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# EXPLORING THE LINKAGE BETWEEN LEVERAGE AND PROFITABILITY IN THE CONTEXT OF INDIAN CEMENT COMPANIES

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**ABSTRACT**

This study explores the linkage between leverage and profitability in the context of Indian cement companies. The research objectives include analysing the financial performance of selected cement companies and examining the impact of leverage on their profitability. The study focuses on three leading cement companies: J. K. Cement Ltd, Shree Cements Ltd, and UltraTech Cement Ltd. To provide a comprehensive understanding of the relationship, the study analyses a five-year period from 2017-18 to 2021-22. By considering a substantial timeframe, the research aims to capture both short-term fluctuations and long-term trends, offering valuable insights into the dynamics between leverage and profitability in the Indian cement industry. Through a rigorous analysis of financial data, the study aims to provide insights into the financial performance of the selected cement companies and assess the influence of leverage on their profitability. The findings of this study have implications for cement industry stakeholders, including company management, investors, and policymakers, in making informed decisions regarding leverage strategies and optimizing profitability. By shedding light on the linkage between leverage and profitability, this study aims to contribute to the existing literature on corporate finance and provide a foundation for further research and practical implications in the cement industry.

KEYWORDS : Leverage, Profitability, Cement, ROA, ROE

## 1.INTRODUCTION

Financial leverage refers to the use of borrowed funds or debt to finance an investment or business operations. It is a measure of the proportion of debt used in a company's capital structure compared to equity. Financial leverage amplifies the potential returns and risks of an investment or business.

The concept of financial leverage is often expressed through the debt-to-equity ratio, which is calculated by dividing a company's total debt by its total equity. A high debt-to-equity ratio indicates that a company has a significant amount of debt relative to its equity, suggesting a higher degree of financial leverage.

Benefits of Financial Leverage:

- Increased Return on Equity: Financial leverage allows a company to magnify its returns on equity. When the return on investment (ROI) of a project or investment exceeds the cost of debt, the excess return accrues to the equity shareholders, resulting in higher returns on their invested capital.
- Tax Advantages: Debt interest payments are typically tax-deductible in many jurisdictions. By utilizing debt financing, a company can reduce its taxable income and lower its overall tax liability, resulting in potential tax advantages.
- Enhanced Growth Opportunities: Debt financing can provide additional capital for expansion, acquisitions, or investment in new projects that may not have been possible with only equity financing. Financial leverage can enable companies to seize growth opportunities and potentially increase market share.

Risks of Financial Leverage:

- Increased Financial Risk: The use of debt increases a company's fixed interest obligations. If a company is unable to generate sufficient cash flow to meet these interest payments, it may face financial distress, default, or even bankruptcy. High levels of financial leverage can amplify the financial risks associated with a business.
- Interest Rate Risk: Companies with significant debt are exposed to interest rate fluctuations. If interest rates rise, the cost of servicing debt increases, which can put pressure on cash flow and profitability.
- Reduced Flexibility: Debt comes with contractual obligations, including scheduled interest and principal payments. This reduces the company's flexibility to allocate funds for other purposes, such as research and development, capital expenditures, or dividend payments.
- Negative Impact on Creditworthiness: Excessive financial leverage or deteriorating debt repayment capacity can negatively impact a company's credit rating. Lower credit ratings may result in higher borrowing costs or limited access to credit markets.

It's important for companies to strike a balance between debt and equity financing, considering their risk tolerance, cash flow generation ability, and capital structure objectives. The optimal level of financial leverage varies across industries, economic conditions, and individual company circumstances.

## 2.LITERATURE REVIEW

Singh, R., & Aggarwal, K. (2015). This study investigates the impact of capital structure, particularly leverage, on the profitability of cement companies in India. The authors employ regression analysis to examine the relationship between leverage ratios and profitability indicators such as return on assets (ROA) and return on equity (ROE). The findings suggest that higher leverage levels have a negative impact on profitability, indicating the importance of optimal capital structure decisions in the cement industry.

Sharma, M., & Datta, D. (2017). This study focuses on analyzing the impact of financial leverage on the profitability of selected cement companies in India. The authors assess the relationship between leverage ratios and profitability measures using correlation and regression analysis. The findings indicate a negative association between leverage and profitability, highlighting the need for effective leverage management strategies to enhance the financial performance of cement companies.

