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A Study on Systematic Risk and Return of Cement Industries

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ABSTRACT -

The cement industry, a cornerstone of global infrastructure, plays a pivotal role in economic development. This study delves into the intricate relationship between the cement industry's stock performance and broader market dynamics, focusing on systematic risk and return. Understanding this relationship is crucial for investors seeking to navigate the complexities of the market and make informed decisions. By examining the sensitivity of cement stock returns to market movements, this research aims to provide a comprehensive analysis of the industry's investment profile.

The core of this investigation lies in quantifying the systematic risk associated with cement stocks. The study employs regression analysis to estimate beta values for selected companies within the cement sector. Beta, a fundamental concept in finance, measures a stock's volatility relative to the overall market. A beta greater than 1 suggests that the stock is more volatile than the market, while a beta less than 1 indicates lower volatility. The precise calculation of these beta values allows for a detailed understanding of the risk profiles of individual cement stocks and their responsiveness to market fluctuations.

The ultimate goal of this research is to provide actionable insights for investors. By understanding the systematic risk inherent in cement stocks, investors can make more informed decisions regarding portfolio diversification and risk management. The findings offer a valuable framework for assessing the potential rewards and risks associated with investments in the cement industry. This knowledge is particularly important in an ever-changing market landscape, where a deep understanding of industry-specific dynamics can lead to more successful and strategic investment strategies.

INTRODUCTION

There are unlimited options to make investments in securities of companies. This is first challenge for an investor to select or shortlist securities on some parameters. The first norm is risk and return. The term return refers to income from a security after a defined period either in the form of interest, dividend or market appreciation in security value. On the other hand, risk refers to uncertainty over the future to get this return. in simple words, it is a probability of getting return on security. A higher probability leads to certainly of occurrence of return and contrary to that low probability means higher chances of not getting return on investments, or situation of loss. Now, it makes essential for an investor to study risk return characteristics of every individual security before making investment therein. Therefore, selection or short listing of security may be made on the basis of risk and return relationship.

NEED FOR THE STUDY

A study on systematic risk and return in Cement industries is crucial for several reasons, including information investment decisions, understanding the company's financial health, and assessing its overall risk profile. A detailed analysis of systematic risk, which includes market risk, helps investors understand the company's vulnerability to broader market fluctuations. Understanding the return generated by cement industries, along with its associated systematic risk, allows investors to make informed decisions about their investments

SCOPE OF THE STUDY

The scope of studying the systematic risk and return of cement industries is broad, encompassing several key areas. It involves analyzing how macroeconomic factors, such as interest rates, inflation, and economic growth, influence cement stock performance. This includes assessing the impact of government policies, like infrastructure spending and environmental regulations, on the industry's risk and return profiles. Furthermore, the study can explore the effects of industry-specific variables, such as raw material costs, production capacity, and competition, on cement companies' financial performance. It can also involve examining the role of technological advancements and sustainability practices in shaping the risk and return characteristics of cement investments.

Ultimately, the scope extends to providing insights that can inform investment strategies, risk management practices, and policy decisions related to the cement industry.

REVIEW OF LITERATURE

Zebras and Cabman (2000) presented a set of summary statistics of returns and risks for asset classes that may be used as benchmarks for establishing allocation levels, a subsequent article comments on how customized benchmarks may provide a more appropriate basis of comparison than generic indexes.

Gu and Kim (2002) worked on determination of beta by using the data of restaurant industries.

Roh (2002), growth is positively related with systematic risk.

Mossadegh (2005) study the relationship between risk and size with returns in numerous conditions of stock market. In this study, used the multifactor model for testing conditional situation and cross-sectional multivariate regression for testing hypothesis.

Lee and Jaug (2006) incorporated US airline industries and concluded significant result.

STATEMENT OF THE PROBLEM

The problem statement for systematic risk and return in cement industries focuses on understanding how broader market and economic factors impact the company's performance and how this affects its returns industries needs to manage these risks to ensure that its investment decisions and strategic business objectives are aligned with acceptable risk levels and expected returns.

