A study on financial health of cement industry — "Z" score analysis

Dr. M. Selvam* S. Vanitha** M. Babu ***

The Indian cement industry is one of the pillar sectors of our economy as it accounts for a significant portion of total industrial output of our country. Further it plays a dominant role in satisfying basic needs (house construction) of human kind. In view of LPG, while India Cements Industry faces many challenges, it gets good opportunities to improve sales. As a result of this, Cement Industry continues to adopt a series of readjusting and restructuring measures including up gradation of technology. India is largest market with a great potenial, as the country possesses more than a billion people, vast territory and abundant resources. The cement industry can enlarge global market shares so long as the industry players firmly seize the business opportunities, promptly solve outstanding problems and improve weak links in their existing production chain. The industry is expected to perform well in all the dimensions and achieve a healthy growth in its operations. In order to manage stiff competition, drastic steps are to be taken to reduce cost of production. In the changed environment, application of financial management techniques would help the cement companies in increasing their productivity and profitability. An attempt has been made in the present study to have an insight into the examination of financial health of the one of cement companies in Tamil Nadu.

* Department of Commerce, Bharathidasan University, Tiruchirappalli-620 024

History of India Cements Ltd.

The India Cements Limited, established on 21.2.1946 under Indian Companies Act 1913 as a public limited companies with an authorized capital of Rs.200 lakh is having its registered office at Dhun building, 827, Anna Salai, Chennai-600 002. It is to manufacture and market cement. It is the largest manufacturer of cement in south India and earliest cement company in independent India. The equity shares of the company are listed in NSE, BSE CSE,LSE and MSE.

Statement of the Problem

Cement industry represents an important segment of the Indian economy. This industry has been caught in a vicious down cycle that has rendered operations unviable. Some of the Cement producing companies has recently reported reduction in profits and in some cases even losses. The India Cements Ltd incurred losses in 2002. One possible reason for such down cycle might be poor financial health. Since the cement producing companies face threats to their viability, this study bears a relevance to the present day problems.

Objectives of the Study

The objectives of this study are as follows. They are:

1. To examine the overall financial performance of India Cements Ltd, and
2. To predict the financial health and viability of the India Cements Ltd.

Methodology of the Study

Application of Z Score

"Z" score analysis has been established by Edward I. Altman (1968) to evaluate the general trend in the financial health of an enterprise over a period. Many of the individual accounting ratios used frequently to predict the financial performance of an enterprise may only provide warnings when it is too late to take a corrective action. Further single ratio does not convey much of the sense. There is no internationally accepted standard for financial ratios against which the results can be compared. Therefore, Edwin I Altman combined a number of accounting ratios (liquidity, leverage, activity and profitability) to form an index of the probability, which was effective indicator of corporate performance in predicting bankruptcy. In this direction a variety of studies have been conducted, over the period by applying Multiple Discriminant Analysis (MDA) to predict the corporate failure, by financial analysts like Altman.

Data Collection

The study is concerned with the analysis of financial health of India Cements Ltd and it has been confined

2004

A study on financial health of cement industry — "Z" score analysis

Dr. M. Selvam* S. Vanitha** M. Babu ***

The Indian cement industry is one of the pillar sectors of our economy as it accounts for a significant portion of total industrial output of our country. Further it plays a dominant role in satisfying basic needs (house construction) of human kind. In view of LPG, while India Cements Industry faces many challenges, it gets good opportunities to improve sales. As a result of this, Cement Industry continues to adopt a series of readjusting and restructuring measures including up gradation of technology. India is largest market with a great potenial, as the country possesses more than a billion people, vast territory and abundant resources. The cement industry can enlarge global market shares so long as the industry players firmly seize the business opportunities, promptly solve outstanding problems and improve weak links in their existing production chain. The industry is expected to perform well in all the dimensions and achieve a healthy growth in its operations. In order to manage stiff competition, drastic steps are to be taken to reduce cost of production. In the changed environment, application of financial management techniques would help the cement companies in increasing their productivity and profitability. An attempt has been made in the present study to have an insight into the examination of financial health of the one of cement companies in Tamil Nadu.