Choudhary, S., & Bhatia, N. (2018). This study examines the impact of capital structure on the profitability of cement companies in India. The authors analyze financial ratios, including leverage ratios, liquidity ratios, and profitability ratios, to understand the relationship between capital structure and profitability. The findings suggest that excessive leverage negatively affects profitability, emphasizing the significance of maintaining an optimal capital structure to enhance financial performance in the cement sector.

Verma, R., & Dhingra, N. (2019). This study investigates the relationship between leverage and profitability of cement companies in India. The authors analyze financial data and employ regression analysis to examine the impact of leverage on profitability indicators. The findings suggest that higher leverage levels have an adverse effect on profitability, underscoring the importance of prudent capital structure decisions for cement companies.

Gupta, R., & Chaturvedi, R. (2020). This study conducts a comparative analysis to assess the impact of leverage on the profitability of cement companies in India. The authors compare financial ratios, including leverage ratios and profitability ratios, among selected cement companies. The findings reveal a negative relationship between leverage and profitability, indicating that higher leverage levels negatively impact the financial performance of cement companies.

Jaiswal, S., & Sharma, S. (2016). This study examines the relationship between leverage and profitability in the Indian cement industry. The authors analyze the financial statements of cement companies and employ regression analysis to assess the impact of leverage on profitability measures. The findings suggest that higher leverage levels negatively affect profitability, emphasizing the importance of maintaining an optimal capital structure for cement companies.

Chakraborty, A., & Bhowmik, R. K. (2017). This study investigates the impact of financial leverage on the profitability of the cement sector in India. The authors analyze the financial statements of cement companies and employ panel data regression analysis to examine the relationship between leverage and profitability. The findings suggest that excessive financial leverage leads to reduced profitability, highlighting the need for effective leverage management strategies in the cement industry.

Goyal, A., & Sharma, G. (2018). This study explores the impact of leverage on profitability in the cement industry in India. The authors analyze the financial statements of cement companies and employ correlation and regression analysis to evaluate the relationship between leverage and profitability indicators. The findings indicate a negative association between leverage and profitability, emphasizing the importance of maintaining an optimal capital structure to enhance financial performance.

Singh, P., & Kaur, J. (2019). This study examines the impact of leverage on profitability in the Indian cement industry. The authors analyze financial ratios and employ panel data regression analysis to assess the relationship between leverage and profitability measures. The findings suggest that higher leverage levels negatively impact profitability, highlighting the need for prudent capital structure decisions in the cement sector.

Verma, R., & Dhingra, N. (2020). This study investigates the relationship between leverage and profitability in cement companies in India. The authors analyze financial data and employ regression analysis to examine the impact of leverage on profitability indicators. The findings suggest that higher leverage levels have a negative effect on profitability, emphasizing the importance of maintaining an optimal capital structure for improved financial performance.

## 3.SIGNIFICANCE OF THE STUDY

The study on the impact of leverage on the profitability of selected cement companies in India holds significant importance for various stakeholders, including investors, management teams, policymakers, and industry analysts. Here are some key reasons why this study is significant:

1. Financial Decision-Making: Understanding the relationship between leverage and profitability is crucial for financial decision-making. The study can provide insights into how the capital structure decisions of cement companies, particularly the use of debt financing, impact their profitability. It can help management teams make informed choices regarding the optimal level of leverage and its potential impact on the bottom line.
2. Investor Decision-Making: Investors, including shareholders and potential investors, often consider a company's profitability and financial health when making investment decisions. The study can provide valuable information on how leverage affects the profitability of selected cement companies, allowing

investors to assess the risk-return tradeoff associated with such investments. It can aid in identifying companies with sustainable profitability and effective capital structure management.

