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Research Paper

Exploring the Financial Indicators and Profitability of Leading Cement Companies in India Based on Market Capitalization

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ABSTRACT

The study examines the association in between key financial ratio indicators and profitability within the Indian cement industry, focusing on five leading companies selected based on their market capitalization. Purpose: The study aims to analyse the financial performance and profitability of leading Indian Cement Industries by examining the key financial indicators such as Return on Asset, liquidity that is Current Ratio, Solvency that is Debt Equity ratio and Interest Coverage Ratio. Originality: Unlike previous literature review that often focuses on isolated financial metrics, this study integrates multiple financial ratios and employs the dynamic statistical test to provide the comprehensive evaluation of profitability within India's cement sector within a time frame financial year 2021 to 2025. Methodology: Financial data extracted from top five performing Cement Industries based on Market Capitalization are analysed. This study applied Financial Ratio Analysis along with different statistical Techniques Like Single Factor Anova and T-Test, to identify the significant differences and interrelationship among Profitability Liquidity and Solvency analysis indicators. Findings: Results indicate the significant variations across the selected companies in their financial performance, highlighting the critical role of debt management and liquidity efficiency to determine the profitability. These findings emphasize the significant heterogeneous financial strategies adopted by the concerned cement firms in a same industry. Relevance: The study offers the valuables for Investors, Stakeholders, Corporate managers and Policymakers aiming to enhance the financial decision making and strategic planning in the cement industry which may contribute the operational efficiency sustainability and competitiveness.

Keywords: *Cement Industry, Profitability, Liquidity, Solvency, Return on Asset, Return on Equity, Market Capitalization*

JEL Code: *Cement Industry(L61), Profitability(G32), Liquidity(G33), Return on Asset(M41), Market Capitalisation(G12).*

The cement industry is a foundation of economic development and infrastructural growth particularly in emerging economies of scale in India. As one of the most capital intensive and energy consuming sectors, Cement production requires substantial investment and efficient financial management to maintain competitiveness and profitability. India stands as one of the largest cement producers with the several leading

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companies shaping India's landscape. Understanding the financial Changing aspects of these companies is essential for various type of stakeholders including investors, policy makers etc. They are taking care of different financial decisions and to promote the sustainable growth within the sector. Financial performance assessment of the cement firms commonly relies on key indicators such as Return on Asset, Return on Equity which measures the effectiveness of capital utilization. The Current Ratio reflecting short term liquidity and Solvency Ratio like Debt Equity Ratio and Interest Coverage Ratio, to evaluate the company's ability to meet its long-term obligations. These financial matrices provide a multi-dimensional view of firm's operating efficiency, liquidity position and financial stability where capital structure, cost management significantly influence profitability. These research study indicates there are distinguished variations in financial health and performance in cement companies even when operating under similar market conditions. Factors such as differences in capital financing strategies, cost control measures and management efficiency to contribute these dissimilarities. In particularly solvency has been highlighted as the critical determinant of financial performance. It expresses that the excessive reliable on long term debt which may adversely affect profitability metrics revealed the risk inherent in a high level of financial leverage for capital intensive industries like cement manufacturing. Liquidity management, is another critical aspect ensures that the firm can meet their short-term liabilities and sustain smooth operations. Firms with the stronger liquidity positions are better to navigate the economic fluctuations and maintain profitability. For instance, identified there was an inverse correlation in between cash conversion cycle and financial risk to measure the liquidity and profitability factor for evaluating their financial performance. This research addressing the gap by examining the financial pointers and effectiveness of the top five performing Indian cement companies navigating with their market capitalization.

Significance of the study

This study may contribute to existing literature by focusing on Indian Cement Industries. It is a vital area that has received an attention in terms of relationship in between financial ratio and profitability. By analysing the impact of financial proportions, this study fills a gap of existing literature reviews in addition to it is more important for retail investors, as it investigates the perception into data Analytics. To better understanding the financial fractions influenced the profitability in the context of perception of investors to provide a picture how cement industries highlight the financial ratios and profitability. Finally, this study by using a descriptive statistical analysis, empirical approach using different statistical models in which to make the sentiment of investor's decision-making process.

