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A STUDY ON SOLVENCY OF INDIAN CEMENT INDUSTRY

Dr. Ravindra L. Mojidra

Assistant Professor, Gujarat Commerce College, Ahmedabad, Gujarat, India.
e-mail: 19.drlm@gmail.com

Abstract

The Indian cement industry is a vital pillar of the country's infrastructure development and economic growth, characterized by its capital-intensive nature and long-term investment cycles. Assessing the financial solvency of companies in this sector is essential to understand their long-term viability and financial stability. This study aims to evaluate the solvency position of selected Indian cement companies using three critical financial ratios: Debt-Equity Ratio, Interest Coverage Ratio, and Fixed Assets to Equity Ratio. These indicators collectively provide insights into a firm's capital structure, its ability to meet interest obligations, and the extent to which shareholders' equity supports fixed asset investments.

The research is based on secondary data collected from the published financial statements of major Indian cement companies over a specified period. Comparative analysis has been used to interpret the financial strength and risk exposure of these companies. The findings suggest varying levels of solvency across firms, with certain companies demonstrating conservative financing practices and strong interest coverage, while others reflect higher leverage and potential financial vulnerability. The study highlights the importance of maintaining an optimal balance between debt and equity to ensure financial resilience, especially in a sector exposed to economic cycles and regulatory shifts.

The results of this research provide valuable insights for investors, financial analysts, corporate managers, and policymakers in making informed decisions related to credit risk, investment, and strategic financial planning in the cement industry.

Keywords: *Cement Industry, Solvency Analysis, Debt-Equity Ratio, Interest Coverage Ratio, Fixed Assets to Equity, Financial Performance*

INTRODUCTION

The cement industry plays a critical role in the infrastructure and economic development of India. As one of the largest producers of cement globally, India's cement sector contributes significantly to national GDP, employment, and the overall industrial landscape. The growing demand for housing, urban infrastructure, and pressures, and financial sustainability.

Solvency, defined as a company's ability to meet its long-term financial obligations, is a vital indicator of financial health and operational viability. In the context of the cement industry, which requires significant investment in fixed assets, raw material procurement, and logistics, solvency analysis helps stakeholders—such as investors, creditors, and policymakers—gauge the stability and risk profile of companies. Firms that struggle with solvency are more vulnerable to financial distress, making it crucial to assess their capacity to sustain operations in the long term.

This research paper aims to public projects has consistently driven expansion in this sector. However, alongside growth opportunities, the industry also faces challenges related to capital intensity, market competition, regulatory examine the solvency position of selected cement companies in India over a defined period using financial ratios such as the debt-to-equity ratio, interest coverage ratio, and fixed assets to equity ratio. By comparing these indicators across major industry players, the study intends to reveal patterns, highlight strengths and weaknesses, and suggest areas of financial improvement.

The Indian cement industry is characterized by a mix of large-scale multinational corporations and regional players, each with varying financial strategies, capital structures, and market dynamics. As a result, analyzing solvency not only sheds light on individual firms but also provides insights into the overall financial robustness of the industry. Furthermore, understanding solvency trends is essential in the post-pandemic era, where financial resilience has become a critical determinant of survival and growth.

Through quantitative analysis of secondary data sourced from company financial reports and industry databases, this study seeks to contribute to the academic and practical understanding of financial stability in one of India's core industrial sectors. The findings are expected to support informed decision-making by financial analysts, corporate managers, and institutional investors, as well as provide a basis for further research on sector-specific financial health.

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Solvency

Generally, economic or financial solvency is considered in the context of the long term. Solvency is used to measure the economic health of a business entity. Solvency refers to a company's ability to meet its long-term financial obligations, including debts and other commitments. It's a measure of a company's long-term financial health and its capacity to continue operating into the future. Solvency is distinct from liquidity, which focuses on a company's ability to meet short-term obligations.