* Department of Commerce, Bharathidasan University, Tiruchirappalli-620 024

History of India Cements Ltd.

The India Cements Limited, established on 21.2.1946 under Indian Companies Act 1913 as a public limited companies with an authorized capital of Rs.200 lakh is having its registered office at Dhun building, 827, Anna Salai, Chennai-600 002. It is to manufacture and market cement. It is the largest manufacturer of cement in south India and earliest cement company in independent India. The equity shares of the company are listed in NSE, BSE CSE,LSE and MSE.

Statement of the Problem

Cement industry represents an important segment of the Indian economy. This industry has been caught in a vicious down cycle that has rendered operations unviable. Some of the Cement producing companies has recently reported reduction in profits and in some cases even losses. The India Cements Ltd incurred losses in 2002. One possible reason for such down cycle might be poor financial health. Since the cement producing companies face threats to their viability, this study bears a relevance to the present day problems.

Objectives of the Study

The objectives of this study are as follows. They are:

1. To examine the overall financial performance of India Cements Ltd, and
2. To predict the financial health and viability of the India Cements Ltd.

Methodology of the Study

Application of Z Score

"Z" score analysis has been established by Edward I. Altman (1968) to evaluate the general trend in the financial health of an enterprise over a period. Many of the individual accounting ratios used frequently to predict the financial performance of an enterprise may only provide warnings when it is too late to take a corrective action. Further single ratio does not convey much of the sense. There is no internationally accepted standard for financial ratios against which the results can be compared. Therefore, Edwin I Altman combined a number of accounting ratios (liquidity, leverage, activity and profitability) to form an index of the probability, which was effective indicator of corporate performance in predicting bankruptcy. In this direction a variety of studies have been conducted, over the period by applying Multiple Discriminant Analysis (MDA) to predict the corporate failure, by financial analysts like Altman.

Data Collection

The study is concerned with the analysis of financial health of India Cements Ltd and it has been confined

2004

to only one company in the private sector. This study is mainly based on secondary data. The data from published sources is the basis for ratio analysis. The required accounting information about India Cements Ltd for the Z- score analysis was obtained from the Prowess Corporate Data Base of CMIE, Chennai for a period of 5 years (1998-2002).

Z Score Analysis

The data collected were first analysed with the help of five accounting ratios. These different ratios are combined into a single measure-Z Score Analysis with the help of MDA. The fonnula used to evaluate the "Z"score analysis as established by Altman is as follows.

$$Z = 0.012X_1 + 0.014X_2 + 0.033X_3 + 0.006X_4 + 0.999X_5$$

" Z" is the overall index and the variables X_1 to X_4 are computed as absolute percentage values while X_5 is computed in number of times.

Variables (Ratios) Used in Z Score Analysis.

The following accounting ratios are used as variables to combine them into a single measure (index), which is efficient in predicting bankruptcy.

X_1 -The ratio of working capital to total assets (WC/TA*100). It is the measure of the net liquid assets of a concern to the total capitalization.

X_2 -The ratio of net operating profit to net sales (NOP/S*100). It indicates the efficiency of the management in manufacturing, sales, administration and other activities.

X_3 -The ratio of earning before interest and taxes to total assets (EBIT/TA*100). It is a measure of productivity of assets employed in an enterprise. The ultimate existence of an enterprise is based on the earning power (profitability).

X_4 -The ratio of market value of equity to book value of debt (MVE/BVD *100). It is reciprocal of the familiar debt-equity ratio. Equity is measured by the combined market value of all shares, while debt includes both current and long term liabilities. This measure shows how much assets of an enterprise can decline in value before the liabilities exceed the assets and the concern becomes insolvent.

X_5 -The ratio of sales to total assets (S/TA). The capital turnover ratio is a standard financial measure for illustrating the sales generating capacity of the assets.

Measurement of Financial Health

Altman established the following guidelines to be used to classify firms as either financially sound or bankrupt.

Altman Guidelines for Healthy Zone.