Statement of the problem

In further, the existing research relies on quantitative analysis overlooking the significant role of perception of an investor influencing the performance of the company and stock market returns. The cement industry is capital intensive in nature and long investment dimensional representing the unique scenario of Risks-Return trade-off of an investor with decision making criterion. To address this problem, the specific financial ratios like current ratio, debt equity ratio and interest coverage ratio may influence the profitability that is return on asset and how an investor's sentiment aligns with financial indicators. To bring out this gap this article will provide a comprehensive understanding of the factors that driven off profitability in a said industry and actionable perceptions of both internal and external stakeholders.

LITERATURE REVIEW

(Jibrin, Abubakar, & Abubakar, 2024), Under this study, it is a systematic approach with a financial year 2019 to 2023 to investigate how long term debt affects return on equity and cement companies. It concluded that highest long term debt significantly decrease return on asset that ensured trading on equity. It was reassessing more reliable on internal financing and profitability. It reflects analysis of solvency by using debt matrices.

(Prabhakar & Japee, 2023), Examined current ratio, quick ratio and cash equivalents ratio for 10 Indian cement companies with a financial year 2012 to 2022 by using different descriptive statistics like Anova, and another statistical tests. It finds significant intercompany differences with stronger liquidity position in respect to other companies.

(Sathiya & Palaniammal, 2024), assessed current and quick ratios along with debt equity ratios and interest coverage ratios for ten major cement companies operating in India. It discloses the notable variations that is one of the major leading cement companies like Ultratech cement demonstrates stronger liquidity or solvency while Hidelbergs India shows highest debt management issues persisting this study and analytical trends in terms of liquidity and solvency.

(Kumar, 2022), compared across current ratios of 12 Indian cement firms, grouped by Turnover Metrics over the financial year 2010 to 2020. Descriptive statistical analysis and single factor ANOVA showed the significant differences across various groups with respect to concerned cement industries.

(Jahan, 2020), investigated cash conversion cycle for relevant 30 manufacturing firms across various manufacturing sectors including cement exploring the relationship with firm size and profitability. It finds that cash conversion cycle inversely related to return on equity implying efficient working capital management which may lead profitability metrics.

Research Gap

The relationship in between financial ratios and profitability has been extensively studied across different various industries however there is a remarkable gap in existing literature review, when it comes to sectoral analysis that is cement industry in my study. Most of the existing literature review have either focused on manufacturing or service sectors without indulging the deeply into cement industry with different financial dynamics. In addition to most of the studies primarily focused on individual financial ratios the important ratio namely current ratio debt equity ratio and interest coverage ratio they must comprised with the single framework that is defining the profitability with respect to solvency and liquidity factors.

Objective of the study

1. To examine the profitability performance of selected Indian cement companies by using return on equity over the time frame of 2021 to 2025.
2. To assess the liquidity position of these companies by analysing the current ratio during this time frame.
3. To evaluate the solvency status of these seed farms by debt equity ratio and interest coverage ratios.
4. To identify the relationship in between financial indicators and profitability that is how the liquidity and solvency ratio influence the profitability outcomes.

RESEARCH METHODOLOGY

Research approach: the study adopts the quantitative and analytical research approach to examine the relationship in between selected financial ratio indicators and profitability of major leading India's cement companies it is a descriptive study in nature aiming to evaluate the corporate financial performance across various firms using numerical metrics data and statistical analysis.

Sample selection: the sample comprises of five top performing India cement companies selected based on their market capitalization rankings as on 31st of March 2025. These farms are considered industry leaders in terms of production, economies of scale, market share and financial performance.

Data source: The study is based on secondary data obtained from published annual reports of selected companies. The data frame for the financial year 2020-21 to 2024-25.

Financial variables: The analysis includes key financial indicators that is profitability with reference to return on asset and return on equity. With respect to solvency indicators like depth equity ratio and interest coverage ratio or financial charges ratio. In respect to liquidity indicators like current ratio and quick ratio are considered in this study.

