

Evaluation of Financial Health of RCFL of India through 'Z' Score Model

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ABSTRACT

Financial health of any company can be easily evaluated through its profitability, liquidity, solvency and activity ratios. Z-Score is one of the most easiest and competent tool to evaluate the financial soundness of a company. In this paper the financial health and the chances of bankruptcy of RCFL in the near future is evaluated with the help of Z score developed by Prof. Edward I. Altman (1968). From the study of ten years (2007-08 to 2016-17), it is deduced from the analysis that profit earning capacity and short term investing capacity of RCFL is poor. The Z score value indicates that the firm is in distress zone and may go bankrupt in near future. Therefore, it requires a valiant effort of all the people involved in it like managers, employees and other stake holders.

Key Words: Financial health, Z score, Bankruptcy, Fertilizers.

INTRODUCTION

Looking into the present scenario of business the enhancing uncertainty scenario takes away the surety of existence from firms. Perhaps to be sure of the longevity of the firm becomes the prime issue of concern by all the business houses. Some of the ways to analyze a company's financial longevity are: comparative statement analysis, ratio analysis, cash flow analysis, camel analysis, multiple discriminate analyses etc. To evaluate the liquidity and profitability of a company throughout the year with the help of Z score is the best in the present scenario. Z score is an analytical way of viewing the financial health of a company. It is the easiest available tool for any investor or stakeholder. It provides a clear guide to evaluate and understand the company's financial position. Altman (1968) was the first researcher to apply the Multiple Discriminate Analysis (MDA) approach to the financial distress prediction domain. He developed a Z-score bankruptcy prediction model and determined a cut point

of Z-score to classify healthy and distressed firms. The results showed that the Z-score model had sound prediction performance one year and two years before financial distress, but did not indicate good prediction utility three to five years before financial distress. A number of authors followed Altman's work, and applied the Z-score model into different markets, different time periods and different industries. In this paper, an attempt has been made to use Edward Altman's Z score to have an insight into the examination of financial health of selected public sector company of India.

Objectives of the Study

The objectives of the study are as follows:

1. To evaluate the overall financial performance of the company in past 10 years.
2. To evaluate the condition of Z score ratios of the company.
3. To forecast likelihood of bankruptcy of RCFL.

4. To evaluate investor's creditworthiness through Z score model.

Hypotheses of the Study:

1. Null Hypothesis: The relationship between market value of equity and book value of total debt of this company is not significant.
Alternative Hypothesis: The relationship between market value of equity and book value of total debt of this company is significant.
2. Null Hypothesis: The relationship between retained earnings and total assets of this company is not significant.
Alternative Hypothesis: The relationship between retained earnings and total assets of this company is significant.

LITERATURE REVIEW

Research on financial health has been carried out for many years in many countries, especially in industrially developed countries. Altman (1968), in his work developed the concept of Z score. In his work he analysed the financial position with the help of ratio analysis, which was further analysed with the help of multiple discriminate analysis, through which a discriminate coefficient was determined. The model was formulated to determine the bankruptcy of any company. The model crafted by him was 94% accurate. Aharony, Jones, and Swary (1980) describe business failure as an indication of resources misallocation that is undesirable from a social point of view. Karels and Prakash (1987) mentioned that a diverse set of definitions has emerged to explain business failure. The set includes negative net-worth, non- payments of creditors, bond defaults, inability to pay debts, over drawn bank accounts, omission of preferred dividends, receivership, etc. Ingoo (1997), in his work analysed the bankruptcy through three major techniques: multivariate discriminate analysis, case based forecasting and neural network. The paper studied the bankruptcy chances of Korean firms. It was concluded from this article that neural network was

best suited to forecast the health of the company and case based forecasting was the most inappropriate technique to measure the bankruptcy.

Almeida and Philippon (2000) analyzed risk adjusted cost of financial distress of public companies in the United States which have issued corporate bonds and have difficulties to pay coupon and its bond. Fitzpatrick (2004) conducted empirical research on the dynamic of financial distress of public companies in the United States whereas Gennaiolla and Rossi (2006) explored the optimal solution of financial distress in Sweden. Ben Mc Clure (2004) through his work has advised investors to check the Z score of companies from time to time to avoid bankruptcy situation. Krishna (2005) predicted the financial distress and insolvency of IDBI through Z score. Johan (2006) used Z score to measure the financial performance of small business firms in Kenya, and to determine the distress level through cyclical concept. Outtecheva(2007) analysed probability of financial distress risk and the way of avenues to avoid financial distress in NYSE. Khannadhasan (2007) concluded that the financial health of Wendt India limited was good by applying the Z score model. There are also a number of careful research studies using data from United States firms that provide various methods to identify failing firms. In the midst of limited literature regarding the financial distress of public companies in the developing countries like India, using Altman's Z score model, this paper is therefore devoted to study the dynamics of financial distress of public company of Indian fertilizers industry.

