

## A COMPARATIVE STUDY OF FINANCIAL PERFORMANCE OF ULTRATECH CEMENT AND INDIA CEMENT THROUGH 'Z' SCORE MODEL

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Lakha Raja Bapodara\*

### ABSTRACT

*Edward I Altman, Professor of Finance at New York University was the principal individual who built up another model prevalently known as "Z-score Model" to anticipate the monetary execution of the business concerns. He considered five ratios and assigned a weight for each ratio and produced a single number which indicates the financial performance of the business concerns. In the present research paper an attempt is made to predict the financial performance of Cement Companies with special reference to Ultratech Cement and India Cement from 2009-2010 to 2018-2019 for 10 years using Altman's Z-Score model. It is found out that India Cement is in too performance Distress Zones where it is fall bankrupt.*

**KEYWORDS:** *Financial Performance, Z-score Model, Safe Zones, Grey Zones, Distress Zones.*

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### Introduction

One of the imperative tasks of a business is to prepare the financial statements. Financial Statements of a business organization serve several purposes for various categories of parties. These parties are usually referred to as the stake holders. These stake holders can be categorized into two viz., Internal Stake holders and External Stake holders. Internal Stake holders includes executives, managers, employees and workers, whereas External Stake holders includes investors, creditors, government agencies, non-governmental organizations, banks, financial institutions and society as a whole. These stake holders are often concerned with knowing the financial health of the business. The internal stake holders are interested in financial health because they are concerned with the salaries and perks. External stake holders are interested in financial health because they are concerned with the return and repayment of their credit and service that can be received from the business.

So, according to their purposes, the stake holders like to make the analysis of financial statements of the business organization. On the basis of their analysis, they derive certain conclusions about the financial health of the organization. The stake holders can use various tools for making the analysis of financial health of the business, but out of the various tools Ratio analysis is widely used because of its ease and accuracy in predicting the financial health. One of such tools is Z-Score.

### Z Score Model- an Introduction

Z-Score model is successful in predicting the financial health of the organization. Now it is internationally recognized model. It was published first in September, 1968 in Journal of Finance, titled as "Financial Ratio, Discriminant Analysis and the Prediction of Corporate Bankruptcy". As opposed to

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\* Ph. D. Research Scholar, (Department of Commerce and Business Administration), (Under the subject of Accountancy), Bhakta Kavi Narsinh Mehta University, Junagadh.  
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looking for single best proportion Edward Altman has presented new model in 1968 called Altman Z-score model. The Z-score formula is utilized for anticipating liquidity position and monetary market analyst. The Z-score is multivariate formulas that measures the financial performance of the company and predict the bankruptcy within two years. The model covers both the issues, monetary issues and working issues. The model uses five proportions emblematically X1, X2, X3 X4 and X5. The ratio X1, X2 and X4 use for financial problems and X3 and X5 use for operating problems. The ratios are follows:

- **X1=** Working Capital / Total Assets,
- **X2=** Retained Earning / Total Assets,
- **X3=** EBIT / Total Assets,
- **X4=**Market Value of Equity / Total Liability,
- **X5=**Net Sales / Total Assets.

Z score is broadly utilized apparatus to check the monetary soundness of the business. This model is utilized by the examiners everywhere on the world.

The Z-score have picked up acknowledgment by examiner's administration bookkeepers, courts and information base framework for assessment. It has been utilized in assortment of setting and nations yet was planned initially for freely held assembling organizations.

Name	Model
<b>Z-score</b>	$1.2.X1 + 1.4.X2 + 3.3.X3 + 0.6.X4 + 0.999.X5$

Source:<https://www.creditguru.com/index.php/bankruptcy-and-insolvency/altman-z-score-insolvency-predictor>

The latter two equations are often referred to as Altman model for Manufacturing Companies zones of discrimination are as follows:

Zones	Z Score	Remarks
<b>Safe Zones</b>	<b>Above 2.99</b>	It is good financial performance.
<b>Grey Zones</b>	<b>1.81 - 2.99</b>	Financial viability is considered to be performance. It is uncertain to predict the failure in this situation.
<b>Distress Zones</b>	<b>Below 1.81</b>	Its failure is certain and would occur probably within a period of two years

### Methodology

- **Objectives of the Study**

- To review the financial result with Altman Z Score model.
- To review the comparative financial performance of selected cement companies.
- To make analysis and suggestions for the improvement of selected sample.

- **Selection of Sample**

For the present study, the researcher has selected 2 cement Companies, randomly, using lottery method. The selected companies under sample are Ultratech Cement and India Cement.

- **Period of the Study**

To check the financial strength and consistency in the performance, Z-Score is performed on the data of last 10 financial year's viz. 2009-10 to 2018-19.