Analytical tools: these study uses several financial ratios to evaluate the performance of each selected cement companies and statistical techniques of the same two assets whether the differences in performance of the company across in a comparative level are significant or unrelated.

Statistical techniques: in this study descriptive statistics used to summarize the train performance of the selected cement industries. Single factor ANOVA test apply to examine whether any significant difference in financial ratios among the selected cement companies. An Independent sample T-test employed to compare the financial data across time in between selected cement companies.

DATA ANALYSIS AND FINDINGS

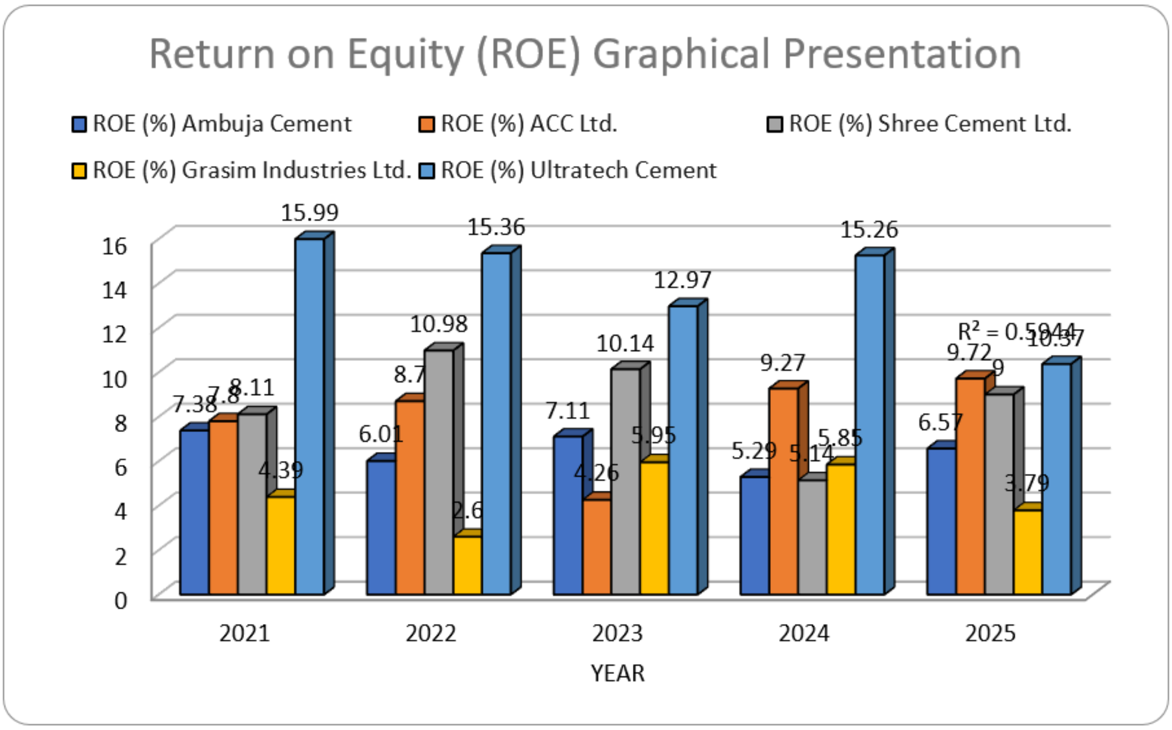
(a) Graphical presentation

Table 1 showing Return on Equity of Five Cement Industry Over Five Financial years:

YEAR	Ambuja Cement	ACC Ltd.	Shree Cement Ltd.	Grasim Industries Ltd.	Ultratech Cement
2021	7.38	7.8	8.11	4.39	15.99
2022	6.01	8.7	10.98	2.6	15.36
2023	7.11	4.26	10.14	5.95	12.97
2024	5.29	9.27	5.14	5.85	15.26
2025	6.57	9.72	9	3.79	10.37