LITERATURE REVIEW

Kumar B. Das (1987) has analysed "The Financial Performance of the Cement Industry". It can be analysed that the net fixed assets as a percentage of total assets decreased for the period 1970-71 to 1977-78 that was 55.35% to 44.04 % respectively. Current liabilities were higher than the current assets. The liquidity performance of the cement industry was not healthy during the period of the study. The study revealed that all profitability ratios decreased gradually and became negative for 1973-74 and1974-75. However, it improved gradually thereafter. The Debt Asset ratio was downward during the period of the study and the Debt-Equity ratio was slightly increased while the net worth ratio was decreased over the years.

Krishna Swarup Gupta (1988) in his analysis on "Financial Statements of Indian Cement Industry: A case study of Associated Cement Companies", brought the results that the rate of return on total capital employed was measured at 4.2% against the ideal rate of 18% to 24% which is very poor. The total investment had been highly unprofitable. However, the activity and liquidity position showed significant levels. The stock turnover ratio was uniformly good. Debtors varied from 5% to 8% on total current assets. Credit and collection policies were effectively enforced. The percentage of the equity to net fixed assets was below 45%, indicating that shareholders' funds were inadequate to finance fixed assets.

Mohammed R. Khan (1997) had completed his Ph. D. thesis on "A Study of Financial Analysis of Cement Industry in India" in the year 1997. He discussed industrialization, industrial development in India, the importance of the cement industry in the National Economy. He selected 18 cement companies for 11 years period from 1982-83 to 1992-93. He found that the liquidity position of the majority of the companies shows variations. The comparative analysis of the Gross Profit and Liquidity Index shows an inverse relationship. Total assets to fixed assets turnover ratios show a decreasing trend. The working capital ratio shows volatility and frequently the working capital was recovered negatively. The Debt-equity ratio was very high during the whole period of study for all companies.

Nand Kishore Sharma (2002) conducted a study on "Financial Appraisal of Cement Industry in India". In his study, he found that the liquidity position was decreasing. The current ratio and Quick ratio showed a decreasing trend and also these ratios varied from time to time. On comparing the current ratio and quick ratio of the cement industry, six companies were found higher than the industry average and four companies lower than the industry average. The solvency position in terms of debt-equity ratio has shown a decreasing trend in the first 4 years of study, after that, it registered an increasing trend. The ratio of fixed assets to total debt always showed more than 100 % which indicated that the claims of outsiders were covered by the fixed assets of the cement companies.

V. Aravamudhan (2009) had done his Ph. D. on "An Analysis of Financial Performance of Cement Industry in Tamil Nadu" in the year 2009. He discussed the nature and structure of the Indian Cement Industry. He prepared one questionnaire of 27 questions to collect data from a staff member of the cement industry. He also analysed financial statements from 1993-94 to 2007-08 also. He analysed data by workout different ratios and by statistical tools like average, standard deviation, correlation, multiple regression, F-max test, utilization of index, and Altman's Z-score analysis. He found that the total net worth in the cement industry in Tamil Nadu has increased by 19.70 %. He also observed that the capital structure shows more owners' equity funds than the borrowed fund. The annual growth rate of net working capital in the cement industry in Tamil Nadu has considerably increased during the period of study. The total assets in the cement industry in Tamil Nadu were considerably increased. The CAGR of sales and profit of the cement industry in Tamil Nadu were reported as 14.68 % and 19.58 % respectively. The staff members of the finance department of the cement industry in Tamil Nadu have invariably opined that the liquidity position, solvency position, profitability position, and leverage position were better.

RESEARCH METHODOLOGY

- **Objectives:**

To evaluate the solvency positions of selected Indian cement companies.

To analyze the solvency ratios are to examine the long-term financial strength of the selected cement companies under study.

- **Hypotheses:**

Null hypotheses constructed for the study are as under:

Ho_1 There is no significant difference in the Debt-Equity ratio of selected cement companies.

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Ho_2 There is no significant difference in the Interest Coverage ratio of selected cement companies.
Ho_3 There is no significant difference in the Fixed Assets to Equity ratio of selected cement companies.
Alternative hypotheses constructed for the study are as under:
$H1_1$ There is significant difference in the Debt-Equity ratio of selected cement companies.
$H1_2$ There is significant difference in the Interest Coverage ratio of selected cement companies.
$H1_3$ There is significant difference in the Fixed Assets to Equity ratio of selected cement companies.