### Data Analysis

**Table 1: Z score ratios of UltraTech cement**

Ratio/Year	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
X1	0.0207	0.0152	0.097	0.0575	0.1094	-0.0248	-0.0408	0.1124	-0.0118	-0.0066
X2	0.1206	0.0606	0.094	0.0875	0.0623	0.0487	0.0542	0.0589	0.0349	0.036
X3	0.2039	0.1028	0.1592	0.1516	0.1066	0.0986	0.0999	0.1108	0.0826	0.0853
X4	1.2341	1.1433	1.2751	1.2514	1.3508	1.1528	1.2985	1.5606	0.9111	0.9166
X5	0.8449	0.6606	0.7913	0.7303	0.6748	0.6433	0.70375	0.6914	0.5563	0.6109

**Table 2: Z score of UltraTech cement**

Score/ Year	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	Avg.
X1*1.2	0.0248	0.0182	0.1164	0.069	0.1312	-0.0297	-0.0489	0.1348	-0.0141	-0.0079	1.94
X2*1.4	0.1688	0.0848	0.1316	0.1225	0.0872	0.0681	0.0758	0.0824	0.0488	0.0504	
X3*3.3	0.6728	0.3392	0.5253	0.5002	0.3517	0.3253	0.3296	0.3656	0.2725	0.2814	
X4*0.6	0.7404	0.6859	0.765	0.7508	0.8104	0.6916	0.7791	0.9363	0.5466	0.5499	
X5*0.999	0.844	0.6599	0.7905	0.7295	0.6741	0.6426	0.703	0.6907	0.5557	0.6102	
Z Score	2.4508	1.788	2.3288	2.172	2.0546	1.6979	1.8386	2.2098	1.4095	1.484	
Zones	GZ	DZ	GZ	GZ	GZ	DZ	GZ	GZ	DZ	DZ	GZ

### Analysis

Table No.1 represents the analysis of ratios related to Altman's Z-Score Model of Ultra tech Cement. The ratio of working capital to total assets was fluctuating between -0.0066 to 0.1124 during the year 2009-'10 to 2018-'19. In year 2014-15, 2015-16, 2017-18 and 2018-19 the ratio was negative it shows the short – term obligation because there are not enough current assets to cover them and negative working capital means it is a serious problem. Retained earnings to total assets ratio shows very poor performance of the company because of this unsustainable growth and this situation may compel to the company in the bankruptcy at low profitable times. It is lowest in the 2018-'19 i.e. 0.036. The EBIT to total assets was fluctuating from 0.0853 to 0.2039 during ten years of study period. It was suggest the average operating performance and productivity of the assets. The ratio of value of equity to total liability shows the mix trend during the period of study. It measures the sound capital structure decision and lead to optimum value of the firm and minimum cost of capital except last two years. Net sales to total assets of Ultratech Ltd. shows the ups and downs during the period of the study. It is because sales generating ability was not good.

**Table 3: Z Score Ratios of India Cements Ltd.**

Ratio/Year	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
X <sub>1</sub>	0.2113	0.2249	-0.1145	-0.0891	-0.1059	-0.0687	-0.1164	-0.4512	0.0011	-0.0157
X <sub>2</sub>	0.0373	-0.0059	0.0268	0.0104	-0.0195	0.0033	0.0125	0.0964	-0.0009	0.0037
X <sub>3</sub>	0.0878	0.0282	0.0657	0.048	0.0067	0.036	0.0438	0.3797	0.0334	0.0298
X <sub>4</sub>	1.1936	1.0576	0.9703	0.8676	0.7882	0.7615	0.9256	0.9231	0.9418	0.8833
X <sub>5</sub>	0.4864	0.4304	0.51	0.5222	0.5343	0.5063	0.4643	4.2543	0.4962	0.5106

**Table 4 Z score of India Cements Ltd.**

Score/ Year	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	Avg.
X1*1.2	0.2535	0.2698	-0.1374	-0.1069	-0.127	-0.0824	-0.1396	-0.5414	0.0013	-0.0188	1.63982
X2*1.4	0.0522	-0.0082	0.0375	0.0145	-0.0273	0.0046	0.0175	0.1349	-0.0012	0.0051	
X3*3.3	0.2897	0.093	0.2168	0.1584	0.0221	0.1188	0.1445	1.253	0.1102	0.0983	
X4*0.6	0.7161	0.6345	0.5821	0.5205	0.4729	0.4569	0.5553	0.5538	0.565	0.5299	
X5*0.999	0.4859	0.4299	0.5094	0.5216	0.5337	0.5057	0.4638	4.25	0.4957	0.51	
Z Score	1.7974	1.419	1.2084	1.1081	0.8744	1.0036	1.0415	5.6503	1.171	1.1245	
Zones	DZ	DZ	DZ	DZ	DZ	DZ	DZ	SZ	DZ	DZ	DZ