Situa-tion	Z scores	Zones	
I	below 1.8	Bankruptcy Zone	Certain to fall
II	1.8-3.0	Healthy Zone	Uncer-tain to predict
III	3.0 and above	Too Healthy Zone	Not to fall

1. Below "Z" score of 1.8, the unit is considered to be in bankruptcy zone. Its failure is certain and extremely likely and would occur probably within a period of two years.
2. If a unit has a "Z" score between 1.8, and 3, its financial viability is considered to be healthy. The failure in this situation is uncertain to predict.
3. Above "Z" score of 3, the unit is in too healthy zone. Its financial health is very viable and not to fall.

Financial Health of India Cements Ltd -Ratio Analysis.

The five financial ratios cited above are used as indicators in the equation for judging the financial health of India Cement Ltd. Table-I shows the select ratios (variables) of India Cements Ltd during the period from 1998-2002. The content of working capital in the total assets of India Cements Ltd was increased from 28.14% in 1998 to 86.43% in 2002 with fluctuations. It showed the excessive use of working capital over the years. This is unfavourable for the efficient running of the India Cements Ltd and it affects financial health.

It is found from the above Table that the content of net operating profit to the total assets was recorded as 10.64% in 1998 which decreased to -3.26% in 2002 with fluctuations. During first four years of study period (1998-2001) company earned profit. But it suffered with net loss in 2002. This is a worse situation for shareholders as no portion of sales was left for them in 2002. In total, the company failed to earn adequate surplus to meet non-operating activities in 2002.

The operational efficiency of an enterprise could be judged through the ratio of EBIT/Total Assets. The operating efficiency ultimately leads to its success. The ratio of EBIT to Total Assets of India Cements Ltd ranges from 13.22% to 9.82%. Though there was an increase in the amount of EBIT and total assets as well, ratio got decreased marginally. It showed that increase of EBIT did not match with an increase of total assets. This has severely and adversely affected the financial health of India Cements Ltd.

The thumb rule of debt- equity mix is 1:1. The analysis of this study cleared that India Cements Ltd did not maintain the above standard during the study period. The market value of equity was less than that of debt during the study period. As a result the ratio of market value of total equity to book value of debenture was 15.22% in 1998, which constantly decreased to 11.39% in 2002. It means book value of debenture of India Cements Ltd ranged from 84.78% to 88.61% during the study period. The proportion in which interest bearing funds (debt) and interest free funds (equity) employed had a direct impact on its financial performance. Even if borrowed funds have been 50%, the financial position of the company would be considered as quite good. From this angle, the company has a sound financial position. However, the company will have the chance of facing interest burden in the long run. Therefore, reasonable change in the financial structure ratio is essential to protect the company from adverse financial performance.

Table also shows that the sales in relation to total assets had been around 0.536 to 0.4095 times during the study period. Sales is the central point around which all the operations moved. The financial performance and profitability depends on sales revenue. Generally this ratio is expected to be two times. The results of sales volume during the study period clearly showed that the cement company had not been successful in achieving the standard ratio through sales. Poor ratio of turnover indicates that the company failed to fully use the assets like land, building, furniture, plant etc. There may be some valid reasons for under utilization of available capacity. However, this will have an adverse impact on the financial performance of the company. Hence appropriate steps are to be taken to utilize the full capacity of the company.

Financial Health -"Z" Score Analysis

As pointed out earlier, the "Z" score analysis was applied to evaluate the general trend in the financial health of India Cements Ltd by using ratio analysis. The analysis depends on ratio criteria.

It is clear from the analysis of Table-2 & Chart-1 that the cement company under the study was just on the range of financial collapse. The financial health of the company was never in the too health zone during the study period. However Z score in 2002 rose to healthy zone while the score for first four of study period (1998-2001) had fallen in bankruptcy zone. In total the financial performance of India Cements was very unviable. If India Cements fails to take urgent steps, total failure of the company was inevitable and certain in the near future.

Reasons for the Poor Financial Health

The following are important reasons for poor financial health of India Cements Ltd.

- the company faced the problem of under trading owing to the excess working capital
- the negative operating profit/small portion of profit during the study period was a serious concern. It was partly because of the fact that earnings were eaten by excess working capital during the study period.
- the company failed to achieve the sales targets/adequate sales. This was due to under utilization of available capacity, which contributed for the deterioration of financial health.
- excess debt was a serious concern as it carries with interest burden. This also affected financial health.
- some type of managerial incompetence might have been accounted for almost all failure.

