

IMPACT OF CAPITAL STRUCTURE ON PROFITABILITY OF LISTED CEMENT INDUSTRY IN INDIA

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ABSTRACT

This paper is an attempt has been made so as to ascertain the impact of capital structure (**CS**) on the profitability (**P**) of the firm. This study is focused on cement industry. To proceed with the five cement firms were taken as sample, under convenience sampling technique. The study period is five years and completely based on secondary data. The data have been collected for the period of 5 years i.e. from the year 2008-09 to 2012-13 have been collected and considered for analysis. Correlation analysis (to analyze the impact of **CS** on (**P**)), in addition to descriptive statistics such as Mean, Standard Deviation, and Ratios have been used. The capital structure variables such as Debt to Equity, Debt to Asset, Interest coverage variables are taken as predictor variables and the profitability variables are taken as respondent variables to attain the objectives. The finding of the study have put forth that capital structure have negative impact on the profitability of the firms.

Key Words: Capital structure, profitability, ratio analysis, correlation analysis

JEL CODE: M21, G32

This study focuses on capital structure (**CS**) and (**P**) of listed cement firms in India. **Pandey(2009)**, stated the term **CS** of a business enterprise is actually a combination of equity shares, preference shares and long term debts. **Khan and Jain(2005)**, defined **CS** is the designing of an appropriate capital in the context of the facts and circumstances of each firm. It is the combination of debt and equity capital, which a firm uses to finance its long-term operations. **Mc Menmin,(2000)**, 'Capital' in this context refers to the permanent or long-term financing arrangement of the firm. Debt capital, therefore, is the firm's long-term borrowings and equity capital is the long-term funds provided by the shareholders, the firm's owners.

CS decision is a crucial financial decision in as much as it directly affected growth rate of the company, its credit standing, share prices and ultimately overall value of the company **Srivastava, (2001)**. If the **CS** decision can affect a firm's value, then it would like to have a **CS** which maximize its market value. According to Modigliani and Miller, under the assumptions of perfect capital markets and no taxes, argue that **CS** decision is irrelevant. **Pandey, (2011)**. **Singhania et al., (2005)**, states that an Optimum **CS** is one, which maximizes shareholder's return. It maximizes the cost of capital which in turn raises its ability to find inbuilt additional investment opportunities.

REVIEW OF LITERATURE

In order to find the impact of capital structure on the profitability of a firm, a lot of research has been undertaken so far by various researchers all over the world. The review of some of the major studies has been undertaken so as to develop a clear understanding about the relationship between **CS** and **P**. The review of such major studies are as follows:

Rafique (2011) in his study investigated the effect of the **P** of the firm and its financial leverage on the **CS** of the automobile industry in Pakistan and found that there is not any relation between the said two variables. **Niresh (2012)** in his paper found the impact of **CS** on **P** of ten listed Srilankan banks over 8 years of period. It found that the total debt was the determining factor of **P** in the banking industry in Srilankan banks. **Shubita and Alsawalhah (2012)** inferred in this study the effect of **CS** on **P** of the industrial companies listed on Amman Stock Exchange during six-year period. The study revealed significantly negative relation between debt and **P**. **Chisti, Ali, and Sangmi (2014)** examined the **CS** and **P** of the Nigerian listed firms from the Agency Cost Theory perspective for the firms listed in NSE over the period of ten years. It was found that it provided evidence against the Agency Cost Theory.

OBJECTIVES OF THE STUDY :

The main objective of the study is to find the impact of capital structure on the profitability of the selected cement firms. Some other specific objectives are as follows:

- To identify the impact of capital structure on profitability of listed cement firms over the period of the study.
- To find and analyze the impact of capital structure on profitability of cement firms.

HYPOTHESES:

H₀: There is no significant impact of capital structure on profitability of select cement firms.

H_a: There is significant impact of capital structure on profitability of select cement firms.

RESEARCH METHODOLOGY OF THE STUDY:

The data-base of the study is completely based on secondary data. The data for the study has been collected from various sources and the various annual reports of the firms were collected and accessed on www.moneycontrol.com website. The reference period of the study is of five years i.e. from 2008-09 to 2012-13. In this study the cement firms listed in NSE were selected on the basis of convenience sampling technique. The companies such as (1) Ambuja Cement (2) India Cement (3) JK Cement (4) Shree Cement, and (5) Ultratech Cement.

In order to achieve the set of objectives of the study, the researcher have used ratio analysis. These ratios are employed in order to confirm the relationship between the **CS** and **P**.

RESULTS AND DISCUSSION OF THE STUDY:

For the purpose of meeting the objectives of the study the P ratios are condensed with the help of “mean” technique. Thus the “mean” of **P** is taken as independent variable and CS ratio such as; Debt to assets ratio (**DAR**), Debt to Equity ratio (**DER**) and interest coverage ratio (**ICR**) are taken as dependent variables. Correlation analysis has been used in order to analyse the performance between **P** and **CS** variables and the result has been derived.