MATERIALS & METHODS

The study has been confined to only select public sector Company named Rashtriya Chemicals and Fertilizers Ltd. It confines itself to issues relating to the financial performance only. The data used for study is secondary in nature and collected from the annual reports of RCFL.

The collected data was classified, tabulated and analyzed in a systematic manner. The period of study was 10 years, 2007-08 to 2016-17. The data had been analyzed through Altman's Z score model, for which a few ratios have been calculated through ratio analysis. The paper has been divided into 6 parts: Introduction, literature review, research methodology (materials & methods) and profile of the company, statistical analysis, result, and conclusion.

Profile of the RCFL

Rashtriya Chemicals and Fertilizers Limited (RCFL) a Government of India Undertaking is a leading fertilizer and chemical manufacturing company with about 80% of its equity held by the Government of India. It has two operating units, one at Trombay in Mumbai and the other at Thal, Raigad district, about 100 KM from Mumbai. Government of India has accorded "Mini-Ratna" status to RCFL. RCFL is one of the earliest units set up in the country with a vision of growth in fertilizer production for food security. It manufactures Urea, Complex Fertilizers, Bio-fertilizers, Micro-nutrients, 100 per cent water soluble fertilizers, soil conditioners and a wide range of Industrial Chemicals. It produces 23lac MT Urea, 6.5lac MT Complex fertilizers and 1.6lac MT of Industrial Chemicals every year. The company is a household name in rural India with brands "Ujjwala" (urea) and "Suphala" (complex fertilizers) which carry high brand equity. RCFL has countrywide marketing network in all major states.

Apart from the own manufactured products, the Company is also engaged in marketing of SSP and imported fertilizer inputs like, DAP, MOP & NPK fertilizers. Besides fertilizer products, RCFL also produces almost twenty industrial chemicals that are important for the manufacture of dyes, solvents, leather, pharmaceuticals and a host of other industrial products. RCFL does what it commits. The commitment is translated in a written document – the Memorandum of Understanding (MOU) with Government of India. The performance

is evaluated independently by the Department of Public Enterprises. RCFL has been consistently achieving best rating of "Excellent" for past several years. Having accredited with "Mini-Ratna" status by the Government of India, it is now poised to get "Navratna" status. RCFL has maintained a good financial position.

Altman's Z-Score Model

Z score model was first developed by Edward Altman, professor of Finance, Stern School of Business, New York University, to evaluate the financial health of a company, on the basis of various ratios. The value calculated determines the likelihood of a company to be bankrupt. The value calculated is termed as Z score. Five ratios net working capital to total assets, retained earnings to total assets, earnings before interest and tax to total assets, market value of equity to market value of debt and sales to total assets are calculated from the financial statements and then are fitted to the formula founded by Altman. It is a linear equation where the ratios are multiplied by certain coefficients or factors, which are then added together to determine the Z score. The formula given by Altman (for public sector manufacturing companies) is:

$$Z = 1.2 * T_1 + 1.4 * T_2 + 3.3 * T_3 + 0.6 * T_4 + 1.0 * T_5$$

Where:

Z = Score

T₁ = Working Capital/Total Assets (WC/TA)

T₂ = Retained Earnings/Total Assets (RE/TA)

T₃ = Earnings before Interest and Taxes/ Total Assets (EBIT/TA)

T₄ = Market Value of Equity / Total Liabilities (MVE/TL)

T₅ = Total Sales / Total Assets (TS/TA)

1. T₁ (Working Capital / Total Assets):

The ratio of Working Capital to Total Assets is the Z-Score component which is considered to be a reasonable predictor of deepening trouble for a company. A company which experiences repeated operating losses generally will suffer a reduction in

working capital relative to its total assets.

2. **T₂ (Retained Earnings/Total Assets):** The ratio of Retained Earnings to Total Assets is a Z-Score component which provides information on the extent to which a company has been able to reinvest its earnings in itself. An older company will have had more time to accumulate earnings so this measurement tends to create a positive bias towards older companies.
3. **T₃ (Earnings Before Interest and Taxes /Total Assets):** This ratio adjusts a company's earnings for varying income tax factors and makes adjustments for leveraging due to borrowings. These adjustments allow more effective measurements of the company's utilization of its assets.
4. **T₄ (Market Value of Equity/Total Liabilities):** This ratio gives an indication of how much a company's assets can decline in value before debts may exceed assets. Equity consists of

the market value of all outstanding common and preferred stock. For a private company the book value of equity is used for this ratio. This depends on the assumption that a private company records its assets at market value.