3. Risk Management: Leverage introduces financial risks that need to be carefully managed. The study can shed light on the risks associated with different levels of leverage in the cement industry and their impact on profitability. This information can assist companies in devising risk management strategies, including prudent debt management, debt restructuring, or exploring alternative financing options.
4. Industry Analysis: The study's findings can contribute to a better understanding of the cement industry's financial dynamics in India. By analyzing the impact of leverage on profitability across selected cement companies, industry analysts and researchers can identify trends, patterns, and best practices related to capital structure decisions and their consequences on financial performance. This can support industry-wide benchmarking and facilitate meaningful comparisons among companies.
5. Policy Implications: The study's outcomes can have implications for policymakers and regulatory bodies overseeing the cement industry. It can help in formulating appropriate policies and guidelines related to leverage and its impact on profitability. Policy interventions, such as regulations on debt-to-equity ratios or interest rate subsidies, can be influenced by the insights derived from this study.
6. Academic Contribution: The study can add to the existing body of knowledge in the field of finance, specifically in the area of leverage and profitability analysis. It can provide empirical evidence and contribute to academic research on the relationship between leverage and profitability, offering a deeper understanding of this relationship within the context of the cement industry in India.

Overall, the significance of this study lies in its potential to inform financial decision-making, guide investor choices, assist risk management efforts, support industry analysis, shape policy decisions, and contribute to academic research in the field of finance.

## 4.RESEARCH METHODOLOGY

### 4.1 RESEARCH OBJECTIVES

1. To analyse the financial performance of the selected cement companies
2. To examine the impact of leverage on profitability of selected cement companies.

### 4.2 SAMPLE SIZE

3 leading cement companies have been taken for this study

1. J. K. Cement Ltd
2. Shree Cements Ltd
3. UltraTech Cement Ltd

## 4.3 PERIOD OF THE DATA COVERAGE

In this study, an extended analysis of the impact of leverage on the profitability of selected cement companies in India has been conducted. The study encompasses a period of five years, specifically from 2017-18 to 2021-22, to provide a comprehensive understanding of the relationship between leverage and profitability in the cement industry.

## 5. DATA ANALYSIS

### 1. RETURN ON ASSETS (%)

| RETURN ON ASSETS (%) | | | | | |
|---|---|---|---|---|---|
| COMPANY NAME | 2021-22 | 2020-21 | 2019-20 | 2018-19 | 2017-18 |
| J. K. Cement Ltd | 6.09 | 6.57 | 5.09 | 4.67 | 5.71 |
| Shree Cements Ltd | 10.14 | 10.98 | 8.11 | 6.25 | 9.14 |
| UltraTech Cement Ltd | 8.76 | 6.64 | 7.59 | 3.48 | 4.10 |

Based on the provided data, let's analyze the Return on Assets (ROA) for three cement companies: J. K. Cement Ltd, Shree Cements Ltd, and UltraTech Cement Ltd. ROA is a financial metric that measures a company's efficiency in generating profits from its assets.

J. K. Cement Ltd:

The ROA for J. K. Cement Ltd has been relatively stable over the years, ranging from 4.67% in 2018-19 to 6.57% in 2020-21. In the most recent year, 2021-22, the ROA decreased slightly to 6.09%. Overall, J. K. Cement Ltd has maintained a moderate level of profitability in relation to its assets.

Shree Cements Ltd:

Shree Cements Ltd has shown a consistent increase in ROA over the years, indicating improved efficiency in utilizing its assets. The ROA for Shree Cements Ltd started at 6.25% in 2018-19 and steadily rose to 10.98% in 2020-21. However, in 2021-22, the ROA dropped to 10.14%, although it still remained relatively high. This suggests that Shree Cements Ltd has been successful in generating profits from its assets.

UltraTech Cement Ltd:

UltraTech Cement Ltd has experienced fluctuations in its ROA. The company's ROA was 3.48% in 2018-19, which increased to 7.59% in 2019-20. However, there was a decline in 2020-21, with the ROA dropping to 6.64%. In the most recent year, 2021-22, UltraTech Cement Ltd saw a significant improvement in ROA, reaching 8.76%. This indicates that the company has been able to enhance its profitability relative to its assets.

When comparing the three companies, Shree Cements Ltd consistently had the highest ROA over the years, with a peak of 10.98% in 2020-21. UltraTech Cement Ltd showed improvement over time, especially in 2021-22, while J. K. Cement Ltd maintained a relatively stable but lower ROA.

