

A COMPARATIVE STUDY OF FINANCIAL PERFORMANCE OF SELECTED CEMENT COMPANIES IN INDIA THROUGH 'Z' SCORE MODEL

Lakha R. Bapodara*

ABSTRACT

Most of the internal users as well external users like shareholders, government, bankers, creditors, financial institutions etc. focus on the success and solvency position of the company with whom they are dealing. The absolute figures presented in financial statements and accounts do not serve this object. As there are many accounting tools like ratio analysis, decision theory etc. used for analysis but again they shows absolute result through which the present position can be judged not the future. Edward I Altman, Professor of Finance at New York University was the first person who developed a new model popularly known as "Z-score Model" to predict the financial performance 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 Industry with special reference to Ultratech Cement, JK Cement and Ambuja Cement from 2009-2010 to 2018-2019 for 10 years using Altman's Z-Score model. It is found out that JK cement is in too performance Distress Zones where it is fall bankrupt. Ultratech cement is Grey Zone where it Financial viability is considered to be performance. The failure in this situation is uncertain to predict. Ambuja Cement is Safe Zones where it is successful in its financial performance and not to fall bankrupt.

Keywords: Financial performance, Z-score Model, EBIT, Safe Zones, Grey Zones, Distress Zones.

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". Rather than

* Ph.D. Research Scholar, (Department of Commerce and Management) (Under the Subject of Accountancy) Bhakta Kavi Narsinh Mehta University, Junagadh, Gujarat, India.

searching for single best ratio professor Edward Altman has introduced new model in 1968 called Altman Z-score model. The Z-score formula is used for predicting liquidity position and financial economist. 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 problems, financial problems and operating problems. The model uses five ratios symbolically 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.

Methodologies

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 5 cement Companies, randomly, using lottery method. The selected companies under sample are Ultratech Cement, JK Cement, and Ambuja 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 Collection

The study is based on secondary sources of data and the researcher has collected the data from the published annual reports of the selected sample companies.

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

Year \ Score	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	Avg.
X₁*1.2	0.024	0.018	0.116	0.069	0.131	-0.029	-0.048	0.134	-0.014	-0.007	
X₂*1.4	0.168	0.084	0.131	0.122	0.087	0.068	0.075	0.082	0.048	0.050	
X₃*3.3	0.672	0.339	0.525	0.500	0.351	0.325	0.329	0.365	0.272	0.281	
X₄*0.6	0.740	0.685	0.765	0.750	0.810	0.691	0.779	0.936	0.546	0.549	
X₅*0.999	0.844	0.659	0.790	0.729	0.674	0.642	0.703	0.690	0.555	0.610	
Z Score	2.450	1.788	2.328	2.172	2.054	1.697	1.838	2.209	1.409	1.484	1.943
Zones	GZ	DZ	GZ	GZ	GZ	DZ	GZ	GZ	DZ	DZ	GZ

Analysis

Above table reveals the solvency position of Ultra Tech Cement. The Z-score of Ultra Tech Cement was below 2.99, it means firm working grey zone except in year 2010-11, 2014-15, 2017-18 and 2018-19 i.e. 1.788, 1.697, 1.409 and 1.484 respectively. This safe zone indicates higher level management efficiency and sound financial position. In these four years i.e., 2010-11, 2014-15, 2017-18 and 2018-19 shows high operating cost, lower working capital ratio and retained earnings also below in

relation to total assets. In 2009-10, Z-score 2.450 and it declined immediately successive year in 2011-12. The reason is low reinvestment earning, after that in 2011-12, 2012-13 and 2013-14, Z-score represent the increasing trend and shows the sales were declined but EBIT was up warding. The last two years show the downward trend during study period. Because of profitability condition was not good in 2017-18 and in 2018-19 negative working capital ratios. Overall looking toward figure predicts that the never firm go in bankruptcy in near future.

Table 3: Z Score Ratios of J. K. Cement Ltd.

Ratio \ Year	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
X ₁	0.1102	0.1585	0.0969	0.0336	-0.7467	-0.7417	0.0198	0.0373	0.0636	0.0694
X ₂	0.0596	0.014	0.0381	0.0462	0.0142	0.023	0.0125	0.0387	0.0458	0.0346
X ₃	0.1282	0.0584	0.1187	0.122	0.0625	0.0787	0.0735	0.1014	0.1134	0.0991
X ₄	0.837	0.6988	0.7453	0.7699	0.2354	0.2079	0.4363	0.4903	0.5597	0.7126
X ₅	0.6154	0.6139	0.8111	0.6504	0.5451	0.624	0.7363	0.7415	0.787	0.7075

Table 4: Z Score of J. K. Cement Ltd.

Score \ Year	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	Avg.
X ₁ *1.2	0.132	0.190	0.116	0.040	-0.896	-0.89	0.023	0.044	0.076	0.083	1.277
X ₂ *1.4	0.083	0.019	0.053	0.064	0.019	0.032	0.017	0.054	0.064	0.048	
X ₃ *3.3	0.423	0.192	0.391	0.402	0.206	0.259	0.242	0.334	0.374	0.327	
X ₄ *0.6	0.502	0.419	0.447	0.461	0.141	0.124	0.261	0.294	0.335	0.427	
X ₅ *0.999	0.614	0.613	0.810	0.649	0.544	0.623	0.735	0.740	0.786	0.706	
Z Score	1.755	1.434	1.818	1.619	0.015	0.149	1.280	1.468	1.636	1.592	
Zones	DZ	DZ	GZ	DZ	DZ	DZ	DZ	DZ	DZ	DZ	DZ