5. **T₅ (Net Sales/Total Assets):** This ratio measures the ability of the company's assets to generate sales. This ratio is not included in the Z-Score of a private non-manufacturing company.

“As per Altman’s model if the Z-Score is <1.8, then the company is considered to be in bankruptcy zone, and has high probability of failure. If the Z-Score lies in 1.8 to 3.0, then the company is considered to be in grey zone i.e. safety zone, where the company should be under careful watch. If Z-Score is > 3.0, then the company is said to be in good financial health, and will be solvent in the future.”

Statistical Analysis

Table-I: Various Ratios and Altman’s Z score for Rashtriya Chemicals

	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
T1= WC/TA	0.37	0.36	0.40	0.34	0.20	0.21	0.25	0.27	0.19	0.25
T2= RE/TA	0.26	0.21	0.26	0.39	0.29	0.31	0.35	0.35	0.30	0.36
T3= EBIT/TA	0.08	0.08	0.09	0.11	0.08	0.08	0.09	0.10	0.06	0.05
T4= Equity/Debt	0.24	0.15	0.18	0.32	0.16	0.16	0.18	0.16	0.11	0.15
T5= NS/TA	0.69	0.58	0.56	0.77	0.62	0.66	0.59	0.61	0.53	0.50
Z-SCORE	1.91	1.67	1.79	2.28	1.61	1.70	1.77	1.85	1.43	1.57

Interpretation:-

Net Working Capital to Total Assets

The ratio of working capital to total assets of the Rashtriya Chemicals is positive in the study period. The ratio (T1) ranges from 0.19 to 0.40 (from table I). It was highest in the year 2009-10 and lowest 2015-16. Moderate level of fluctuation indicates that the company has a sufficient level of investment in current assets. It does not block the funds in the form of current assets.

Retained Earnings to Total Assets

The ratio of retained earnings to total assets of the company is positive in the

study period. The company registered highest earnings in the year 2010-11 (0.39) and lowest in the year 2008-09 (0.21), indicating the retained earnings of the company increased year by year. The moderate ratio in the analysis indicates that the growth is sufficient and real.

EBIT to Total Assets

EBIT to Total Assets ratio is a common variant of the return on assets. This ratio indicates the operating performance and productivity capacity of the assets. The ratio (T3) ranges from 0.05 to 0.11 showing a low operating efficiency of Rashtriya chemicals and also indicates that the

company is unable to operate the fixed assets properly.

Book Value of Equity to Book Value of Debt

Book value of equity to debt is positive in all the years of study. The ratio (T4) was highest in the year 2010-11 (0.32) and lowest in the year 2015-16 (0.11). From the analysis, it can be concluded that Rashtriya chemicals is relying more on debt rather than equity and slowly it is increasing the component of equity equal to debt.

Net Sales to Total Assets

The sales to total assets ratio of the Rashtriya chemicals is depicted in table. As observed from the table, among the different year studied, the company registered highest ratio in 2010-11 (0.77) and the lowest in the year 2016-17 (0.50), indicating that the sales of the company are low to compare total assets invested by the company.

RESULT

The 'Z' score values of the Rashtriya fertilizers during the study period under review have been also depicted in the table I. It is understood from the table that during the years 2007-08, 2010-11 and 2014-15 the company registered the score above the distress zone of financial health. The table also revealed that during 2008-09, 2009-10, 2011-12 to 2013-14 and 2015-16 to 2016-17, the score was less than 1.81 indicating that the financial position of the corporation is very weak, sounding an alert to various stakeholders of the corporation. The financial health has decreased in the year 2011-12 to 2013-14, which suggested that the corporation is financially not safe or high probability of bankruptcy or the financial health of the company in the future years is expected to be insufficient to maintain liquidity.

CONCLUSION

This study evaluated financial health of Rashtriya Chemicals and Fertilizers Limited through Altman's Z score model. The study covers 10 years of time frame

from 2008 to 2017. From the above analysis, it can be concluded that Z-Score of RCFL over a period of ten years ranges from 1.43-2.58, which is much lower than 3.00, which clearly indicates that the financial position of the corporation is poor and there is high probability of bankruptcy. This result will provide a warning signal to both internal and external users of financial statement in planning, and decision making. The warning signs and Z score model have the ability to assist management to design effective strategies for better control and management of resources.

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