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EVALUATING FINANCIAL HEALTH OF SELECTED FERTILIZER COMPANIES OF INDIA THROUGH 'Z' SCORE MODEL

Kathiriya Priyanka, Dr. Urvashi J. Devmurari*

ABSTRACT

The success of the agricultural sector in India depends largely on the fertilizer industry. Benchmark that the food industry in India has established is mainly due to the many technically competent fertilizers producers in the country. However, many fertilizer companies are recording huge losses, many of them have reduced production cost escalation. Which are certainly not good signs for the government to afford for the economy.

The evaluation of financial health is very useful for financial managers, investors and other users. In this study it is tried to know whether Z score model is able to evaluate financial health of Coromandel Int. Ltd., Chambal Fertilizer & Chemicals Ltd, GNFC, GSFC, and RCFL

For past 05 years (2015-16 to 2019-20). Analysis of this paper also shows that the model is useful to know the bankruptcy of selected fertilizer companies of India predicated by using Altman's Z-Score Model.

The study reveals that not any one of the companies completely belongs to Safe Zone. Most of the companies are in Distress Zone which clearly indicates that these firms may go Bankrupt in near future.

Keywords: - Financial health, Fertilizer, Bankruptcy, Altman's Z-Score Model

INTRODUCTION

During the recent amount of economic and business each company is effort exhausting to survive during this growing era of core ability. That allows you to still exist and keep in business it is vital that a company with efficiency manages its finance fitness that incorporate additional interest and care. The failure of internal support system like effective utilization of funds, labor, material etc & external aid machine together with financial, political & socio-cultural conditions outcomes in Bankruptcy of the organization.

Bankruptcy could be a scenario wherever the firm's total liabilities exceed total assets. The important net value of the firm is, so negative. This results in diminished sales, enhanced value & losses, ineffective competition etc. Ultimately firm are beneath distress stage. Below such things it becomes below for investors & lenders to investigate the monetary performance of the organization.

The model might not specifically dictate the manager what's wrong however it below encourage them to identify issues and take effective action to minimize the incidence of failure.

*Kathiriya Priyanka, Research Scholar, Department of Commerce & Management, Bhakt kavi Narsinh Mehta University, Junagadh, Gujarat

Dr. Urvashi J. Devmurari, Assistant Professor, J.K.M. Commerce and BBA College, Junagadh, Gujarat

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✚ REVIEW OF LITERATURE

- **Vikas Saini** presented a research paper on “Evaluation of financial health of RCFL of India through “Z” score model”. In this article, RCFL's financial health and chances of bankruptcy in the near future are assessed with the 'help of the Z score developed by Prof. Edward I. Altman (1968). From the ten-year study (2007-08 to 2016-17), it is deduced from the analysis that the earning capacity and the short-term investment capacity of RCFL is poor. The Z-Score indicates that the company is in an emergency zone and may go bankrupt in the near future. Hence, it requires a valiant effort from all those involved such as managers, employees and other stakeholders.
- **S. Sowmiyaa, S. Moghana Lavanya, K. Mahendran V. Geethalakshmi** wrote a research paper on “Financial Performance of Indian Fertilizer Industry - A Comparative Evaluation of Private, Public and Cooperative Sector Companies.” This paper objective to analyse the financial performance of the industry as a whole, an underexplored area of study. The analysis includes private and public enterprises and cooperatives for 2016-2020. The five-year average shows that the industry is financially weak. The reasons may include shortages of raw materials, volatility in the global commodity price index, unstable market conditions or poor operating practices.
- **Prof. Rohini Sajjan** presented paper on “Predicting Bankruptcy of Selected Firms by Applying Altman’s Z-Score Model.” In this study the researcher tries to apply the model to understand the probability of bankruptcy of selected companies in the last 5 years from 2011 to 2015 which are listed in BSE and NSE. Companies are selected from the manufacturing and non-manufacturing sectors. The study reveals that none of the companies fully belong to Safe Zone except for a few years. Most companies are in a danger zone, which clearly indicates that these companies could go bankrupt in the near future.
- **Dr. Uthira. D** did work on, “Assessing the Corporate Financial Distress of Fertilizer Companies in India using Altman's Z-Score Reductive Model.” For the purposes of the study, the Altman Z-Score was calculated for the 20 fertilizer companies for fiscal years 2007-08 to 2016-17. Altman's Z-score analysis shows that the financial position of the fertilizer industry as a whole is weakening.

✚ STATEMENT OF THE PROBLEM

**Evaluating Financial Health of Selected Fertilizer Companies of India through
‘Z’ Score Model**

✚ OBJECTIVES OF THE STUDY

The objectives of the study are as follows:

- 1) To assessment of the financial performance of the selected companies over the past 05 years.
- 2) To predicting the stage of financial distress and bankruptcy of companies using the Z-Score model.