### Analysis

Table No.3 represents the analysis of ratios related to Altman's Z-Score Model India Cements Ltd. in India. In India Cements Ltd. working capital to total assets ratios shows negative results during the period of the study. In the year 2009-'10, 2010-'11 and 2017-'18 it shows positive results. The lowest working capital ratio no doubt increased profitability but liquidity problem arises. But in this company it shows the negative ratio. The retained earnings to total assets ratio shows how company used earning with two alternatives namely declared dividend and retained earnings for internal growth. But the retained earnings of the company show the negative results in the year 2010-'11(0.0059), 2013-'14 (0.0195) and in the year 2017-'18 (0.0009) which is not good indication. EBIT to total assets was decline during the period of the study due to increase in the value of total assets continuously.it is highest in the year 2016-'17 and lowest in the year 2014-'15. During this period company do not use assets productivity are reason for decline of this ratio. In India Cements Ltd. value of equity to total liability was higher one in the first two years of study period which suggested market value of equity was higher than total liability. In rest of the year it shows fluctuation in the ratio. The ratio of sales to total assets measure how well management handles competition. Company's sales to total assets ratio shows continuous fluctuation during the period of the study. It shows the poor financial management of the company to utilize of its assets in generating sales revenue.

**Table 5: Comparative Z Score of Cement Companies**

Year /Companies	Ultratech Cement	India Cement
2009-10	2.4508 <b>GZ</b>	1.7974 <b>DZ</b>
2010-11	1.788 <b>DZ</b>	1.419 <b>DZ</b>
2011-12	2.3288 <b>GZ</b>	1.2084 <b>DZ</b>
2012-13	2.172 <b>GZ</b>	1.1081 <b>DZ</b>
2013-14	2.0546 <b>GZ</b>	0.8744 <b>DZ</b>
2014-15	1.6979 <b>DZ</b>	1.0036 <b>DZ</b>
2015-16	1.8386 <b>GZ</b>	1.0415 <b>DZ</b>
2016-17	2.2098 <b>GZ</b>	5.6503 <b>SZ</b>
2017-18	1.4095 <b>DZ</b>	1.171 <b>DZ</b>
2018-19	1.484 <b>DZ</b>	1.1245 <b>DZ</b>
<b>Avg.</b>	<b>1.9400</b> <b>GZ</b>	<b>1.6398</b> <b>DZ</b>

(Note: SZ =Safe Zones, GZ = Grey Zones and DZ = Distress Zones.)

### Testing of Hypothesis

#### Null Hypothesis (H<sub>0</sub>)

There is no significant difference in the Z-Score performance indicator in selected Cement Companies during the period of study.

#### Null Hypothesis (H<sub>1</sub>)

There is significant difference in the Z-Score performance indicator in selected Cement Companies during the period of study.

**Table 6: Comparative Analysis of Average Components of Altman Model of Selected industries**

Companies Year	Ultratech Cement	India Cement
X <sub>1</sub>	0.0328	-0.0524
X <sub>2</sub>	0.0657	0.0164
X <sub>3</sub>	0.1201	0.0759
X <sub>4</sub>	1.2094	0.9313
X <sub>5</sub>	0.6907	0.8715
<b>Mean</b>	<b>0.4237</b>	<b>0.3685</b>
<b>SD</b>	<b>0.5152</b>	<b>0.4890</b>
<b>CV(%)</b>	<b>121.59</b>	<b>132.69</b>

**Table 7: t-Test: Two-Sample Assuming Equal Variances**

<b>Cement Industries</b>		
Mean	0.4237	0.3685
Variance	0.2654	0.2391
Observations	5	5
Pooled Variance	0.2522	
Hypothesized Mean Difference	0	
Df	8	
t Stat	0.1737	
P(T<=t) one-tail	0.4331	
t Critical one-tail	1.8595	
P(T<=t) two-tail	0.8663	
t Critical two-tail	2.3060	

**Analysis**

From the analysis of variances, the researcher may state that, there is no significant difference in the performance of selected sample units during the period of study, as the null hypothesis is accepted. Statistical evidences shows that there is significant difference in the performance of selected sample units i.e. Ultratech Cement and India Cement as the null hypothesis is rejected in case of companies

**Conclusion**

For the Study five ratios of Altman's Z score model has taken for each sample unit. It can be concluded that the overall growth of the Ultra Tech Cement and India Cement is shows the slow and steady growth during the ten years of the study period. The figure of sampled units for solvency test has been drawn attention directly were the individual sampled units work in each year. The safe, gray and distress are three zone use to prediction of bankruptcy of Ultra Tech Cement and India Cement.

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