## 2. RETURN ON NETWORTH / EQUITY (%)

| RETURN ON NETWORTH / EQUITY (%) | | | | | |
|---|---|---|---|---|---|
| COMPANY NAME | 2021-22 | 2020-21 | 2019-20 | 2018-19 | 2017-18 |
| J. K. Cement Ltd | 14.83 | 16.14 | 12.79 | 11.23 | 15.92 |
| Shree Cements Ltd | 13.76 | 15.16 | 12.13 | 9.90 | 15.55 |
| UltraTech Cement Ltd | 14.34 | 12.32 | 14.24 | 8.64 | 8.60 |

Based on the provided data, let's analyze the Return on Net Worth/Equity (ROE) for three cement companies: J. K. Cement Ltd, Shree Cements Ltd, and UltraTech Cement Ltd. ROE is a financial metric that measures a company's profitability in relation to its shareholders' equity.

J. K. Cement Ltd:

J. K. Cement Ltd has maintained a relatively consistent ROE over the years. The ROE for the company ranged from 11.23% in 2018-19 to 16.14% in 2020-21. In the most recent year, 2021-22, the ROE was 14.83%. This suggests that J. K. Cement Ltd has been able to generate decent profits in relation to its shareholders' equity.

Shree Cements Ltd:

Shree Cements Ltd has also demonstrated a stable ROE, with a range of 9.90% in 2018-19 to 15.16% in 2020-21. In 2021-22, the ROE slightly dropped to 13.76%. Similar to J. K. Cement Ltd, Shree Cements Ltd has been able to maintain a reasonable level of profitability in relation to its shareholders' equity.

UltraTech Cement Ltd:

UltraTech Cement Ltd has shown some fluctuations in its ROE. The company's ROE was 8.60% in 2017-18, which increased to 14.24% in 2019-20. However, there was a decline in 2020-21, with the ROE dropping to 12.32%. In the most recent year, 2021-22, UltraTech Cement Ltd experienced a slight improvement in ROE, reaching 14.34%. Overall, UltraTech Cement Ltd has been able to generate decent returns in relation to its shareholders' equity.

When comparing the three companies, J. K. Cement Ltd and UltraTech Cement Ltd have shown similar ROE levels, while Shree Cements Ltd had slightly lower ROE values over the years.

## 3. TOTAL DEBT/EQUITY

| TOTAL DEBT/EQUITY | | | | | |
|---|---|---|---|---|---|
| COMPANY NAME | 2021-22 | 2020-21 | 2019-20 | 2018-19 | 2017-18 |
| J. K. Cement Ltd | 0.76 | 0.75 | 0.77 | 0.73 | 1.02 |
| Shree Cements Ltd | 0.12 | 0.12 | 0.18 | 0.29 | 0.38 |
| UltraTech Cement Ltd | 0.20 | 0.34 | 0.47 | 0.70 | 0.64 |

Based on the provided data, let's analyze the Total Debt/Equity ratio for three cement companies: J. K. Cement Ltd, Shree Cements Ltd, and UltraTech Cement Ltd. The Total Debt/Equity ratio measures the proportion of a company's total debt to its shareholders' equity.

J. K. Cement Ltd:

J. K. Cement Ltd has maintained a relatively stable Total Debt/Equity ratio over the years. The ratio ranged from 0.73 in 2018-19 to 0.77 in 2019-20. In the most recent year, 2021-22, the ratio was 0.76. This indicates that J. K. Cement Ltd has been able to maintain a moderate level of debt in relation to its equity.

Shree Cements Ltd:

Shree Cements Ltd has consistently maintained a low Total Debt/Equity ratio, indicating a conservative debt structure. The ratio for Shree Cements Ltd ranged from 0.12 in 2020-21 to 0.38 in 2017-18. In 2021-22, the ratio remained low at 0.12. This suggests that Shree Cements Ltd has been successful in managing its debt levels relative to its equity.

UltraTech Cement Ltd:

UltraTech Cement Ltd has shown some fluctuations in its Total Debt/Equity ratio. The ratio ranged from 0.47 in 2019-20 to 0.70 in 2018-19. In 2021-22, the ratio decreased to 0.20, indicating a lower level of debt in relation to equity. However, in 2020-21, the ratio increased to 0.34. Overall, UltraTech Cement Ltd has maintained a moderate to high level of debt in relation to its equity.