Source: Authors' Compilation

Figure 1 Showing Comparative Return on Equity over Five Financial Years



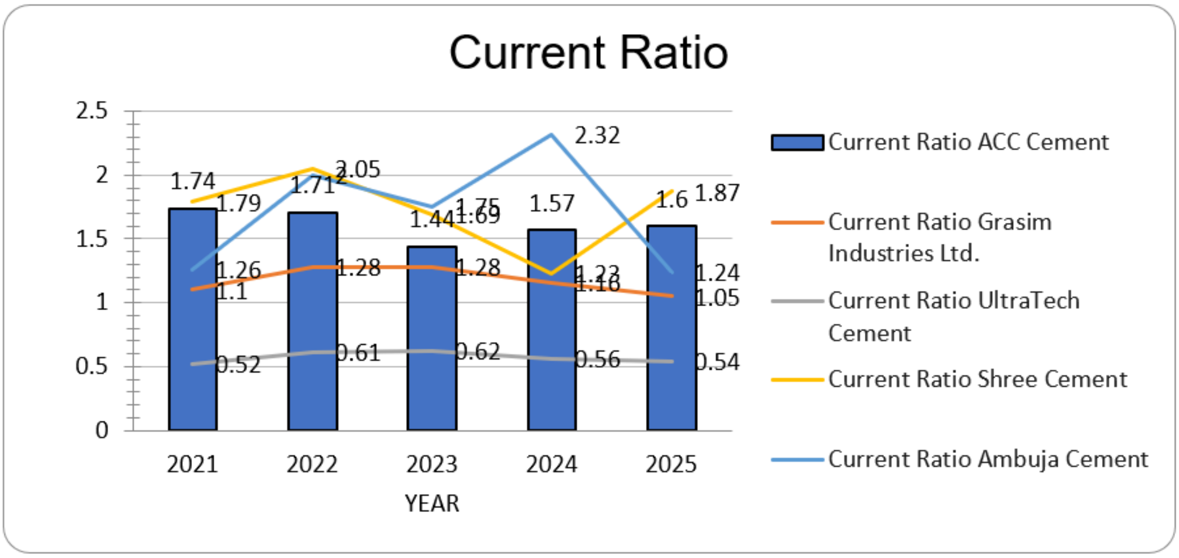
Interpretation: In the above diagram return on equity data from financial year 2021 to 2025 highlights various financial performance among five different cement companies. Ultratech cement consistently outperforms among its peer groups achieving the highest return on equity in 2021 at 15.99% and sustaining relatively strong returns throughout the time frame, despite a gradual decline to 10.37% by 2025. Sree cement showed considerable volatility reaching its highest return on equity 10.91% in 2022, nearby declined marginally in 2024 and then slightly recovered in 2025. ACC Limited demonstrated and overall upward trend improving from 7.8% in 2021 to 9.72% in 2025, Ambuja cement maintained moderate performance with return on equity values fluctuating with a narrow range, reflecting stable but uncertain profitability. Grasim Industries reported the weakest return on equity across all the financial years with a brief improvement in 2023 but again a downward trend in 2025. Ultratech and accident stronger and more consistent returns for shareholder as compared the other companies.

Table 2 Showing Current Ratio Over Five Financial Years Among Selected Companies

Current Ratio					
YEAR	**ACC Cement**	**Grasim Industries Ltd.**	**UltraTech Cement**	**Shree Cement**	**Ambuja Cement**
2021	1.74	1.1	0.52	1.79	1.26
2022	1.71	1.28	0.61	2.05	2
2023	1.44	1.28	0.62	1.69	1.75
2024	1.57	1.16	0.56	1.23	2.32
2025	1.6	1.05	0.54	1.87	1.24