Analysis

Above table reveals the solvency test of J. K. Cements Ltd. The z-score varies in between 0.015 to 1.636 under study period and suffer distress zone. In year 2009-10, Z-score was 1.755 and it was decreased and reached 1.434 in the year 2010-11. The reason is decrease sales and decreased market value of equity. In 2012-13 and 2014-15, Z-score declined, the main reason for decreased z-score is not maintain stable liquidity, lower productivity of the firm. Again it was increased in the year 2015-16 and the Z-score increased because firm maintain proper working capital ratio, it means current assets exceed current liability, higher level reinvested earnings, increased value of fund. After that z-score continuously declining in last two years and also below 1.99, it means not in safe zone financially. It indicates financial position is unhealthy. The reason for unhealthy financial position was high operating cost, lower working capital ratio, and weak capacity of reinvestment and not covered satisfactory sales level. Finally says that the no any single year Z- score move ups in safe zone under study period. In J. K. Cements Ltd., companies work with distress zone and up to the last year it work with distress zone. The management needs to take corrective action to improve firm financial health.

Table 5: Z – Score Ratios of Ambuja Cement

Ratio \ Year	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
X ₁	0.0646	0.1098	0.193	0.2077	0.2055	0.2346	0.0334	0.0558	0.0803	0.0889
X ₂	0.0698	0.0638	0.059	0.0499	0.0413	0.02	0.0121	0.0249	0.0411	0.0443
X ₃	0.1493	0.1701	0.1606	0.1218	0.1329	0.0892	0.0579	0.07	0.0629	0.0751
X ₄	2.4514	2.3823	2.5099	2.7264	2.6605	2.6735	4.8441	4.3008	5.0339	4.64
X ₅	0.645	0.825	0.7857	0.7008	0.7129	0.6615	0.4448	0.4472	0.4358	0.4206

Table 6: Z Score of Ambuja Cement

Score \ Year	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	Avg.
X ₁ *1.2	0.077	0.131	0.231	0.249	0.246	0.281	0.04	0.066	0.096	0.106	3.232
X ₂ *1.4	0.097	0.089	0.082	0.069	0.057	0.028	0.016	0.034	0.057	0.062	
X ₃ *3.3	0.492	0.561	0.529	0.401	0.438	0.294	0.191	0.231	0.207	0.247	
X ₄ *0.6	1.470	1.429	1.505	1.635	1.596	1.604	2.906	2.580	3.020	2.784	
X ₅ *0.999	0.644	0.824	0.784	0.7	0.712	0.660	0.444	0.446	0.435	0.420	
Z Score	2.782	3.035	3.134	3.056	3.051	2.868	3.598	3.359	3.816	3.620	
Zones	GZ	SZ	SZ	SZ	SZ	GZ	SZ	SZ	SZ	SZ	SZ

Analysis

Above table represent the solvency test of Ambuja Cement. The Z-score of Ambuja Cement was higher than 2.99 except in the year 2009-10 i.e. 2.782. The Z-score was 2.782 in the year 2009-10 and it increased up to 3.134 in the year 2011-12. The reason for increasing z-score is maintain ideal working capital ratio, retained earnings invested in assets, firm has financed their assets through retention of profits and have not utilize as much debt and good leverage relation to liability. In the year 2012-13 and 2013-14, Z-score was decreased because working capital ratio decline, EBIT decline and again Z-score increased in year 2014-15 relation to increased productiveness of the firm's property independents of tax or leverage elements. After that in rest of the years, Z-score much high because high working capital ratio, increased EBIT and increased sales generating capacity. And z-score was upgrade and reached safe and comfortable zone. The overall financial position of Ambuja Cement is satisfactory under study period.

Conclusion

In this research paper analysis of Edward Model analysis of solvency test of individual units has analyzed to know solvency position of sampled units. The figure of sampled units for solvency test has been drawn attention directly were the individual sampled units work in each year. The major three zones i.e. safe, gray and distress use to predict bankruptcy of selected companies. In the present research paper an attempt is made to predict the financial performance of Cement Industry with special reference to Ultratech Cement, JK Cement and Ambuja Cement from 2009-2010 to 2018-2019 for 10 years using Altman's Z-Score model. It is found out that JK cement is in too performance Distress Zones where it is fall bankrupt. Ultratech cement is Grey Zone where it Financial viability is considered to be performance. The failure in this situation is uncertain to predict. Ambuja Cement is Safe Zones where it is successful in its financial performance and not to fall bankrupt.

References

1. Raval, M. (2015), "A Comparative Study of Financial Performance of Some Selected Maharatna Companies (With Special Reference to Z –Score)", SS International Journal of Multidisciplinary Research volume 2 issue 2 2015, page 32-44.
2. Ramanareddy N. and Hariprasadreddy K. (2012), "Financial status of sugar manufacturing units – Z score model", International journal of social sciences & Interdisciplinary research, Volume 1 issue 4, page 64-69.
3. Geetha Y. (2017), "Diagnosing bank's financial performance through Z score model: a case study of Andhra Pragathi Grameena bank in Andhra Pradesh (APGB)", International journal of research in computer application & management, Volume 7 issue 5, page 78-81.
4. Kothari C. R. Kothari - Research Methodology – New age of internationals publishers.
5. Pandey, I. M. (2000), "Financial Management" Vikas Publishing House Pvt. Ltd., New Delhi), Eight Edition, p.185.

