

# Capital Structure Optimization in The Cement Industry A Case Study of JSW Cements

1 ^ M ABDUL BASID

Asst-Prof ,MBA Dept Santhiram Engineering College,Nandyal.

2^ SHAIK HABIBULLAH

Student of MBA Dept, Santhiram Engineering College,Nandyal

*This empirical paper attempts to study the desirable capital structure of Cement industry of the Indian corporate sector. The study is limited to top 13 firms from Cement industry out of top 500 manufacturing firms selected on the basis of the turnover for the year 2004-2005 which covers the time span of eleven years commencing from 1995-96 to 2005-06. It has been observed that more than half of the companies (54.35 percent) in Cement industry are in 100-200 percent capital structure range during the study period. It means that in this industry, such companies are following liberal and safe approach of financing through debt. These companies are using more amount of debt in their capital structure than their own capital but less than the well established standard range of 200 percent(2:1) while It has been observed that one-fourth (25.36 percent) companies in Cement industry are in the 0-100 percent capital structure range during the study period. It means that in this industry, such companies are following conservative approach of financing through debt. So in this industry, comparatively lesser number of companies is lying in this capital structure slab during the study period. However, debt capital is a cheaper source of finance, thus, the use of debt may maximize the value of wealth of shareholders. It is observed that number of companies in 0-10 percent and 10-20 percent capital structure ranges is nil in Cement industry during the study period. Thus it is finalised that companies in Cement industry are following liberal and safe approach of financing through debt in the composition of their capital structure during the study period.*

**Key Words:-** Conservative, Liberal, Aggressive, Capital Structure, Shareholders.

## **Section I – Introduction**

Capital structure is the mix of debt, equity and preference securities that are used to finance a company's assets. Leverage is generally measured by the ratio called debt-equity ratio. This ratio indicates the relationship between the borrowed funds and owners' funds in the capital structure of a company. "Many theories have been developed to show the relationship between capital structure and value of a firm. There are different views on how capital structure influences value of a firm. Some authors argue that there is no relationship between capital structure and the value of a firm, whereas others hold that financial leverage

has a positive effect on value of a firm. There are also some who take the intermediate approach that financial leverage has a positive effect on the value of a firm that is only up to a certain point and thereafter there will be negative effect, another contention that, other things being equal, the greater the leverage, the greater the firm value. According to the net income approach when leverage varies, the cost of debt and the cost of equity remain unchanged. Therefore, the weighted average cost of capital declines as leverage increases and the value of the firm will increase.” (Narinder & Sharma, 2006). Long-Term financing is closely linked up with the capital structure trends as reflected by the debt-equity ratio in various industries. Various all India financial institutions generally observed the debt-equity norm of 2:1 for financing the firms in private sector. Relaxation is made in certain cases e.g. in the case of capital-intensive industries like fertilizer, aluminum, petrochemical, electricity supply undertakings, steel and cement plants of the private sector, the permitted ratio is around 3:1. In the case of the shipping industry, the ratio of 6:1 or even higher is permitted. The experience in developed countries is quite fascinating. The ratio seems to have around 2:1 in Europe and U.K, and 4:1 in Japan implying very little reliance on owners’ equity. However, this ratio is 1:2 in U.S.A., implying more reliance on owners’ equity. Thus, the optimal capital structure should be decided ethically which will contribute to the stakeholders’ wealth. It is well recognized by the government that a standard norm with regard to debt-equity ratio for all industrial units is neither desirable nor practicable as conditions differ from industry to industry and from unit to unit within industry. However, the choice between debt and equity from the point of view of shareholders as well as from the point of view of lenders is an important one and it will be useful to list the special advantages of either form of capital relative to the other.