➢ **Universe:**

The cement industry was selected for the study. Hence, all the limited companies engaged in manufacturing of cement and working in India as well as listed on the stock exchange of India are become the universe of the study.

➢ **Sample:**

There are total 145 cement manufacturing and listed cement companies in India. The following 3 criterions are fixed for sample selection. If the company fulfilled all 3 criterions only then it will be selected as sample.

a. Market share must be 1% or more.
b. Revenue must be more than Rs. 2,000 Cr.
c. Production capacity must be 5.00 MTPA or more.

The cutoff date was fixed 31st March 2020 to evaluate above conditions. The cement companies were list out based on criterion decided. Based on Market share, Sales Revenue as well as Production capacity as of 31stMarch 2020 top 10 cement companies were selected for study. All the companies are listed on the Stock Exchange of India. The total market share of these 10 companies comes to 58%. The list of selected companies is as under.

1. UltraTech Cement Ltd. (UCL)
2. Shree Cement Ltd. (SCL)
3. Ambuja Cements Ltd. (ACL)
4. ACC Cement Ltd. (ACCL)
5. Dalmia Bharat Ltd. (DCL)
6. Birla Corporation Ltd. (BCL)
7. The India Cements Ltd. (ICL)
8. The Ramco Cements Ltd. (RCL)
9. Orient Cement Ltd. (OCL)
10. Heidelberg Cement Ltd. (HCL)

➢ **Period of Study:**

The period of the study is 10 years i.e. 2010-11 to 2019-20.

➢ **Data Collection:**

The required data for the present study has been collected from the audited annual financial reports of the selected cement companies from 2010-11 to 2019-20 from the official website of the particular selected cement company.

➢ **Tools and Techniques for Data Analysis:**

There are three key ratios to measure Long-term Solvency were calculated. The Debt-Equity Ratio, Interest Coverage Ratio and Fixed Assets to Equity Ratio were calculated as well as the average, and standard deviation was also calculated. A non-parametric test (Kruskal-Wallis Test) through the SPSS program was used to test the hypothesis.

DATA ANALYSIS

1. Debt-Equity Ratio:

The Debt- Equity ratio for the period of study for 10 cement companies is as under:

Table: 1 Debt-Equity Ratio

Name of Company	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	Avg.	SD
UCL	0.55	0.43	0.39	0.41	0.40	0.28	0.30	0.67	0.67	0.50	0.46	0.14
ACL	1.01	0.44	0.23	0.24	0.24	0.24	0.19	0.37	0.38	0.25	0.36	0.24
ACCCL	0.01	0.09	0.07	0.07	0.06	0.06	0.03	0.03	0.02	0.02	0.05	0.03
SCL	0.14	0.21	0.15	0.13	0.08	0.07	0.08	0.07	0.08	0.08	0.11	0.05
DCL	0.70	0.59	1.10	1.23	2.60	2.22	1.64	1.91	0.53	0.49	1.30	0.76
BCL	0.49	0.51	0.57	0.58	0.66	0.54	0.77	1.01	0.58	0.51	0.6	0.1