Source: Authors' Compilation

Figure 2 Showing Relative Current Ratios over Five Financial Years



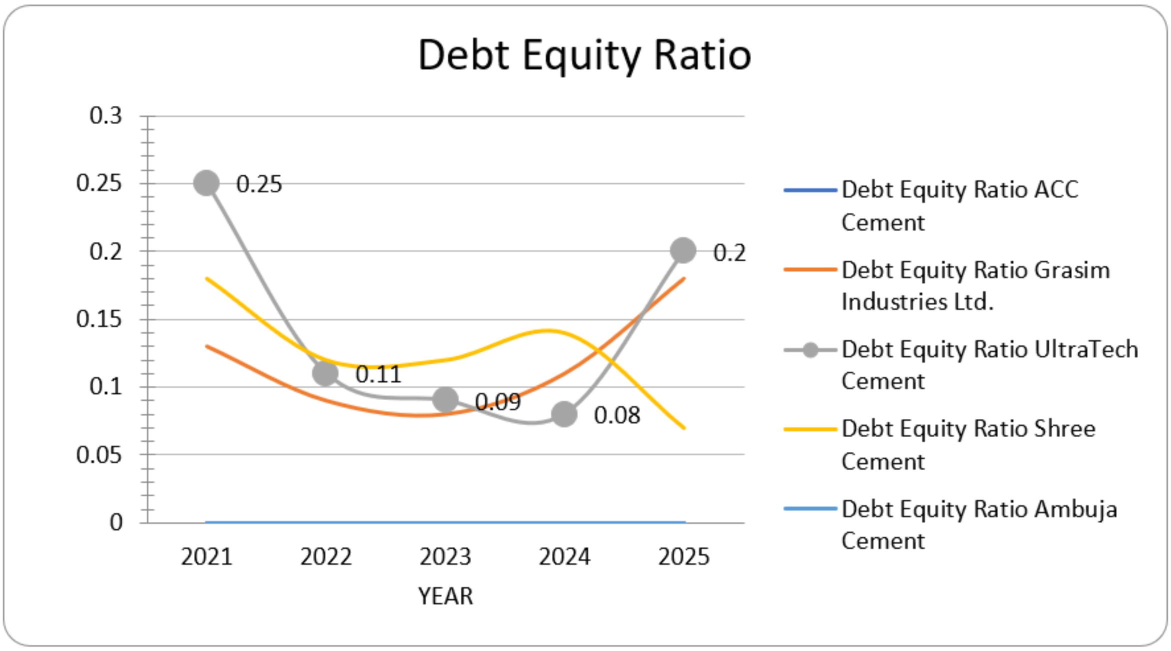
Interpretation: In the above diagram the analysis Current Ratio from 2021 to 2025 reflects different level of short-term liquidity among five different cement companies. Shree cement's current ratio preference at 2.05 in 2022 and remaining above 1.2 throughout the financial year. Ambuja cement also established short term financial health especially in 2024 when ratio significantly highest to 2.32, although it declined in 1.24 in 2025. ACC cement maintained relatively stable liquidity with current ratios fluctuating slightly in between 1.44 and 1.74 over five financial years. Shree Cement and Ambuja Cement showed stronger liquidity positions as compare to other companies.

Table 3 Showing Debt Equity Ratio Over Five Financial Years Among Selected Companies

Debt Equity Ratio					
YEAR	**ACC Cement**	**Grasim Industries Ltd.**	**UltraTech Cement**	**Shree Cement**	**Ambuja Cement**
2021	0	0.13	0.25	0.18	0
2022	0	0.09	0.11	0.12	0
2023	0	0.08	0.09	0.12	0
2024	0	0.11	0.08	0.14	0
2025	0	0.18	0.2	0.07	0