- ❖ The greater use of debt, where the interest rate is lower than the average rate of return on the investment, increases the net return to equity shareholders.
- ❖ Higher debt does not impair the control of shareholders over the enlarged operations of the company.
- ❖ Deductibility of the interest on debt before computing profits charge to tax, as against payment of dividends out of profits after tax, implies an effective lowering of the tax rate on a company more or less in proportion to the extent to which debt is substituted for equity in the company’s financing pattern.
- ❖ Debt is cheaper source of finance, cost of debt is lower than cost of preference share capital as well as equity share capital because the debt holders are the first claimants on the firm’s assets at time of its liquidation. Similarly, they are the first to be paid their interest before any dividend is paid to preference and equity shareholders. Interest paid to the debt holders is an item chargeable to profits of a firm.

But, debt is riskier. It enhances the financial risk. Also, if interest and principal payments on debt are not promptly met when due, bankruptcy, loss of control for the owners may occur. It will turn out that use of

some debt by the firm is desirable and a strong case can be made for the existence of an optimal capital structure, or debt/equity mix. Finally, the conclusion that some debt, but not 100 percent debt financing, is optimal will be reached by introducing various market imperfections. As far as preference share capital is concerned, it offers benefits only if the profits are available to the issuing company. Preference shareholders bear the risk being the owner of the company. At the same time, preference capital is used as a part of owners' stake for trading on equity. The paper is organized into five sections. Section I provides the introduction about capital structure. Section II deals with data source, sample size & research methodology to be followed in the study. Section III presents reports and analysis of the empirical results of the study. Section IV summarizes and concludes the study. Section V describes the suggestions & scope for further research.

## **Section II – Data Source, Sample Size & Research Methodology**

For looking at the desirable capital structure of Cement industry of the Indian corporate sector, the firm level panel data is taken into consideration and it is collected from the corporate data base PROWESS maintained by the Center for Monitoring the Indian Economy (CMIE). This database contains the detailed information on the financial performance of all the public listed companies in all the segments in India, compiled from various sources such as profit and loss accounts and balance sheets, stock price data, the annual reports etc. The database also contains background information including ownership pattern, products, profit, plant location, new investment and so on for the companies. This is a reliable source of information and many researchers in India have used the data for their empirical analysis. The data used in the analysis consists of the manufacturing firms listed on the Bombay Stock Exchange (BSE). We have also restricted our analysis to firms that have no missing data continuously for eleven years. So the sample size is a function of available data. Finally, we ended up with top 13 firms from Cement industry out of the list of top 500 private sector manufacturing firms published in the Business Today, on the basis of sales turnover for the year 2004-05. So, these top 13 firms from Cement industry constitute sample for our empirical study. The study covers time span of eleven years commencing from 1995-96 to 2005-06. In the present study, the ratio of total borrowings to net worth is being used for measuring the capital structure (debt–equity ratio) of a firm. Here, borrowings include all forms of debt-interest bearing or otherwise. All secured and unsecured debt is included under total borrowings. Thus, total borrowings include debt from banks (short term as well as long term) and financial institutions, inter-corporate loans, fixed deposits from public and directors, foreign loans, loan from government, etc. Funds rose from the capital market through the issue of debt instruments such as debentures (both convertible and non-convertible) and commercial paper are also included here while net worth includes equity share capital, preference share capital and reserve & surpluses minus revaluation reserves & miscellaneous expenses not written off. Preference share capital is irredeemable in nature. So, it is considered as a part of net worth. Short-term borrowings are

included in the debt or total borrowings because it is observed that short-term borrowings are being used as a long-term source of finance in the Indian context. The capital structure has been divided into thirty one ranges during the period for empirical study. Further these capital structure ranges are classified into four broader categories – i.e. 0-100 percent, 100-200 percent, 200-300 percent and more than 300 percent for analytical analysis.

