry over the study period is negative. This implies that capital structure and EVA has inverse relationship.
4. The co-efficient of determination value (r2) is found to be highest in Birla Corporation.

SUGGESTIONS:

Following are the some of the suggestions given in the light of our findings

1. As there is a negative relationship between economic value added and capital structure (i.e. debt-equity ratio) of all select cement companies. Therefore, in order to enhance the economic value added (EVA), the companies are suggested to use optimum dose of debt to increase Economic Value Added (EVA) through the magnification of earnings in an orderly manner.

2. It is also suggested to respective companies of cements for not to form cartel to price the cement in the interest of the customers and in the interest of the nation.

3. In order to design the best economic value added (EVA) system in an organisation, the top management commitment is required. Therefore, to build this commitment, the top management should be thoroughly grounded in the theory and practice of economic value added.

4. Economic value added must be linked to various financial and non-financial variables which drive it. An understanding of these drivers helps manager to appreciate how their actions influence value.

5. One of the alternatives for improving the firm EVA is to change the debt structure. This remedy requires, using debt to finance assets rather than equity, because the opportunity cost of equity is generally higher than the cost to borrow.

CONCLUSION:

The present study aim at examining the impact of capital structure on the economic value added of select cement companies in India. It has been proved in our study that D/E ratio which is a proxy for capital structure has inverse relationship with EVA of all the cement companies under study.

LIMITATIONS OF THE STUDY:

1. Only four cement companies are undertaken as sample. Including some more companies to study would have given more conclusive results on impact of capital structure on economic value addition.

2. The study is restricted to 10 year period. Had the study be conducted for longer period the study would have helped in exhaustive understanding of influence of capital structure on value addition.

3. Due to time constraint only secondary source of data is used for the study.

4. The analysis of the present study is subjective in character.

5. The findings of the study are specific to the select cement companies under study and cannot be generalised.

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