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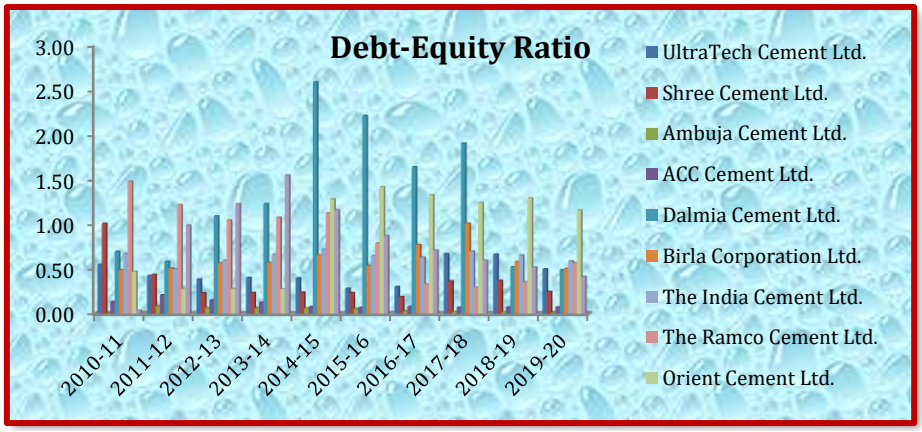
											2	6
ICL	0.67	0.50	0.60	0.66	0.72	0.65	0.63	0.70	0.66	0.59	0.64	0.06
RCL	1.48	1.22	1.05	1.08	1.13	0.79	0.33	0.30	0.36	0.57	0.83	0.42
OCL	0.47	0.28	0.28	0.28	1.29	1.42	1.33	1.25	1.30	1.16	0.91	0.50
HCL	0.04	0.99	1.23	1.55	1.16	0.87	0.71	0.60	0.52	0.42	0.81	0.44
Overall (Mean)	0.61											0.50

Graph: 1 Debt-Equity Ratio



Interpretation:

From Table- 1 and Graph-1 presents the Debt-Equity Ratios of selected cement companies in India over a 10-year period (2010–11 to 2019–20). The **overall average Debt-Equity Ratio** for all companies during the study period was **0.61**, with a **standard deviation (SD)** of **0.50**, indicating moderate variation across firms and years. The Debt-Equity Ratios ranged from a **low of 0.01** (Ambuja Cement Ltd., 2010–11) to a **high of 2.60** (Dalmia Cement Ltd., 2014–15), demonstrating significant differences in capital structure within the industry.

Among the 10 companies analyzed, **four firms reported average Debt-Equity Ratios below the overall industry average**:

- **UltraTech Cement Ltd. (0.46)**
- **Ambuja Cement Ltd. (0.05)**
- **ACC Cement Ltd. (0.11)**
- **Shree Cement Ltd. (0.36)**

These companies demonstrated comparatively **stronger solvency positions**, relying more on equity financing than debt.

➢ **UltraTech Cement Ltd.** maintained a stable ratio between **0.28 and 0.67**, reflecting consistency and prudent financial management.

➢ **Shree Cement Ltd.** showed a ratio ranging from **0.19 to 1.01**, indicating relatively stable financing and a strong capital structure.

➢ **Ambuja Cement Ltd.** exhibited the **most consistent and lowest ratios** (0.01–0.09), suggesting minimal dependence on debt and a highly solvent position.

➢ **ACC Cement Ltd.** maintained a ratio between **0.07 and 0.21**, reinforcing a healthy financial condition.

➢ **Dalmia Cement Ltd.** recorded a wide range (0.49–2.60), with the ratio **exceeding the industry average in 7 out of 10 years**, indicating a **weaker solvency position** and greater reliance on debt.

➢ **Birla Corporation Ltd.** had ratios between **0.49 and 1.01**, with **3 years above the average**, signifying a **moderate financial position**.

➢ **The India Cements Ltd.** showed ratios from **0.50 to 0.72**, remaining close to the overall average across the period, indicating a **balanced financial structure**.

➢ **The Ramco Cements Ltd.** recorded a wider range of **0.30 to 1.48**, with **6 years above the average**, suggesting relatively **higher debt levels** and a **less favorable solvency position**.

➢ **Orient Cement Ltd.** posted ratios between **0.28 and 1.42**, with **6 years above average**, pointing to a **weaker solvency profile**.

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➢ **Heidelberg Cement Ltd.** displayed the **highest variance**, with ratios from **0.04 to 1.55**, and **6 years above average**, indicating **inconsistent and poor long-term solvency**.