### **Section III – Empirical Results**

4.41 percent of the total number of sample companies lying in Cement industry which includes 138 observations from the years 1995-96 to 2005-06 over a period under study are shown in the Table. Capital structure wise analysis displays that highest number of companies (9.42 percent) is in 120-130 percent capital structure range, followed by 8.70 percent of companies in 140-150 percent capital structure range, while no company is lying in 270-280 percent capital structure range during the period under study. Yearly analysis reveals that highest number of companies (33.33 percent) is in 80-90 percent capital structure range in the year 1995-96. It may be noted that 25.36 percent companies are in 0-100 percent, 54.35 percent companies in 100-200 percent, 13.77 percent companies in 200-300 percent and 6.52 percent companies in more than 300 percent broadly classified capital structure ranges during the period under study. So, it has been observed that more than half of the companies (54.35 percent) in Cement industry are in 100-200 percent capital structure range. It means that in this industry, such companies are following liberal and safe approach of financing through debt. These companies are using more amount of debt in their capital structure than their own capital but less than the well established standard range of 200 percent(2:1). Similarly, it has also been observed that more than one fourth of the companies (25.36 percent) are in 0-100 percent capital structure range. Such companies are following conservative approach of financing through debt. These companies are using lesser amount of debt in their capital structure as compared to even their own capital also, although it is a cheaper source of finance. It has been observed that a little more than one fifth of the companies (20.29 percent which means that 13.77 percent in 200-300 percent and 6.52 percent in more than 300 percent capital structure ranges) are in more than 200 percent capital structure ranges. It means that such companies are using debt freely as a source of finance. Such companies are using debt beyond the well established standard range of 200 percent (2:1). But, in this

**Table – Percentage Distribution of 13 Companies under Cement Industry**

| Capital Structure (%) | Year    |         |         |         |         |         |         |         |         |         |         | Avg. |
|-----------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|------|
|                       | 2013-14 | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 | 2022-23 | 2023-24 |      |
| 00-10                 | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0    |
| 10 20                 | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0    |
| 20-30                 | 8.33    | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0.72 |