Table 1: Debt to Equity Ratio

Source: compiled from various annual reports of the firms.

Company	2008-09	2009-10	2010-11	2011-12	2012-13	Mean	St. Dev
AMBUJA CEMENT	0.27	0.27	0.28	0.25	0.25	0.264	0.013
INDIA CEMENT	0.92	0.87	0.93	1	1.12	0.968	0.097
JK CEMENT	0.8	1.2	1.44	1.32	1.25	1.202	0.242
SHREE CEMENT	1.48	1.43	1.33	1.11	0.58	1.186	0.367
ULTRATECH CEMENT	0.67	0.64	0.73	0.67	0.66	0.674	0.034

Table 1 shows that most of the firms usually employ debt relatively lower than their equity.

Among these firms the ratio of JK cement and Shree cement is relatively high when compared to other firms with mean of 1.202 and 1.186 respectively which indicates that these two firms is aggressive in financing its growth with debt. On the other hand Ambuja firm is very low with a mean of 0.264 which indicates that the firm wants to retain much control over the company. In addition, this firm has minimum standard deviation as compared to other firms during the period of study. Considering the above results Shree cement is having maximum standard deviation of 0.367 which is relatively higher as compared to the standard deviation of other firms.

Table 2: Debt to Assets Ratio

Company	2008-09	2009-10	2010-11	2011-12	2012-13	Mean	St. Dev
AMBUJA CEMENT	0.26	0.26	0.28	0.25	0.25	0.26	0.012
INDIA CEMENT	0.59	0.57	0.58	0.64	0.67	0.61	0.043
JK CEMENT	0.56	0.68	0.74	0.77	0.75	0.7	0.085
SHREE CEMENT	0.68	0.68	0.69	0.82	0.46	0.666	0.129
ULTRATECH CEMENT	0.5	0.51	0.57	0.51	0.52	0.522	0.028

Source: compiled from various annual reports of the firms.

Table 2 depicts that almost all the firms use debt in financing their assets. Most of the firms use more debt in proportion to their equity. As shown in the table, it is clearly seen that Ambuja Cement is using less debt in proportion to equity in financing their assets. This firm is using debt with the mean of 0.26 indicating that this company finances its most of assets by equity. On other side the Shree cement has high mean of 0.666 when compared to other firm. When compared all these firms use debt in relatively same proportion over the last five years.

Table 3: Interest Coverage Ratio

Company	2008-09	2009-10	2010-11	2011-12	2012-13	Mean	St. Dev
AMBUJA CEMENT	80.58	34.66	33.36	26.14	24.27	39.802	23.231
INDIA CEMENT	6.87	4.82	1.63	2.33	1.76	3.482	2.291
JK CEMENT	5.39	1.54	2.98	3.44	1.89	3.048	1.521
SHREE CEMENT	10.28	7.71	1.61	3.92	6.8	6.064	3.371
ULTRATECH CEMENT	13.8	7.54	16.16	19.24	9.7	13.288	4.74

Source: compiled from various annual reports of the firms.

Table 3, shows that Ambuja cement have maximum interest coverage ratio as compared to other firms with mean of 39.802 which indicates that this firm have less burden of debt expenses. On

other hand JK Cement and India cement have minimum mean of 3.048 and 3.482 respectively indicating that these two firms have much burden with financial charges as compared to other firms. It is also mean that these firms are not very much attractive enough in terms of debt financing. With regard to standard deviation Ambuja Cement have highest standard deviation of 23.231 implying that the firm paying interest at a huge fluctuating rate and JK cement has low standard deviation of 1.521 when compared to other firms indicates that the firm is constantly paying its interest dues in an average manner.

Table 4: Gross Profit Ratio

Company	2008-09	2009-10	2010-11	2011-12	2012-13	Mean	St. Dev
AMBJA CEMENT	49.88	49.94	57.2	59.47	55.84	54.466	4.357
INDIA CEMENT	53.75	49.85	44.45	50.65	80.18	55.776	14.048
JK CEMENT	59.5	51.47	47.94	47.64	44.6	50.23	5.725
SHREE CEMENT	53.61	60.46	44.58	36.12	51.55	49.264	9.276
ULTRATECH CEMENT	52.19	51.33	52.18	53.64	51.92	52.252	0.851

Source: compiled from various annual reports of the firms.