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3) To assessment of the creditworthiness of investors using the Z-Score model.

✚ PERIOD OF THE STUDY

The study covered the 5-year period from 2015-16 to 2019-20.

✚ SOURCES OF THE DATA

The study is mainly based on secondary data obtained from the published annual reports of the selected sample companies. The required information is also obtained from various publications, various books, magazines, journals, websites, etc.

✚ SAMPLE DESIGN

Out of 22 Fertilizer companies listed in BSE ,for the study purpose researcher has been select top 05 companies based on market capitalization as on January-2020, name as under :

1. Coromandel International Ltd.
2. Chambal Fertilizer & Chemicals Ltd.
3. Gujarat Narmada Valley Fertilizers & Chemicals Ltd.
4. Gujarat State Fertilizers & Chemicals Ltd.
5. Rashtriya Chemicals and Fertilizers Ltd.

✚ DATA ANALYSIS TECHNIQUES

This research work mainly focus on evaluating financial health of selected Fertilizer companies of India. For that, the collected data were classified, tabulated and analyzed in a systematic way. The data were analyzed using the Altman Z-score model, for which some ratios were calculated

• Information about the Altman's Z-Score Model

The Z-score formula for predicting failure was published in 1968 by Edward I. Altman, who was an assistant professor of finance at New York University at the time. The formula can be used to predict the likelihood of a business going bankrupt within two years. Z-scores are used to predict corporate defaults and an easy-to-calculate control measure for companies' financial distress status in academic studies. The Z score uses multiple corporate and balance sheet income values to measure a company's financial health.

Calculation of Z –Score Bankruptcy model (Manufacturing Companies)

Z

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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) (reciprocal debt equity ratio)

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

Components	Interpretation
T1(WC/TA)	Measures liquid assets in relation to the size of the company
T2(RE/TA)	Measures profitability that reflects the company's age and earning power
T3(EBIT/TA)	Measures how productive a company in generating earnings, relative to its size.
T4(MVE/TL)	Measures how far the company's assets can decline before the firm becomes technically insolvent
T5(TS/TA)	Measures how effectively the firm uses its assets to generate sales.

✚ Zone of Discrimination

$Z > 2.99$ = "Safe" Zone
 $1.81 < Z < 2.99$ = "Gray" Zone
 $Z < 1.81$ = "Distress" Zone

✚ RATIO ANALYSIS FOR THE CALCULATION OF Z-SCORE

The following calculations were made using MS Excel tools to indicate which companies fall into the various zones according to Altman's Z-Score.

1. Coromandel International Ltd

Particulars	2019-20	2018-19	2017-18	2016-17	2015-16
T₁	0.233	0.154	0.164	0.145	0.102
T₂	0.427	0.320	0.322	0.325	0.273
T₃	0.157	0.125	0.121	0.109	0.083
T₄	0.0050	0.0041	0.0044	0.0051	0.0045
T₅	1.279	1.234	0.841	0.876	0.896
Z SCORE	2.68	2.28	1.89	1.87	1.68

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2. Chambal Fertilizer & Chemicals Ltd.

Particulars	2019-20	2018-19	2017-18	2016-17	2015-16
T ₁	0.04	0.01	0.06	0.07	0.02
T ₂	0.24	0.20	0.26	0.26	0.23
T ₃	0.13	0.07	0.09	0.11	0.05
T ₄	0.04	0.04	0.06	0.08	0.07
T ₅	0.84	0.73	0.79	0.92	1.10
Z SCORE	1.67	1.29	1.57	1.77	1.64

3. Gujarat Narmada Valley Fertilizers & Chemicals Ltd.

Particulars	2019-20	2018-19	2017-18	2016-17	2015-16
T ₁	0.22	0.19	0.13	0.04	0.03
T ₂	0.61	0.64	0.60	0.46	0.32
T ₃	0.05	0.11	0.18	0.12	0.06
T ₄	0.05	0.06	0.06	0.04	0.04
T ₅	0.62	0.78	0.81	0.58	0.57
Z SCORE	1.93	2.31	2.42	1.68	1.27

4. Gujarat State Fertilizers & Chemicals Ltd.

Particulars	2019-20	2018-19	2017-18	2016-17	2015-16
T ₁	0.21	0.20	0.18	0.21	0.22
T ₂	0.67	0.69	0.70	0.72	0.65
T ₃	0.02	0.07	0.05	0.05	0.07
T ₄	0.02	0.03	0.03	0.03	0.03
T ₅	0.76	0.83	0.61	0.58	0.71
Z SCORE	2.04	2.29	2.00	2.02	2.15

5. Rashtriya Chemicals and Fertilizers Ltd.

Particulars	2019-20	2018-19	2017-18	2016-17	2015-16
T ₁	0.14	0.18	0.24	0.25	0.19
T ₂	0.26	0.28	0.38	0.36	0.30
T ₃	0.04	0.04	0.03	0.05	0.06