|                |              |              |              |              |              |              |              |              |              |              |              |              |
|----------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| 30-40          | 0            | 8.33         | 0            | 0            | 0            | 0            | 0            | 0            | 0            | 0            | 7.69         | 1.45         |
| 40-50          | 8.33         | 0            | 0            | 0            | 0            | 0            | 0            | 0            | 0            | 0            | 7.69         | 1.45         |
| 50-60          | 0            | 0            | 8.33         | 0            | 0            | 0            | 0            | 0            | 0            | 7.69         | 7.69         | 2.17         |
| 60-70          | 0            | 0            | 0            | 0            | 7.69         | 0            | 7.69         | 7.69         | 0            | 15.38        | 7.69         | 4.35         |
| 70-80          | 0            | 8.33         | 0            | 0            | 0            | 18.18        | 0            | 0            | 15.38        | 7.69         | 0            | 4.35         |
| <b>80-90</b>   | <b>33.33</b> | <b>16.67</b> | <b>0</b>     | <b>0</b>     | <b>7.69</b>  | <b>9.09</b>  | <b>0</b>     | <b>0</b>     | <b>0</b>     | <b>0</b>     | <b>0</b>     | <b>5.80</b>  |
| 90-100         | 25           | 0            | 8.33         | 15.38        | 7.69         | 0            | 0            | 0            | 0            | 0            | 0            | 5.07         |
| 100-110        | 0            | 8.33         | 0            | 0            | 0            | 9.09         | 15.38        | 0            | 15.38        | 0            | 7.69         | 5.07         |
| 110-120        | 0            | 25           | 0            | 15.38        | 7.69         | 0            | 0            | 15.38        | 7.69         | 0            | 0            | 6.52         |
| <b>120-130</b> | <b>0</b>     | <b>8.33</b>  | <b>25.00</b> | <b>7.69</b>  | <b>0</b>     | <b>9.09</b>  | <b>15.38</b> | <b>15.38</b> | <b>7.69</b>  | <b>7.69</b>  | <b>7.69</b>  | <b>9.42</b>  |
| 130-140        | 0            | 0            | 0            | 7.69         | 0            | 0            | 0            | 0            | 7.69         | 0            | 0            | 1.45         |
| 140-150        | 16.67        | 16.67        | 8.33         | 0            | 15.38        | 9.09         | 0            | 0            | 7.69         | 15.38        | 7.69         | 8.70         |
| 150-160        | 8.33         | 0            | 8.33         | 0            | 15.38        | 9.09         | 0            | 7.69         | 0            | 0            | 7.69         | 5.07         |
| 160-170        | 0            | 0            | 0            | 7.69         | 7.69         | 0            | 0            | 7.69         | 0            | 0            | 0            | 2.17         |
| 170-180        | 0            | 8.33         | 8.33         | 7.69         | 0            | 18.18        | 0            | 7.69         | 0            | 0            | 23.08        | 6.52         |
| 180-190        | 0            | 0            | 0            | 7.69         | 0            | 0            | 0            | 0            | 0            | 15.38        | 7.69         | 2.90         |
| <b>190-200</b> | <b>0</b>     | <b>0</b>     | <b>25</b>    | <b>0</b>     | <b>7.69</b>  | <b>0</b>     | <b>15.38</b> | <b>7.69</b>  | <b>0</b>     | <b>7.69</b>  | <b>7.69</b>  | <b>6.52</b>  |
| <b>200-210</b> | <b>0</b>     | <b>0</b>     | <b>0</b>     | <b>0</b>     | <b>0</b>     | <b>0</b>     | <b>7.69</b>  | <b>0</b>     | <b>15.38</b> | <b>7.69</b>  | <b>0</b>     | <b>2.90</b>  |
| 210-220        | 0            | 0            | 8.33         | 0            | 7.69         | 9.09         | 0            | 0            | 15.38        | 0            | 0            | 3.62         |
| 220-230        | 0            | 0            | 0            | 7.69         | 0            | 0            | 0            | 0            | 0            | 7.69         | 0            | 1.45         |
| 230-240        | 0            | 0            | 0            | 7.69         | 0            | 9.09         | 0            | 0            | 0            | 0            | 0            | 1.45         |
| 240-250        | 0            | 0            | 0            | 0            | 0            | 0            | 7.69         | 0            | 0            | 0            | 0            | 0.72         |
| 250-260        | 0            | 0            | 0            | 7.69         | 0            | 0            | 0            | 7.69         | 0            | 0            | 0            | 1.45         |
| 260-270        | 0            | 0            | 0            | 0            | 0            | 0            | 0            | 7.69         | 0            | 0            | 0            | 0.72         |
| 270-280        | 0            | 0            | 0            | 0            | 0            | 0            | 0            | 0            | 0            | 0            | 0            | 0            |
| 280-290        | 0            | 0            | 0            | 0            | 0            | 0            | 7.69         | 0            | 0            | 0            | 0            | 0.72         |
| 290-300        | 0            | 0            | 0            | 0            | 7.69         | 0            | 0            | 0            | 0            | 0            | 0            | 0.72         |
| >300           | 0            | 0            | 0            | 7.69         | 7.69         | 0            | 23.08        | 15.38        | 7.69         | 7.69         | 0            | 6.52         |
| <b>Total %</b> | <b>100</b>   | <b>100</b>   | <b>100</b>   | <b>100</b>   | <b>100</b>   | <b>100</b>   | <b>100</b>   | <b>100</b>   | <b>100</b>   | <b>100</b>   | <b>100</b>   | <b>100</b>   |
| <b>0-100</b>   | <b>75</b>    | <b>33.33</b> | <b>16.67</b> | <b>15.38</b> | <b>23.08</b> | <b>27.27</b> | <b>7.69</b>  | <b>7.69</b>  | <b>15.38</b> | <b>30.77</b> | <b>30.77</b> | <b>25.36</b> |
| <b>100-200</b> | <b>25</b>    | <b>66.67</b> | <b>75</b>    | <b>53.85</b> | <b>53.85</b> | <b>54.55</b> | <b>46.15</b> | <b>61.54</b> | <b>46.15</b> | <b>46.15</b> | <b>69.23</b> | <b>54.35</b> |
| <b>200-300</b> | <b>0</b>     | <b>0</b>     | <b>8.33</b>  | <b>23.08</b> | <b>15.38</b> | <b>18.18</b> | <b>23.08</b> | <b>15.38</b> | <b>30.77</b> | <b>15.38</b> | <b>0</b>     | <b>13.77</b> |
| <b>&gt;300</b> | <b>0</b>     | <b>0</b>     | <b>0</b>     | <b>7.69</b>  | <b>7.69</b>  | <b>0</b>     | <b>23.08</b> | <b>15.38</b> | <b>7.69</b>  | <b>7.69</b>  | <b>0</b>     | <b>6.52</b>  |