Table 4, depicts that Ambuja Cement and India Cement are having highest gross profit ratio with the mean of 54.466 and 55.776 respectively as compared to other firms, implies that these firms are very efficient in producing their products and have sufficient resources to pay for cost necessary to run and grow their business. On the other hand, the other three firms have average mean indicates that they also somewhat efficient in producing their products and have sufficient resources to pay for cost necessary to run and grow their business. The standard deviation of India Cement is very high when compared to other firm indicates that this firm is not experiencing average gross profit and Ultratech Cement is having low standard deviation of 0.851 indicates that it is experiencing average gross profit.

Table 5: Net Profit Ratio

Company	2008-09	2009-10	2010-11	2011-12	2012-13	Mean	St. Dev
AMBJA CEMENT	18.96	15.5	14.31	13.33	14.13	15.246	2.216
INDIA CEMENT	12.87	9.61	2	6.97	3.15	6.92	4.502
JK CEMENT	1.13	2.71	6.97	8.02	3.47	4.46	2.991
SHREE CEMENT	21.28	18.63	5.99	10.49	17.96	14.87	6.379
ULTRATECH CEMENT	15.52	10.55	13.36	13.16	10.57	12.632	2.106

Source: compiled from various annual reports of the firms.

Table 5, exhibits that Ambuja Cement and Shree Cement having maximum net profit ratio with the mean of 15.246 and 14.87 respectively as compared to other firms taken under study which indicates that these firms are in better position to cope up market challenges like price, low demand etc., and also shows that these companies enjoy high profitability. On other side JK Cement has minimum mean which indicates that it is not in a better position to prevail economic condition because of its low profitability. Considering the standard deviation of the firms Shree Cement is having maximum standard deviation of 6.379 which indicates that this firm is earning its net profit at fluctuating manner, and the firm Ultratech Cement has lowest standard deviation of 2.106 when compared to other firms under study, indicating that this company is enjoying the net profit in a quite manner.

Table 6: Operating Profit Ratio

Company	2008-09	2009-10	2010-11	2011-12	2012-13	Mean	St. Dev
AMBJA CEMENT	27.16	25.23	23.11	25.42	18.02	23.788	3.53
INDIA CEMENT	27.95	20.54	10.26	21.49	17.5	19.548	6.438
JK CEMENT	21.55	11.3	20.4	19.23	13.41	17.178	4.54
SHREE CEMENT	35.11	41.45	25.37	27.9	27.92	31.55	6.316
ULTRATECH CEMENT	28.08	20.03	22.65	23.18	18.83	22.554	3.577

Source: compiled from various annual reports of the firms.

Table 6, exhibits that Ambuja Cement and Ultratech Cement are having maximum operating profit ratio with the mean of 23.788 and 22.554 when compared to all other companies, indicates that these firms are cultivating much efficiency from their operations. On other side the firm JK Cement is of low mean of 17.178 when compared to other firm's shows that this firm is lacking efficiency in their operation. Coming to standard deviation of the companies under study, from the table, the firm India Cement and Shree Cement has highest standard deviation of 6.438 and 6.316 respectively indicates that these firms are earning their operating profits at a highly fluctuating way. On the other side, the firms like Ambuja Cement and Ultratech Cement have minimum standard deviation of 3.53 and 3.58 respectively when compared to other firms and it indicates that these firms are earning operating profits in an average pace.

Table 7: Return on Capital Employed

Company	2008-09	2009-10	2010-11	2011-12	2012-13	Mean	St. Dev
AMBJA CEMENT	32.57	27.48	27.28	34.42	21.37	28.624	5.121
INDIA CEMENT	17.23	12.72	5.49	16.47	13.67	13.116	4.66
JK CEMENT	26.03	11.27	19.2	21.56	14.04	18.42	5.89
SHREE CEMENT	53	66.9	33.71	141.9	59.63	71.028	41.5
ULTRATECH CEMENT	43.53	27.86	32.2	32.05	23.03	31.734	7.59

Source: compiled from various annual reports of firms.

Table 7 depicts that the firm Shree Cement has highest mean of 71.028 when compared to other firms indicates that this firm is in a favourable condition to generate more earnings from each rupee of capital employed. This company obtains satisfactory return on their capital over the period of study. On the other hand, the firm India Cement and JK Cement has minimum mean of 13.116 and 18.42 when compared to other firms, indicates that these firms are weak in earning profit on the capital employed. The company like Ambuja Cement and Ultratech Cement have modest return from their capital employed under the study.

Considering the standard deviation of the firm, the firm with highest standard deviation is Shree Cement with a standard deviation of 41.5, indicates that this firm earns at a good pace on their capital invested over the period of study.