Source: Authors' Compilation

Figure 3 Showing Comparative Debt Equity Ratios over Five Financial Years



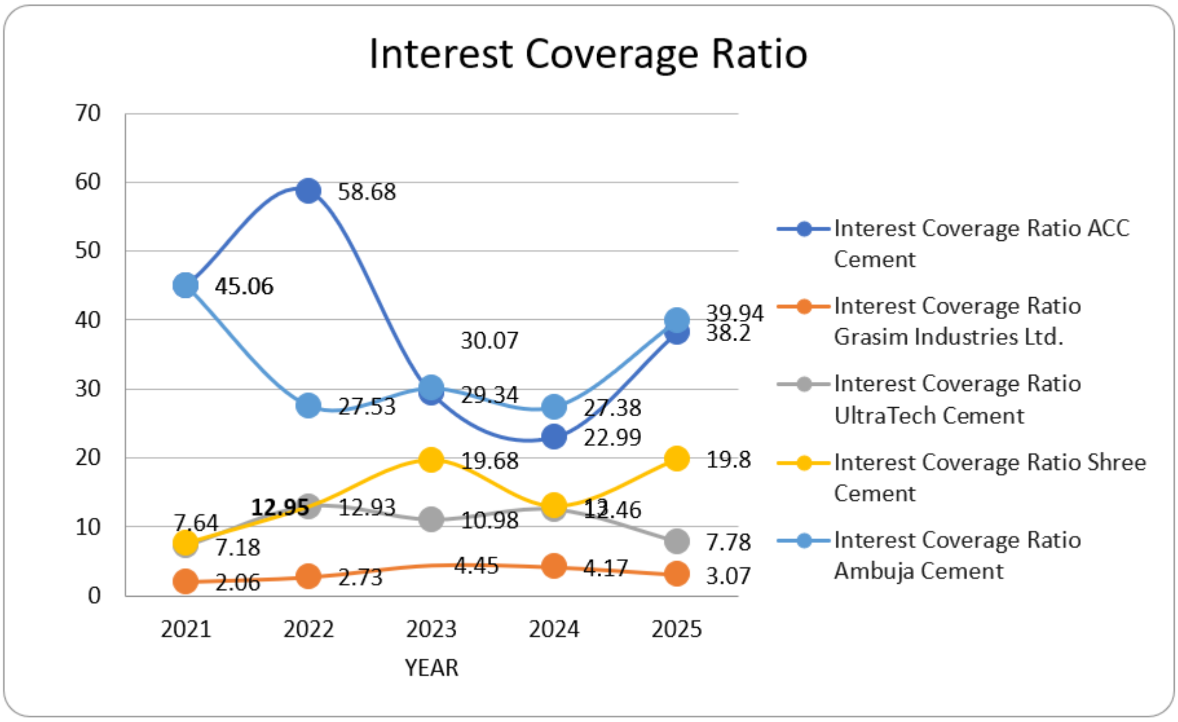
Interpretation: In the above diagram Debt Equity Ratio from 2021 to 2025 shows the most of the cement companies followed a low financial leverage strategy. ACC cement and Ambuja cement maintained a zero-debt equity ratio throughout the financial year indicating they have operated entirely on sole equity without relying on debt capital or borrowed funds. Shree Cement Industries also kept its debt level with its ratio ranging from 0.18 in 2021 as lower of 0.07 in 2025. Ultratech cement showed a gradual decline in leverage until financial year 2024, it followed by a marginally increased 0.20 in 2025 but remain within in a conventional limit. The above trends suggests that all the five companies listed financial stability, with optimal dependence of debt financing.

Table 4 Showing Interest Coverage Ratio Over Five Financial Years Among Selected Companies

Interest Coverage Ratio					
YEAR	**ACC Cement**	**Grasim Industries Ltd.**	**UltraTech Cement**	**Shree Cement**	**Ambuja Cement**
2021	45.06	2.06	7.18	7.64	45.06
2022	58.68	2.73	12.93	12.95	27.53
2023	29.34	4.45	10.98	19.68	30.07
2024	22.99	4.17	12.46	13	27.38
2025	38.2	3.07	7.78	19.8	39.94

Source: Authors' Compilation

Figure 4 Showing Proportional Interest Coverage Ratios over Five Financial Years



Interpretation: In the above diagram Interest Coverage Ratios from 2021 to 2025 reflect the variance capacities of the selected cement industries to their financial charges or interest obligations. ACC cement and Ambuja cement consistently exhibited strong financial position in this regard, each of the company recording the highest ratio in 2021. Ambuja cement additional improvised to 39.94 by 2025, indicating a continuous strength. Ultratech cement also maintained a stable and healthy interest coverage at 12.93 in 2022 before subsiding at 7.718 2025. Shree Cement showed progressive improvement over the years signalling enhanced earnings relative to interest expenses. Grasim Industries forwarded the lowest ratios among the group, although it presented improvements with the highest point reaching in 2023. Ambuja cement demonstrated the most capacity to meet interest payment while Grasim Industries remained comparatively weaker in this aspect.