Overall, companies like **Ambuja Cement Ltd., ACC Cement Ltd., UltraTech Cement Ltd., and Shree Cement Ltd.** are financially better positioned in terms of long-term solvency. In contrast, firms such as **Dalmia Cement Ltd., Heidelberg Cement Ltd., and Orient Cement Ltd.** exhibit higher leverage and potentially greater financial risk. These insights emphasize the need for strategic debt management and highlight the varying financial policies within the Indian cement sector.

Test of Hypothesis:

Ho_1 There is no significant difference in the Debt-Equity ratio of selected cement companies.

$H1_1$ There is a significant difference in the Debt-Equity ratio of selected cement companies.

	Debt-Equity Ratio
Chi-Square	62.577
df	9
Asymp. Sig.	0.000

It can be observed from the above table that the p-value of **the Kruskal-Wallis Test** is less than 0.01 which indicates that the null hypothesis is rejected at 1% level of significance. It shows that there is a significant difference in the Debt-Equity ratio between selected companies.

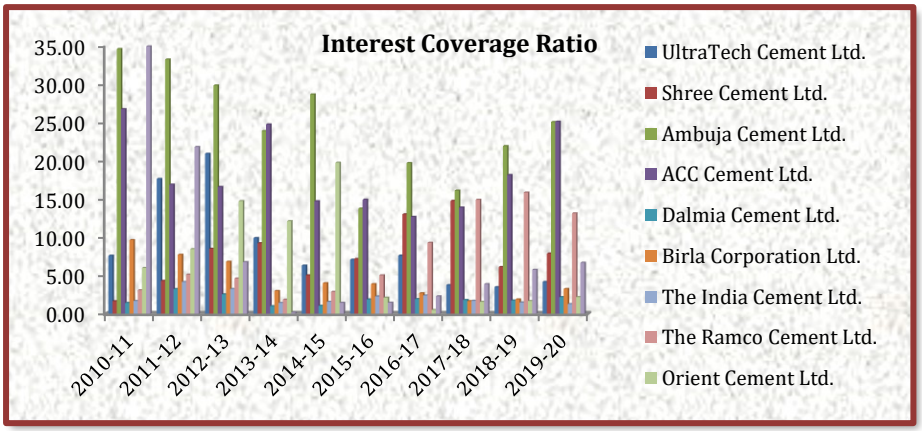
2. Interest Coverage Ratio:

The Interest Coverage ratio for the period of study for 10 cement companies is as under:

Table: 2 Interest Coverage Ratio

Name of Company	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	Avg.	SD
UCL	7.61	17.63	20.92	9.91	6.33	7.09	7.62	3.77	3.51	4.19	8.86	5.89
ACL	1.67	4.32	8.52	9.24	5.06	7.19	13.01	14.77	6.14	7.89	7.78	3.93
ACCCL	34.59	33.22	29.83	23.88	28.66	13.77	19.71	16.11	21.92	25.05	24.6	6.99
SCL	26.74	16.90	16.59	24.75	14.72	14.92	12.69	13.91	18.14	25.11	18.4	5.15
DCL	1.45	3.25	2.57	1.03	1.07	1.91	1.95	1.83	1.77	2.20	1.90	0.67
BCL	9.65	7.74	6.83	3.01	4.02	3.90	2.71	1.68	1.91	3.28	4.47	2.68
ICL	1.71	4.18	3.28	1.45	1.59	2.29	2.43	1.73	1.51	1.30	2.15	0.93
RCL	3.10	5.15	4.64	1.87	2.90	5.05	9.31	14.91	15.86	13.13	7.59	5.29
OCL	6.01	8.48	14.74	12.13	19.75	2.14	0.53	1.59	1.70	2.21	6.93	6.65
HCL	34.94	21.80	6.78	0.20	1.47	1.49	2.31	3.91	5.78	6.69	8.54	11.1
Overall (Mean)	9.13											8.75

Graph: 2 Interest Coverage Ratio



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Interpretation:

From Table-2 and Graph-2, the **overall average Interest Coverage Ratio (ICR)** for the selected cement companies over the 10-year study period (2010–11 to 2019–20) was **9.13**, with a **standard deviation of 8.75**, indicating considerable variation across companies and years. The ICR values ranged from a **minimum of 0.20** to a **maximum of 34.94**, both observed in **Heidelberg Cement Ltd.** in the years 2013–14 and 2010–11 respectively. This extreme fluctuation underscores the volatile financial performance of some companies in terms of their ability to cover interest expenses.