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T₄	0.08	0.09	0.16	0.15	0.11
T₅	0.36	0.38	0.49	0.48	0.53
Z SCORE	1.07	1.19	1.50	1.54	1.42

CALCULATION AND CLASSIFICATION OF Z SCORES :-

Company	Year	Z-value	Zone
Coromandel International Ltd	2019-20	2.68	Gray
	2018-19	2.28	Gray
	2017-18	1.89	Gray
	2016-17	1.87	Gray
	2015-16	1.68	Distress
Chambal Fertilizer & Chemicals Ltd.	2019-20	1.67	Distress
	2018-19	1.29	Distress
	2017-18	1.57	Distress
	2016-17	1.77	Distress
	2015-16	1.64	Distress
Gujarat Narmada Valley Fertilizers & Chemicals Ltd.	2019-20	1.93	Gray
	2018-19	2.31	Gray
	2017-18	2.42	Gray
	2016-17	1.68	Distress
	2015-16	1.27	Distress
Gujarat State Fertilizers & Chemicals Ltd.	2019-20	2.04	Gray
	2018-19	2.29	Gray
	2017-18	2.00	Gray
	2016-17	2.02	Gray
	2015-16	2.15	Gray
Rashtriya Chemicals and Fertilizers Ltd	2019-20	1.07	Distress
	2018-19	1.19	Distress
	2017-18	1.50	Distress
	2016-17	1.54	Distress
	2015-16	1.42	Distress

INTERPRETATION

The table above shows that out of the selected sample of 5 companies, 2 companies are in the distress area, namely Chambal Fertilizer & Chemicals Ltd. and Rashtriya Chemicals and Fertilizers Ltd. This means that the financial performance of these companies

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is pathetic and is susceptible to bankruptcy. These companies are not allowed to borrow funds from banks and financial institutions and even investors will not be interested in investing as they have no hope of recovery, especially Chambal Fertilizer & Chemicals Ltd. and Rashtriya Chemicals and Fertilizers Ltd who have Z Values are very negative. Coromandel International Ltd will regain a "safe zone" in the long term through effective management of financial and other resources.

Gujarat Narmada Valley Fertilizers & Chemicals Ltd. shows mixed zones with Z-value. In the initial timeframe of the selected period, the company performed poorly, but in later years it showed improvements and entered the gray area. Management must be careful so that they do not lose potential investors and continue to exist in the market.

Among the samples selected, only Gujarat State Fertilizers & Chemicals Ltd achieves results that are consistently in the gray area.

CONCLUSION

This study examined the possibility of using the Altman bankruptcy model to examine the financial health of companies belonging to selected Indian fertilizer companies. The survey covers 5 companies and 5 years from 2015-16 to 2019-20. Unfortunately, the findings show that none of the companies belongs entirely to the Safe Zone. Most companies are in the Distress Zone, which clearly indicates that these companies may go bankrupt in the near future. It is up to top management to design effective strategies for better control and management of resources. This can result in a win-win situation for management and investors.

REFERENCES

- Sowmiya, S., Lavanya, S. M., Mahendran, K. and Geethalakshmi, V. (2021). Financial Performance of Indian Fertilizer Industry - A Comparative Evaluation of Private, Public and Cooperative Sector Companies. *Biological Forum – An International Journal*, 13(1): 10-14.
- Saini V. (2018). Evaluation of financial health of RCFL of India through “Z” score model. *International Journal of Research and Review*, 5(8):26-31
- Dr. Uthira. D. (2018). Assessing the Corporate Financial Distress of Fertiliser Companies in India using Altman's Z-score Redictive model. *International Journal of Research Culture Society*, 2(3):248-256.
- Sajjan, R. (2016). Predicting Bankruptcy of Selected Firms by Applying Altman's Z-Score Model. *International Journal of Research-Granthaalayah*, 4(4) : 152-158.
- Kumari, N. (2013): “Evaluation of Financial Health of MMTC of India: A Z Score Model”, *European Journal of Accounting Auditing and Finance Research*, March, 1(1):.36-43.
- Anjum, S. (2012): “Business Bankruptcy Prediction Models: A Significant Study of the Altman's Z-score Model”, *Asian Journal of Management Research*, 3(1): 212-219.

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E-Journal of Research

ISSN NO: 2395-339X

- Sarbapriya Ray (2011). An Empirical Evaluation of Financial Health of Fertilizer Industry in India. International Journal of Research in Commerce, Economics & Management,1(2):114-118.
- www.coromandel.biz
- www.chambalfertilisers.com
- www.gnfc.in
- www.gsfclimited.com
- www.rcfltd.com
- www.moneycontrol.com
- <http://en.m.wikipedia.org>