OBJECTIVES OF THE STUDY

1. To study the systematic risk of the Cement industries.
2. To analyze the average return of the Cement industries.
3. To evaluate the Beta of the selected stocks.
4. To analysis the fluctuating risk and return of Cement industries.

RESEARCH METHODOLOGY

Secondary data collection from the past stock price information from NSE.com and investing.

Com 5 years of stock price collected according to every month average of 2020 to 2025.

Sampling Design:

5 years of stock price collected according to every month average of 2020 and 2025 from 1 April to 31 March.

Statistical tools and Techniques

ANNUAL RATE OF RETURN

Beta calculation is used to analysis the returns of the selected industries.

*AAR = (Ending Value / Beginning Value) * (1/Number of years)*

2. In securities analysis, the sample mean represents the expected value or average of all possible returns from the investment within a portfolio. It is commonly referred to as the expected return and return.

Sample Mean = (Total Annual Rate of Return / Total Number of Years) 3. VARIANCE

Variance is a measure of how much the values in a data set vary or spread out from the mean. It indicates the extent to which each value differs from the average of the set.

4. STANDARD DEVIATION

Standard deviation is a measure of how spread out the values in a data set is from the mean. A larger standard deviation indicates that the data points are more dispersed. It is calculated by taking the square root of the variance.

FORMULA:

$$s = \sqrt{\frac{(x_i - \bar{x})^2}{n-1}}$$

5. COEFFICIENT OF VARIATION

The coefficient of Variation (CV) is a statistical measure that quantifies the dispersion of data relative to the mean. It helps investors assess the level of risk or volatility in relation to the expected return from an investment.

FORMULA: Coefficient of Variation = Standard Deviation / Mean 6. BETA CALCULATION

Beta measures the volatility or systematic risk of a security relative to the market. It represents the slope of a regression line comparing stocks returns to the markets. Beta shows how stocks returns respond to market movements. It is calculated by dividing the covariance of a stocks and markets returns by the markets variance. This metric helps assess stocks sensitivity to market changes.

$$\beta_i = \frac{Cov(r_i, r_m)}{\sigma^2(r_m)}$$

FORMULA:

7. SHARPE RATIO

The Sharpe Ratio measures the excess return of an investment (above the risk-free rate) per unit of total risk (volatility). It helps investors understand the return of an investment compared to its risk.

FORMULA: SHARPE RATIO = Rp-Rf SD 8. TREYNOR RATIO

The Treynor Ratio measures the excess return of an investment (above the risk-free rate) per unit of systematic risk (market risk). It helps evaluate how much return an investment provides for the level of market risk taken.

FORMULA: TREYNOR RATIO = Rp-Rf Bp

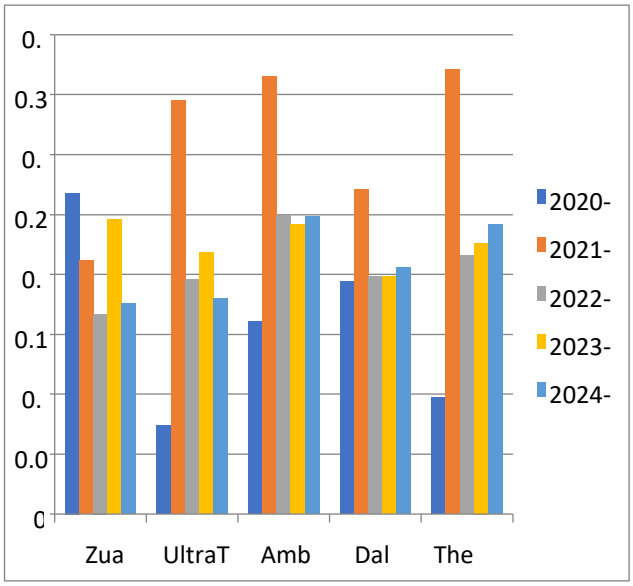
DATA ANALYSIS & INTERPRETATION

4.11 SHOWS THE COMPARATIVE ANALYSIS OF ANNUAL RATE OF

RETURN OF CEMENT INDUSTRIES

YEARS	ZUARI	ULTRATECH	AMBUJA	DALMIA	THE RAMCO
2020-2021	0.268	0.074	0.161	0.194	0.097
2021-2022	0.212	0.345	0.365	0.271	0.371
2022-2023	0.167	0.196	0.249	0.198	0.216
2023-2024	0.246	0.218	0.242	0.198	0.226
2024-2025	0.176	0.180	0.248	0.206	0.242