Out of the ten companies analyzed, **only two—Ambuja Cement Ltd. (24.67)** and **ACC Cement Ltd. (18.45)**—reported average ICRs higher than the overall industry average, indicating strong ability to service debt obligations through operational earnings.

- **UltraTech Cement Ltd.** reported ICRs between **3.51 and 20.92**. Only in **3 out of 10 years** was the ratio above the industry average, suggesting moderate but inconsistent debt servicing capability.
- **Shree Cement Ltd.** exhibited ratios between **1.67 and 14.77**, with **only 3 years above the average**, indicating limited strength in meeting interest obligations.
- **Ambuja Cement Ltd.** maintained the **highest and most consistent ICRs**, ranging from **13.77 to 34.59**, and exceeded the industry average in **all 10 years**. This indicates **excellent financial health and strong debt-servicing capacity**.
- **ACC Cement Ltd.** also performed consistently well, with ratios between **12.69 and 26.74**, all above the average, reinforcing the company's **sound financial position**.
- **Dalmia Cement Ltd.** showed consistently weak performance, with ICRs between **1.03 and 3.25**, remaining **below average in all years**, indicating **a poor ability to meet interest obligations**.
- **Birla Corporation Ltd.** reported ICRs from **1.68 to 9.65**, and **only 1 out of 10 years** was above the average, indicating a **weaker financial condition**.
- **The India Cements Ltd.** had ratios between **1.30 and 4.18**, all **below average**, reflecting an **inadequate capacity to cover interest payments**.
- **The Ramco Cements Ltd.** exhibited a range of **1.87 to 15.86**, with **4 years above the average**, pointing to a **moderate financial position**.
- **Orient Cement Ltd.** had ICRs between **0.53 and 19.75**, and was **above the average in only 3 years**, indicating an **unstable and generally weak financial position**.
- **Heidelberg Cement Ltd.** demonstrated the **highest volatility**, with a range from **0.20 to 34.94**. However, it exceeded the average in **only 2 years**, highlighting a **very poor and inconsistent solvency profile**.

The analysis reveals that **Ambuja Cement Ltd.** and **ACC Cement Ltd.** maintained strong interest coverage throughout the study period, reflecting healthy earnings and low debt servicing risk. Conversely, companies like **Dalmia Cement Ltd., The India Cements Ltd., Heidelberg Cement Ltd., and Orient Cement Ltd.** consistently underperformed, indicating higher financial vulnerability. These findings emphasize the importance of maintaining stable operational earnings relative to interest obligations, particularly in a capital-intensive industry like cement.

Test of Hypothesis:

Ho_2 There is no significant difference in the Interest Coverage ratio of selected cement companies.

$H1_2$ There is significant difference in the Interest Coverage ratio of selected cement companies.

	Interest Coverage ratio
Chi-Square	58.334
df	9
Asymp. Sig.	0.000

It can be observed from the above table that the p-value of **the Kruskal-Wallis Test** is less than 0.01 which indicates that the null hypothesis is rejected at 1% level of significance. It shows that there is a significant difference in the Interest Coverage ratio between selected companies.

3. Fixed Assets to Equity Ratio:

The Fixed Assets to Equity ratio for the period of study for 10 cement companies is as under:

Table: 3 Fixed Assets to Equity Ratio

Name of Company	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	Avg.	SD
UCL	1.17	1.05	1.09	1.05	1.22	1.15	1.01	1.49	1.37	1.24	1.19	0.15
ACL	1.11	0.59	0.50	0.63	0.67	0.54	0.43	0.56	0.58	0.41	0.60	0.19
ACCCL	0.89	0.84	0.72	0.71	0.68	0.63	0.33	0.31	0.30	0.31	0.57	0.24