<u>(b) Descriptive Statistics:</u>

Factor ANOVA:

Null Hypothesis(H_0): There is no significant difference in main return on equity among payer of five different cement companies during the year 2021-2025

Alternative Hypothesis(H_1): There is a significant difference in main return on equity among at least one pair of five cement companies during the period 2021-2025.

Table 5 Showing Single Factor Anova with respect to Return on Equity Over Five Financial Years Among Selected Companies

Anova: Single Factor						
Groups	**Count**	**Sum**	**Average**	**Variance**		
Column 1	5	32.36	6.472	0.71292		
Column 2	5	39.75	7.95	4.7691		
Column 3	5	43.37	8.674	5.09508		
Column 4	5	22.58	4.516	2.01248		
Column 5	5	69.95	13.99	5.40865		
Source of Variation	SS	Df	MS	F	P-value	F crit
Between Groups	251.4832	4.0000	62.8708	17.4658	2.6163	2.8661
Within Groups	71.9929	20.0000	3.5996			
Total	323.4761	24.0000				

Source: Author's Calculation

Interpretation: From the above ANOVA table calculation to determine whether the average return on equity deferred significantly among the five cement industries over the financial time frame 2021 to 2025, the test shaped an F-statistics of 17 .47, which is notably greater than the F- critical value of 2.87 at the 5 percent significance level. Additionally, P value of 0.0026 is considerably lower than 0.005, confirming that significant difference in return on equity across the companies are statistically meaningful. This implies that the variation in average return on equity is not due to random fluctuations but are institute influenced by inherent differences in the company's financial or operational strategies. The results clearly indicate that some companies achieve significantly better shareholder returns than other during the period under the single factor Anova review process.

T-Test: Paired Two Sample for Means (Ambuja & ACC Cement)

Null Hypothesis(H_0): There is no significant difference in the mean Return on Equity between Ambuja cement and accident over the financial time frame 2021 to 2025.

Alternative Hypothesis(H_1): There is a significant difference in mean Return on Equity between Ambuja cement and accident over a financial time frame of 2021 to 2025.

Table 6 Showing T-Test: Paired Two Sample for Means with respect to Return on Equity Over Five Financial Years in between Ambuja & ACC Cement

t-Test: Paired Two Sample for Means		
	Variable 1	**Variable 2**
Mean	6.472	7.95
Variance	0.71292	4.7691
Observations	5	5
Pearson Correlation	-0.572656848	
Hypothesized Mean Difference	0	
df	4	
t Stat	-1.199300065	
P(T<=t) one-tail	0.14829743	
t Critical one-tail	2.131846782	
P(T<=t) two-tail	0.29659486	
t Critical two-tail	2.776445105	

Source: Author's Compilation

Interpretation: As per T-Test, it evaluates whether there is a significant difference in the mean return on equity in between Ambuja cement and accident over the five year period from 2021 to 2025. The test result in t-statistic of -1.1993 Which fall shot the critical value of 2.776 at the 5% significance level for Two Tail Test. Additionally, the P value which is 0.2965 is well above 0.005, indicating that the observed difference in return on equity between two companies are not statistically significant. Pearson Correlation Coefficient between return on equity values -0.57, suggest a moderate negative relationship. Overall, this result implies that while fluctuation exist in between the return on equity of Ambuja cement and ACC limited the average performance difference over the period is not large enough to be considered as statistically meaningful.

T-Test: Paired Two Sample for Means (Grasim Industries & Ultratech Cement)
Null Hypothesis(H_0): There is no significant difference in average return on equity in between Grasim Industries and Ultratech cement during the period of 2021 to 2025.
Alternative Hypothesis(H_1): There is a significant difference in average return on equity in Grasim Industries and Ultratech cement during a same period.