GRAPH: 4.11 SHOWS THE COMPARATIVE ANALYSIS OF ANNUAL RATE OF RETURN OF CEMENT INDUSTRIES

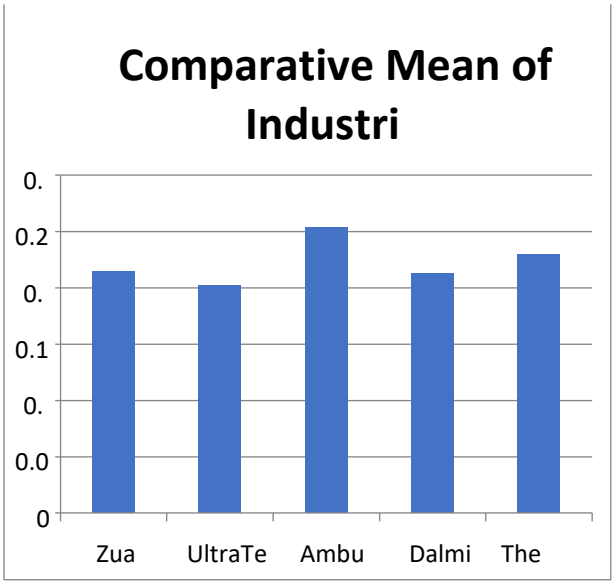


INTERPRETATION: This table and graph shows the Comparative Analysis of Annual rate of return of cement industries from 2020 and 2025. The cement companies are Zuari Cement, UltraTech Cement, Ambuja Cement, Dalmia Cement, and The Ramco Cement. In 2021-2022 was the best year for returns across nearly all companies. The Ramco and UltraTech Cement companies showed the most improvement from the first year. Ambuja and Dalmia remained relatively consistent, with Ambuja slightly more volatile. Zuari showed the most declines over time.

4.12 SHOWS THE COMPARATIVE MEAN OF CEMENT INDUSTRIES

NAME OF THE CEMENT COMPANY	MEAN
ZUARI	0.214
UITRA TECH	0.202
AMBUJA	0.253
DALMIA BHARAT	0.213
THE RAMCO	0.230

GRAPH: 4.12 SHOWS THE COMPARATIVE MEAN OF CEMENT INDUSTRIES



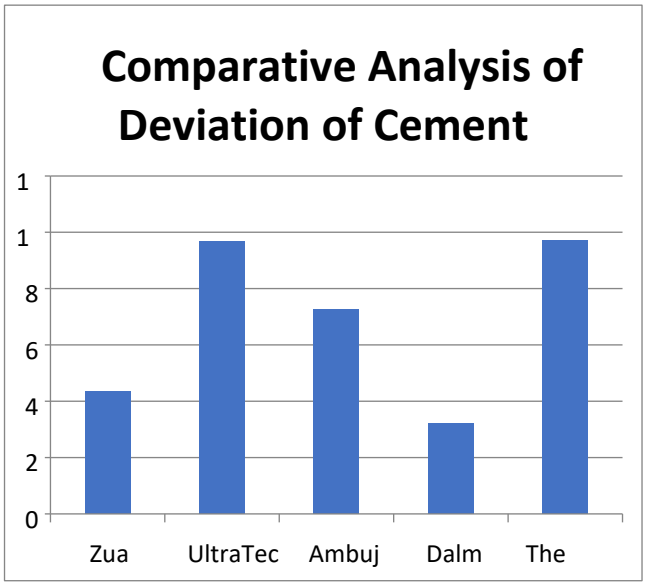
INTERPRETATION: The table lists five cement companies and their respective mean values. The highest mean is for Ambuja at 0.253, indicating potentially higher performance or a different metric compared to others. The lowest mean is for Ultra Tech at 0.202. The other three companies, Zuari, Dalmia, and The Ramco, have means between these two extremes.