industry, only 9.42 percent companies are in 190 to 210 percent (1.90:1 to 2.10:1) capital structure range which is near to the well established standard range of 200 percent (2:1) during the study period. Under 200-300 percent capital structure range, eight sub capital structure ranges are having less than 2 percent companies, each, respectively. There is no company in any sub-range of 200-300 percent broader capital structure range during 2017-18, 2018-19 and 2019-20. However, during 2020-21 only a small number of companies is lying in one particular sub capital structure range. It has also been observed that there are a certain percentage of companies in highest capital structure range, i.e. more than 300 percent, in only six out of eleven year study period. Overall, it is found that companies under Cement industry are using more amount of debt in their capital structure during the study period.

#### **Section IV – Summary and Conclusions**

The paper analyses the composition of capital structure of Cement industry of the Indian corporate sector. The study is limited to top 13 firms from Cement industry out of the top 500 private sector manufacturing firms selected on the basis of sales turnover for the year 2004-2005, published in Business Today, which covers time span of eleven years commencing from 1995-96 to 2005-06. The following are the conclusion and findings of the present study.

1. It has been observed that one-fourth (25.36 percent) companies in Cement industry are in the 0-100 percent capital structure range during the study period. It means that in this industry, such companies are following conservative approach of financing through debt. So in this industry, comparatively lesser number of companies is lying in this capital structure slab during the study period. However, debt capital is a cheaper source of finance, thus, the use of debt may maximize the value of wealth of shareholders.
2. It is found that more than half (54.35 percent) companies in Cement industry are in 100-200 percent capital structure range during the period under study. So, in this industry, such companies are following liberal and safe approach of financing through debt in the composition of their capital structure. These companies are using more amount of debt in their capital structure than their own capital but less than the well established standard range of 200 percent (2:1).
3. It is found that 9.42 percent companies in Cement industry are in 190 to 210 percent (1.90:1 to 2.10:1) capital structure ranges during the period under study. It means that in this industry a few numbers of companies are approaching to the well-established standard range of 200 percent (2:1) during the study period.
4. It is observed that number of companies in 0-10 percent and 10-20 percent capital structure ranges is nil in Cement industry during the study period.
5. It has been observed that in this industry the number of companies in 200-300 percent and more than 300 percent capital structure ranges are 13.77 percent and 6.52 percent respectively during the study period. Such companies in these ranges are using debt freely as a source of finance. Such companies are using debt beyond the well-established standard range of 200 percent (2:1) during the study period.

Thus it is finalised that companies in Cement industry are following liberal and safe approach of financing through debt in the composition of their desirable capital structure during the study period.