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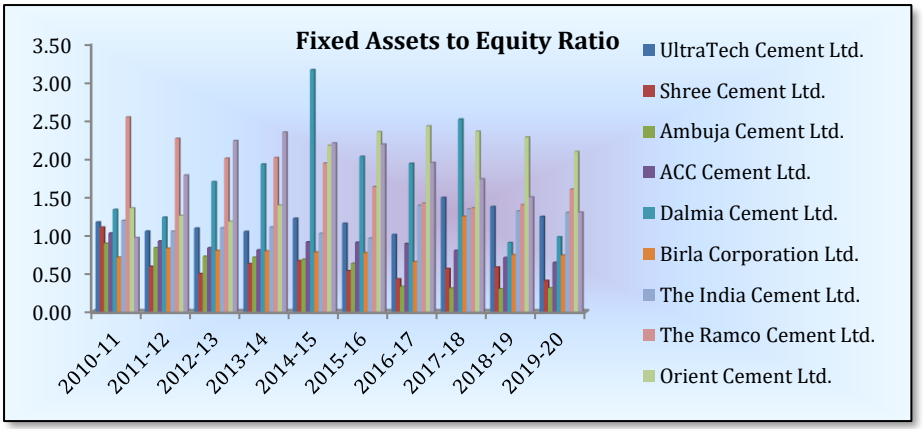
SCL	1.03	0.92	0.84	0.81	0.91	0.91	0.89	0.80	0.71	0.64	0.85	0.11
DCL	1.34	1.24	1.70	1.93	3.16	2.03	1.94	2.51	0.90	0.98	1.77	0.70
BCL	0.71	0.83	0.80	0.79	0.78	0.77	0.65	1.25	0.74	0.74	0.81	0.16
ICL	1.19	1.05	1.10	1.11	1.02	0.96	1.39	1.34	1.31	1.30	1.18	0.15
RCL	2.54	2.26	2.00	2.01	1.94	1.63	1.42	1.35	1.40	1.60	1.82	0.40
OCL	1.35	1.26	1.18	1.39	2.17	2.35	2.42	2.36	2.28	2.09	1.89	0.52
HCL	0.97	1.79	2.23	2.35	2.20	2.19	1.95	1.73	1.50	1.30	1.82	0.45
Overall (Mean)	1.25											0.62

Graph: 3 Fixed Assets to Equity Ratio



Interpretation:

From **Table - 3** and **Graph - 3**, it is evident that the overall mean of the Fixed Assets to Equity Ratio for the selected cement companies over the study period was **1.25**, with a **standard deviation of 0.62**. The ratio ranged from a minimum of **0.30** (Ambuja Cement Ltd., 2018–19) to a maximum of **3.16** (Dalmia Cement Ltd., 2014–15).

Among the 10 selected companies, **six** recorded an average Fixed Assets to Equity Ratio lower than the overall mean. These companies include:

- UltraTech Cement Ltd. (1.19)
- Ambuja Cement Ltd. (0.57)
- ACC Cement Ltd. (0.85)
- Shree Cement Ltd. (0.60)
- Birla Corporation Ltd. (0.81)
- The India Cements Ltd. (1.18)

The **lowest average ratio** was observed in **Ambuja Cement Ltd.** at **0.57**, indicating a strong reliance on equity for financing fixed assets.

➢ **UltraTech Cement Ltd.** maintained a ratio between **1.01 and 1.49**. In 8 out of 10 years, the ratio remained below the industry average, indicating efficient utilization of equity funds for asset acquisition.

➢ **Shree Cement Ltd.** recorded a ratio between **0.41 and 1.11**. In all 10 years, the ratio was below the average (except one year), suggesting that the company predominantly relied on equity financing for fixed assets.

➢ **Ambuja Cement Ltd.** showed strong consistency with a ratio range of **0.30 to 0.89**, consistently below the average. This indicates 100% equity-funded fixed asset investments.

➢ **ACC Cement Ltd.** had a ratio between **0.64 and 1.03**, below the average in 9 out of 10 years, indicating that most fixed assets were financed through equity.