4.13 SHOWS THE COMPARATIVE ANALYSIS OF STANDARD

DEVIATION OF CEMENT INDUSTRIES

NAME OF THE CEMENT COMPANY	STANDARD DEVIATION
ZUARI	4.358
ULTRA TECH	9.690
AMBUJA	7.264
DALMIA BHARAT	3.235
THE RAMCO	9.737

GRAPH: 4.13 SHOWS THE COMPARATIVE ANALYSIS OF STANDARD DEVIATION OF CEMENT INDUSTRIES



INTERPRETATION: The data shows the standard deviation for five different cement companies, Zuari: 4.358, UltraTech: 9.690, Ambuja: 7.264, Dalmia: 3.235, The Ramco: 9.737. The Ramco and UltraTech have the highest standard deviations and Dalmia has the lowest standard deviation, indicating the least variability. The variability in the cement companies, it suggests that some companies like The Ramco and UltraTech have more fluctuations in their data, while Dalmia has relatively stable data. This could be due to differences in their production processes, management, or external factors affecting their operations.

FINDINGS

The Ambuja Cement was recorded the highest average Annual rate of return is 0.253. The UltraTech Cement was recorded the lowest average Annual rate of return is 0.202. The Ramco Cement showed the highest volatility with a Standard deviation of 9.737. The Dalmia Cement was the lowest volatility with a standard deviation of 3.235. The UltraTech Cement shows the highest Coefficient of variation (47.97), indicating high risk relative to return. The Dalmia Cement shows the lowest Coefficient of variation (15.188), indicating more stable and consistent returns. The Ramco Cement shows the highest beta value (1.547), indicating high responsiveness to market movements. The Dalmia Cement shows the lowest beta value (0.918), suggestion lower sensitivity to market fluctuations. All five companies (Zuari, UltraTech, Ambuja, Dalmia Bharat, and The Ramco) have negative Sharpe Ratios, indicating underperformance relative to the risk-free rate. The Ramco shows the least negative Sharpe Ratio (-0.85445), making

it the best among the group in terms of risk-adjusted return. Dalmia Bharat has the worst Sharpe Ratio (-2.39411), showing poor return for the risk taken. Again, all companies show negative Treynor Ratios, confirming that returns have not adequately compensated for market risk (Beta). Zuari has the best (least negative) Treynor ratio (2.84775), suggesting slightly better compensation for systemic risk. The Ramco again has the worst (-6.4333), indicating poor return per unit of market risk.

LIMITATIONS OF THE STUDY

1. The analysis focuses solely on data from a five year period, excluding any developments or changes that occurred before or after this timeframe.
2. The research is restricted to a specific set of companies, limiting its scope to evaluate the overall markets risk and return.

SUGGESTIONS

Focus on Risk Management: Cement companies must work on improving risk-adjusted returns by controlling operational and market risks, especially firms like Dalmia and UltraTech.

Improve Return Efficiency: Companies with poor Sharpe and Treynor ratios should restructure portfolios or operations to generate better returns relative to risk taken.

Investor Perspective: Investors may consider Ramco or Ambuja for their relatively better Sharpe Ratios. Zuari may be more attractive from a systemic risk standpoint as shown by its Treynor Ratio.

Strategic Allocation: Favor companies like Ambuja and JKC, which show a balance of returns and risk (low CV and moderate beta).

CONCLUSIONS

The comparative performance of cement companies reveals that none outperformed the riskfree rate**,** suggesting suboptimal returns for the risk involved. However, among the group, The Ramco and Ambuja displayed relatively better risk-adjusted performance. Dalmia Bharat**,** despite low volatility, shows the poorest return profile. From an investment standpoint, decision-makers must prioritize risk management, operational efficiency, and market alignment to achieve higher and more consistent returns. Further long-term analysis is recommended to validate these trends and improve strategic financial planning in the cement sector.

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