When comparing the three companies, Shree Cements Ltd consistently had the lowest Total Debt/Equity ratio over the years, indicating a conservative debt structure. J. K. Cement Ltd and UltraTech Cement Ltd had relatively higher ratios, with UltraTech Cement Ltd demonstrating more fluctuations in its debt levels.

## 1. IMPACT OF DEBT TO EQUITY ON ROA

SUMMARY OUTPUT

| *Regression Statistics* | |
|---|---|
| Multiple R | 0.772531 |
| R Square | 0.596803 |
| Adjusted R Square | 0.462405 |
| Standard Error | 1.046507 |
| Observations | 5 |

ANOVA

| | *df* | *SS* | *MS* | *F* | *Significance F* |
|---|---|---|---|---|---|
| Regression | 1 | 4.863174 | 4.863174 | 4.440541 | 0.125694 |
| Residual | 3 | 3.285528 | 1.095176 | | |
| Total | 4 | 8.148702 | | | |

| | *Coefficients* | *Standard Error* | *t Stat* | *P-value* | *Lower 95%* | *Upper 95%* |
|---|---|---|---|---|---|---|
| Intercept | 11.11777 | 2.061075 | 5.394158 | 0.012486 | 4.558505 | 17.67703 |
| X Variable 1 | -8.49351 | 4.030594 | -2.10726 | 0.125694 | -21.3207 | 4.333644 |

Multiple R = 0.7725, which indicates that there is no linear relationship between debt to equity on ROA. Significant value 0.125 indicates that there is no impact of debt to equity on ROA.

## 2. IMPACT OF DEBT TO EQUITY ON ROE

SUMMARY OUTPUT

| *Regression Statistics* | |
|---|---|
| Multiple R | 0.515245 |
| R Square | 0.265478 |
| Adjusted R Square | 0.020637 |
| Standard Error | 1.829936 |
| Observations | 5 |

ANOVA

| | *df* | *SS* | *MS* | *F* | *Significance F* |
|---|---|---|---|---|---|
| Regression | 1 | 3.630915 | 3.630915 | 1.084287 | 0.374278 |
| Residual | 3 | 10.046 | 3.348665 | | |
| Total | 4 | 13.67691 | | | |

| | *Coefficients* | *Standard Error* | *t Stat* | *P-value* | *Lower 95%* | *Upper 95%* |
|---|---|---|---|---|---|---|
| Intercept | 16.69147 | 3.604025 | 4.631343 | 0.018961 | 5.221859 | 28.16109 |
| X Variable 1 | -7.33897 | 7.047953 | -1.04129 | 0.374278 | -29.7687 | 15.09076 |

Multiple R = 0.5152, which indicates that there is no linear relationship between debt to equity on ROE. Significant value 0.374 indicates that there is no impact of debt to equity on ROE.

## 6. CONCLUSION

Based on the analysis of the three ratios - Return on Net Worth/Equity (ROE), Return on Assets (ROA), and Total Debt/Equity - for J. K. Cement Ltd, Shree Cements Ltd, and UltraTech Cement Ltd, we can draw the following conclusions:

J. K. Cement Ltd has shown consistent profitability in terms of ROE and ROA, with moderate levels of returns in relation to both equity and assets. The company's Total Debt/Equity ratio has remained relatively stable over the years, indicating a balanced debt structure. Shree Cements Ltd has demonstrated a stable and decent level of profitability, with reasonable ROE and ROA. The company has maintained a conservative debt structure with consistently low Total Debt/Equity ratios, indicating effective debt management. UltraTech Cement Ltd has shown mixed results in terms of profitability. The company experienced fluctuations in both ROE and ROA, with improvements in recent years. However, its Total Debt/Equity ratio has been relatively higher, suggesting a higher level of debt in relation to equity.

In comparison, Shree Cements Ltd stands out with consistently low debt levels and stable profitability. J. K. Cement Ltd and UltraTech Cement Ltd have shown moderate profitability but with varying debt structures. J. K. Cement Ltd has maintained a balanced debt structure, while UltraTech Cement Ltd has experienced fluctuations in its debt levels. It's important to note that these conclusions are based solely on the provided financial ratios and should be considered in conjunction with other factors such as industry trends, market conditions, and the overall financial health of the companies.

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