Table 7 Showing T-Test: Paired Two Sample for Means with respect to Return on Equity Over Five Financial Years in between Grasim Industries and Ultratech cement

t-Test: Paired Two Sample for Means		
	Variable 1	***Variable 2***
Mean	4.516	13.99
Variance	2.01248	5.40865
Observations	5	5
Pearson Correlation	-0.001310919	
Hypothesized Mean Difference	0	
Df	4	
t Stat	-7.771957292	
P(T<=t) one-tail	0.000738797	
t Critical one-tail	2.131846782	
P(T<=t) two-tail	0.001477594	
t Critical two-tail	2.776445105	

Source: Author's Compilation

Interpretation: As Paired Sample T-test was applied to compare the average return on equity in between Grasim Industries and Ultratech cement for the financial year 2021 through 2025. The test produces T-statistics of -7.7719, which greatly exceeds the critical value of 2.7764 for a two-tail test at a 5% significance level. In addition to P value comparison which calculated 0 .001477 is far below 0.05 threshold clearly indicating the differences in mean return on equity between two companies is statistically significant. Additionally, Karl Pierson Corelation Coefficient -0.0013 reveals virtually no linear relationship in the year-to-year return on equity movements between the two firms. These findings confirm Ultratech cement has significantly outperformed than Grasim Industries in terms of return on equity during the given financial year.

T-Test: Paired Two Sample for Means (Shree Cement & Grasim Industries)
Null Hypothesis(H_0): There is no noteworthy difference in mean return on equity in between Shree Cement & Grasim Industries over the period of 2021 to 2025.
Alternative Hypothesis(H_1): There is a noteworthy difference in mean return on equity in between Shree Cement & Grasim Industries over the period of 2021 to 2025.

Table 8 Showing T-Test: Paired Two Sample for Means with respect to Return on Equity Over Five Financial Years in between Shree Cement & Grasim Industries

t-Test: Paired Two Sample for Means		
	Variable 1	**Variable 2**
Mean	8.674	4.516
Variance	5.09508	2.01248
Observations	5	5
Pearson Correlation	-0.561812089	
Hypothesized Mean Difference	0	
df	4	
t Stat	2.841610765	
P(T<=t) one-tail	0.023395628	
t Critical one-tail	2.131846782	
P(T<=t) two-tail	0.046791257	
t Critical two-tail	2.776445105	

Source: Author's Compilation

Interpretation: A paired sample T-test was used to compare the mean return on equity of Shree cement and Grasim Industries over the five year financial year 2021 to 2025. The calculated T-statistic was 2.8416, which is higher than the critical value of 2.7764 for two tail tests at the 5% significant level. The P-value 0.0467 is fair underneath 0.05 significance threshold, indicating that the observed differences in average return on equity in between two companies is statistically significant. Shree Cement consistently achieved better returns on equity compared to Grasim Industries during the given time frame. Additionally, a negative Pearson Corelation Coefficient that is -0.5618, suggests an inverse relationship in between return on equity trends two farms that is one company's return on equity improved other often declined.

CONCLUSION

This financial analysis of return on equity across five foremost cement industries over five financial years i.e. 2021 to 2025 discovered significant variations in performance. One way ANOVA test confirmed at a statistically significant difference in mean return on equity among the companies as indicated by F value of 17.47 and P value below 0.05 threshold. These suggest that the differences in return on equity are not due to arbitrary variations, but are influenced by the underlying company specific factors such as Operational Efficiency, Cost Structure and Capital Management. Further visions were gained through a series of pair T-test, the comparison between Ambuja cement and ACC cement showed no significant difference in average return on equity as the P value exceeded 0.05, indicating similar performance over the financial years. In contrast the test between Grasim Industries and Ultratech cement was supported by a very little P value i.e. 0.0015 and strong P statistic underlining Ultratech superior efficiency in utilizing shareholders equity. The Paired between Shree cement and Grasim Industries also showed a statistically significant difference with a minute of marginal level P value that is 0.047 suggesting Shree cement achieved higher average return on equity than Grasim Industries during the study. These findings highlighted the role of firm level strategies and financial management in shaping profitability and shareholders value in Indian cement industrial sector.

Limitation of the Study

1. This study has considered Five Major Indian Cement Industries based on Market Capitalisation.
2. This study subject to limit of Five Financial years 2021-2025.

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Conflict of Interest

The author(s) declared no conflict of interest.

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