#### **Section V- Suggestions & Scope for Further Research**

In the present study, use of liberal approach by Cement industry of financing through debt in the composition of their capital structure in the Indian Corporate Sector is observed. Further research can be carried out for finding out the factors which are responsible for such liberal and safe behaviour of firms in planning the desirable capital structure of this industry. So, a financial manager should consider a number of factors to set the composition of an optimal capital structure for a firm giving considerable weight to earnings

rate, collateral value of assets, age, cash flow coverage ratio, non-debt tax shield, size (net sales), dividend payout ratio, debt service ratio, cost of borrowing, corporate tax rate, current ratio, growth rate, operating leverage and uniqueness (selling cost/sales) etc. India is blended with full of laws. There is no need to create new laws. The need is to change mind set of the Indians. Thus, there is a need to develop such an ethical culture in the corporate sector which is to be based upon the teachings of ancient Indian Wisdoms which will develop the capital market to the fullest extent with the fullest faith and will lead to contribute to the wealth of shareholders.

### **References**

- Allen, D.E. and Mizuno, H., ***"The Determinants of Corporate Capital Structure: Japanese Evidence"*** Applied Economics, Vol. 21, No.5, May, 1989, pp. 569-585.
- Anthony, Robert N. and Reece, James S., (1982), ***"Management Accounting Principles,"*** D.S. Taraporewala and Sons, New Delhi.
- Chandra, Prasanna, (1984), ***"Financial Management Theory and Practice,"*** Tata McGraw Hill Publishing Company Ltd., New Delhi.
- Chandra, Prasanna, (1985), ***"Management's Guide to Finance and Accounting,"*** Tata McGraw Hill Publishing Company Ltd., New Delhi.
- Guthman, Harry G., (Forth Edition), ***"Analysis of Financial Statements,"*** Prentice Hall of India, New Delhi.
- Gangadhar, V. and Begum, Arifa, ***"Impact of Leverage on Profitability,"*** Journal of Accounting & Finance, Vol. 17, No.1, Oct., 2002 – March, 2003, pp. 58-72.
- Garg, Mahesh Chand and Shekhar, Chander, ***"Determents of Capital Structure in India,"*** The Management Accountant Vol. 37, No. 2, Feb., 2002, pp. 86-92.
- Khan, M.V. & Jain, P.K., (1983), ***"Financial Management,"*** Tata McGraw Hill, New Delhi.
- Kraus, Alan and Litzenberger, Robert H., ***"A State Preference Model of Optimal Financial Leverage,"*** The Journal of Finance, Vol. 28, Sept., 1973, pp. 911-921.
- Kulkarni, P.V., ***"Business Finance-Principles & Problems,"*** Himalaya Publishing House, Bombay.
- Kumar, Raj, ***"Ethical Paradoxes in Business in Neoliberal Economic Framework,"*** PCMA Journal of Business, Vol. 3, No.2, June, 2011, pp. 150-164.
- Narender and Sharma, ***"Determinants of Capital Structure in Public Enterprises,"*** Finance, Vol. 12, No. 7, 2006, pp. 14-28.
- Narang & Kaushal, (2006), ***"Business Ethics,"*** Kalyani Publishers, Ludhiana.
- Pandey, Dr. Indra Mohan, ***"Leverage, Risk and the Choice of Capital Structure,"*** The Management

Accountant, Vol. 13, No.3, March, 1978, pp. 203-208.

Pandey, Indra Mohan, “*Impact of Corporate Debt on the Cost of Equity*,” The Chartered Accountant, Vol. 27, No. I, July, 1978, pp. 14-20.

Pandey, I.M. (2003), “*Financial Management*,” Vikas Publishing House, New Delhi.

Pandey, I.M., “*The Financial Leverage in India: A Study*,” Indian Management, March, 1985 pp. 21-34.

Titman, S., & Wessells, R., “*The Determinants of Capital Structure Choice*,” The Journal of Finance, Vol. XLIII, No. 1, March, 1988, pp. 1-19.

Venkatesan, S., “*Determinants of Financial Leverage an Empirical Extension*,” The Chartered Account, Vol. 32, Jan., 1983, pp. 519-27.

Vashishth, Neeru & Rajput, Namita, (2010), “*Corporate Governance Value & Ethics*,” Taxmann Publications (P) Ltd., New Delhi.