Table: 8 Correlation between capital structure and profitability

		Profitability	Debt to Equity	Debt to Asset	Interest Coverage
Profitability	Pearson Correlation	1	-.730*	-.786*	.888**
	Sig. (2-tailed)		.047	.024	.112
	N	25	25	25	25
Debt to Equity Correlation	Pearson		1	.982**	-.930*
	Sig. (2-tailed)			.003	.002
	N		25	25	25
Debt to Asset Correlation	Pearson			1	-.976**
	Sig. (2-tailed)				.004
	N			25	25
Interest Coverage Correlation	Pearson				1
	Sig. (2-tailed)				
	N				25

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

The table 8 depicts that the debt to equity and debt to asset has negatively correlated with profitability of the selected firms. On other hand the interest coverage ratio has positive impact and significantly associates with profitability of the firms under study.

Conclusion:

In this study debt to equity is negatively correlated to profitability ratios, it imply that if the debt proportion increased aggressively then it will adversely impact the profitability. Furthermore the companies under study are exposing themselves to more risk and it may led to lose control if it continues.

The debt to asset ratio is also negatively correlated to profitability ratios, and imply that it has negative impact on profitability and the interest coverage ratio is positively and significantly correlated with profitability, which imply that such ratio has positive impact on profitability.

Analyzing the correlation between the **CS** ratios, **DAR** is positively correlated to **DER** and **ICR** is negatively correlated to Debt to Equity ratio and Debt to Asset ratio.

The overall firm-wise conclusion of the study are given below:

1. Taking Ambuja cement into account, it has less burden of debt expense which means it uses its equity more than debt. It has sufficient resources to run and grow its business and it enjoys high profitability and bringing much efficiency in their operation.
2. Analyzing the result of India cements, this firm is efficient in producing their products and have sufficient resource to pay for cost necessary to run their business. This concentrate more on debt rather than equity. They invest their capital in more efficient manner and due to more debt they couldn't earn more profit from their business.
3. Considering JK cement, its debt to equity ratio is very high as compared to other firms. It has more burden of debt and it is more dependent on debt for carrying out its business. It doesn't have a proper mix of capital that it could not serve its debt in effective manner. The overall profitability of the company is very low when compared to other companies. This effect may be of its overall poor employment of capital.
4. Taking Shree cement into account: this firm is using more debt rather than equity and financing in developing its asset. It moderately manage its debt and it is highly leveraged company under study, the overall capital is employed in such a way that it leaves a positive impact on profitability.

LIMITATIONS OF THE STUDY:

- The study is limited to only 5 firms. Therefore, this comprises the result of only a few number of firms, which would not be sufficient to totally generalize the inference to the whole industry.
- The data used for the study are secondary in nature. Therefore, the accuracy of the results of analysis is totally dependent upon the reliability and accuracy of secondary data.

SUGGESTION AND SCOPE FOR FUTHER STUDIES:

- Studies could be carried out covering more firms and inference could be ascertained.
- Studies could be done based on any other industries and difference between the size of the firms can be compared to other size.

Reference:

1. Chechet, Ishaya Luka, and Abduljeleel Badmus Olayiwola. 2014. Capital Structure and Profitability of Nigerian Quoted Firms: The Agency Cost Theory Perspective. *American International Journal of Social Science* 3(1): 139-58.
2. chisti, Khalid Ashraf, Khursheed Ali, Mouh-i-Din Sangmi. 2013. Impact of Capital Structure on Profitability of Listed Companies. *The USV Annuals of Economics and Public Administration* 13(1[17]): 183-91.
3. Khan, M. Y. and P. K. Jain. 2005. *Financial Management*, 2nd Edition, Tata McGraw-Hill Publishing Company Limited, New Delhi: 11.1.
4. McMenmin, Jim. 2000. *Financial Management*, 1st Edition, Oxford University Press, New York: 452-53.
5. Niresh, Aloy, J. 2012. Capital Structure and Profitability of Srilankan Banks. *Global Journal of Management and Business Research* 12(13): 82-90.
6. Pandey, I. M. 2009. *Financial Management: Capital Structure Planning and Policy*, Vikas Publishing House Private Limited, New Delhi: 332-333.
7. Pandey, I. M. 2011. *Essentials of Financial Management*, 3rd Edition, Vikas Publishing House Private Limited, New Delhi: 334.
8. Rafique, Mahira. 2011. Effect of Profitability and Financial Leverage on Capital Structure: A Case of Pakistan's Automobile Industry. *Economics and Finance Review* 1(14): 50-58.
9. Shubita, Mohammad Fawzi, and Jafer Maroof Alsawalhah. 2003. Relationship between Capital Structure and Profitability. *International Journal of Business and Social Science* 3(16): 104-112.
10. Singhania, Vinod .K, Kapil Singhania, and Monica Singhania. 2005. *Direct Taxes Planning and Management*, 9th Edition, Taxmann Publications Private Limited, New Delhi: 145.
11. Srivastava, R. M. 2001. *Essentials of Business Finance*, 7th Edition, Himalaya Publishing House, Mumbai: 173.