➢ **Dalmia Cement Ltd.** showed a wider range of **0.90 to 3.16**, with the ratio exceeding the average in 7 years. This implies a higher dependence on debt for financing fixed assets.

➢ **Birla Corporation Ltd.** maintained a range of **0.65 to 1.25**, staying below the average in 9 out of 10 years. This indicates a strong equity base for fixed asset financing.

➢ **The India Cements Ltd.** showed ratios between **0.96 and 1.39**, exceeding 1 in 9 years. This suggests significant use of debt financing for fixed assets.

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- **The Ramco Cement Ltd.** recorded ratios from **1.35 to 2.54**, with all 10 years above 1, clearly indicating heavy reliance on debt for asset purchases.
- **Orient Cement Ltd.** showed a ratio range of **1.18 to 2.42**, again consistently above 1, signaling high debt usage for fixed asset financing.
- **Heidelberg Cement Ltd.** had ratios between **0.97 and 2.35**, above 1 in 9 years, indicating a similar trend of debt-financed asset acquisition.

The analysis of Fixed Assets to Equity Ratio reveals diverse financing strategies across companies. **Ambuja Cement Ltd.** and **ACC Cement Ltd.** follow a more conservative approach with lower ratios, implying limited equity use for fixed asset financing. In contrast, **Dalmia Cement Ltd., Ramco Cement Ltd., Orient Cement Ltd.,** and **Heidelberg Cement Ltd.** rely more heavily on equity, which could suggest ambitious capital investment plans, but may also raise concerns about capital efficiency. These variations highlight the importance of evaluating fixed asset investments in conjunction with profitability to assess true solvency and financial performance.

Test of Hypothesis:

Ho_3 There is no significant difference in the Fixed Assets to Equity ratio of selected cement companies.

$H1_3$ There is significant difference in the Fixed Assets to Equity ratio of selected cement companies.

	Fixed Assets to Equity Ratio
Chi-Square	78.812
df	9
Asymp. Sig.	0.000

It can be observed from the above table that the p-value of **the Kruskal-Wallis Test** is less than 0.01 which indicates that the null hypothesis is rejected at 1% level of significance. It shows that there is a significant difference in the Fixed Assets to Equity ratio between selected companies.

CONCLUSION

The analysis of solvency ratios for selected companies in the Indian cement industry has revealed significant variations in financial structure and stability. Among the firms studied, **Dalmia Cement Ltd.** exhibited the highest **Debt-Equity Ratio**, indicating a higher reliance on debt financing, whereas **Ambuja Cement Ltd.** recorded the lowest, reflecting a conservative capital structure. Additionally, **UltraTech Cement Ltd.**, **Ambuja Cement Ltd.**, **ACC Cement Ltd.**, and **Shree Cement Ltd.** reported average Debt-Equity Ratios lower than the overall industry average, suggesting comparatively stronger long-term solvency positions.

In terms of the **Interest Coverage Ratio**, **Heidelberg Cement Ltd.** displayed both the highest and lowest values during the study period, indicating volatility in its ability to meet interest obligations. However, **Ambuja Cement Ltd.** and **ACC Cement Ltd.** consistently achieved above-average Interest Coverage Ratios, highlighting their robust capacity to service debt and maintain a sound financial footing.

For the **Fixed Assets to Equity Ratio**, **Dalmia Cement Ltd.** again ranked highest, while **Ambuja Cement Ltd.** had the lowest, indicating different strategies in asset financing. Companies such as **Dalmia Cement Ltd.**, **The Ramco Cement Ltd.**, **Orient Cement Ltd.**, and **Heidelberg Cement Ltd.** surpassed the overall average, suggesting a greater portion of equity tied up in fixed assets.

Overall, the study concludes that while some firms exhibit strong solvency and financial health—particularly **Shree Cement Ltd.**, **Ambuja Cement Ltd.**, **Birla Corporation Ltd.**, and **ACC Cement Ltd.**—others demonstrate weaker positions, necessitating improved capital management strategies to enhance long-term stability.

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