Suggestions of the Study.

In the light of above study, the following important suggestions are made to improve financial health of India Cements Ltd.

- The problem of under trading must be attended to immediately. Further the company should plan to have adequate working capital.
- The avoidance of excess working capital may help to improve operating profit.
- The company must fix achievable sales target and all possible steps are to be taken to achieve the sales targets. The deviation from the target must be attended to.
- The company should take necessary steps to fully utilize the available capacity. The fixed assets are to be purchased only when the company is able to utilize its full capacity.
- The capital structure of India Cements Ltd is to be changed in such way to have standard debt-equity ratio. Higher debt content affects the borrowing power and profitability of the concern.
- Necessary arrangements should be taken to improve the managerial competence of India Cements Ltd.

Conclusion

The financial health plays a significant role in the successful functioning of a firm. Poor financial health threatens very survival and leads to business failure. Most of the cement producing companies in India has been caught in a vicious down cycle facing a threat to their viability. Therefore, financial health of cement companies has been subject to empirical investigation. In this study an attempt has been made to determine the combined effect of various financial ratios with the help of MDA. The estimated discriminate function could be of great use for the management in ascertaining the financial health. This study would also be useful to all companies, policy makers and researchers for appraising financial health of corporate sector in general and cement companies in particular.

Reference.

1. Altman.I.Edward. "Financial Ratios. Discriminant Analysis and Prediction of Corporate Bankruptcy". Journal of Finance. Vol.9. PP.589-609. 1968.
2. Pandey.I.M.(1979). Financial management. Vikas Publishing House. New Delhi.
3. Prasanna Chandra.(1995). Financial Management: Theory and Practice. 3rd ed. Tata McGraw Hill. New Delhi.
4. R.K Sahu. "A Simplified Model for Liquidity Analysis of Paper Companies". The Management Accountant. Nov 2002. Vol.37. No.11. PP .805-808.
5. Mansur.A.Mulla. "Use of Z Score Analysis for Evaluation of Financial Health of Textile Mills- A Case Study". Abhigyan. Vol.XIX. No.4. Jan-March 2002. PP.37-41.

Table-I
Financial Health of India Cements Ltd- Ratio Analysis

Variable	Ratio	1998	1999	2000	2001	2002
X_1	WC/TA *100	28.14	23.86	31.22	36.11	86.43
X_2	NOP/S * 100	10.64	11.54	7.95	10.18	-3.26
X_3	EBIT/TA * 100	11.91	13.22	9.82	10.91	10.016
X_4	MV of TE/BV of D * 100	15.22	20.36	15.04	11.53	11.39
X_5	S/TA (times)	0.536	0.5712	0.517	0.4844	0.4095

Source: Prowess Database, CMIE, CHENNAI.

NOTE:

Particulars	1998	1999	2000	2001	2002
Working Capilal	475.51	563.02	849.37	1074.18	2508.67
Net Operating Profit	96.4	155.52	111.87	146.72	-38.79
EBIT	201.26	311.84	267.08	324.35	290.71
Market Value of Total Equity	64.34	125	138.39	138.48	138.59
Book Value of Debt	422.65	613.74	919.66	1200.04	1216.33
Sales	905.83	1347.66	1406.45	1441.12	1188.56
Total Assets	1689.71	2359.06	2719.96	2974.49	2902.39

Table -2
"Z" Score of the India Cements Ltd

Variable	1998	1999	2000	2001	2002
X_1	0.33768	0.28632	0.37464	0.43332	1.03716
X_2	0.14896	0.16156	0.1113	0.14252	-0.04564
X_3	0.39303	0.43626	0.32406	0.36003	0.330528
X_4	0.09132	0.12198	0.09024	0.06918	0.6834
X_5	0.5354	0.5706	0.5164	0.4839	0.409
Total Score	1.50639	1.57672	1.41664	1.48895	2.414448
Rounded Score	1.51	1.58	1.42	1.49	2.42

Source: Computed from Table 1

Chart No. 1
"Z" Score Chart for India Cements Ltd