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ASSESSING FINANCIAL DISTRESS OF GSFC & GNFC OF GUJARAT THROUGH ALTMAN'S Z-SCORE MODEL

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ABSTRACT

Agriculture is the spine of the Indian economic system. Two-thirds of its population is engaged in agricultural activities. The success of the rural zone in India depends largely on the fertilizer enterprise. The financial strength of the fertilizer industry is particularly important to investors, lenders and shareholders. This paper uses the Altman's Z-score model to predict the risk of financial distress of Gujarat State Fertilizers and Chemicals Ltd (GSFC) and Gujarat Narmada Valley Fertilizers Company Limited (GNFC) of Gujarat. For the five-year study period (2016-17 to 2020-21). The analysis of this paper indicated the GSFC & GNFC financial health position using Altman's Z-score model.

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



Introduction:

Indian Fertilizer industry today has succeeded in assembly the demand of all chemical fertilizers over time. The primary production unit began with the aid of the Indian Fertilizer industry which changed into of single first-rate Phosphate (SSP) in Ranipet close to Chennai with an ability of 6000 MT a year. India's green revolution in the 60s gave a wonderful raise to this specific area. The industry of Fertilizer skilled a faster increase price and presently India is the 0.33 biggest fertilizer manufacturer within the International. Considering the strategic importance of the fertilizer industry in India and considering the many interests of government and stakeholders, it is important to understand the financial position of the companies involved in the industry. Due to the fact that each GSFC and GNFC have bleak returns and some even face situations of persevering with loss, it is imperative to decide whether or no longer these companies are heading right into a corporate crisis or at what level they're. This is of paramount importance because, knowing the stage of the corporate crisis, companies and the government can adopt suitable strategies to get these companies out of the current situation and save the fertilizer industry as a whole. Models for predicting financial problems have been developed and have been used for over five decades because of their ability to:forecast whether the company will have some financial problems or even go bankrupt in the next period, usually one year.

II. REVIEW OF LITERATURE

Prof. Rohini Sajjan presented the article "Predicting bankruptcy of selected companies by applying the Altman Z-Score model." on this study, the researcher attempts to use the model to understand the opportunity of financial disaster of decided on agencies inside the remaining 5 years from 2011 to 2015 which can be listed at the BSE and NSE. Companies are selected from the manufacturing and non-manufacturing sectors. The study reveals that none of the companies fully belong to the 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.



Suhesti Ningsih & Febrina Fitri Permatasari wrote a research paper on, “Analysis Method of Altman Z Score Modifications to Predict Financial Distress on The Company Go Public Sub Sector of The Automotive and Components” This paper aims to analyze the variables from the Altman Z-Score modification methods in predicting financial emergencies in the publicly traded automotive parts sector and components from 2012-2016. The results of the analysis using the Altman Z-Score modification method show that companies in the automotive sector and subcomponents of almost every year there are companies that are predicted to be in financial trouble.

Dr. Uthira. D did work on “Assessing the Financial Distress of Fertilizer Companies in India Using Altman's Z-Score Reduction Model”. For the purposes of the study, the Altman Z-Score was calculated for the 20 fertilizer companies for the fiscal years 2007-08 through 2016-17. Altman's Z-Score analysis shows that the fertilizer industry's overall financial condition is weakening.

Anuj C.S, Adithya Narayanan R, Nandan S, Dr. Ravi Thangjam presented research paper on, “The Relevance of Altman Z-Score Analysis.” This article analyzes the viability and accuracy of the Z-Score Analysis tool for the Indian metals sector using various ratios to learn about every aspect of the companies in the sector. This tool was first applied to Indian companies that have crashed or been acquired in the past to determine its accuracy and then applied to some of the most prominent companies in the large, mid and small market caps to determine health status of industry.

N.R.V. Ramana Reddy & K. Hari Prasad Reddy wrote paper on, “This paper uses the Altman’s Z-score model to predict the risk of financial distress of select sugar manufacturing units in Andhra Pradesh, India. The results clearly indicate that the liquidity, working capital turnover efficiency and solvency position of the companies is not good. The Z-Score analysis also shows the companies are suffering from the financial distress and tending towards bankruptcy.



III. STATEMENT OF THE PROBLEM

“Assessing Financial Distress of GSFC & GNFC of Gujarat through Altman’s Z-Score model”

IV. OBJECTIVES OF THE STUDY

The objectives of the study are as follows:

- 1) To assessment of the financial performance of the GSFC & GNFC of Gujarat over the past 05 years.
- 2) To predicting the stage of financial distress of GSFC & GNFC by using the Z- Score model.

V. PERIOD OF THE STUDY

The study covered the 5-year period from 2016-17 to 2020-21.

VI. SOURCES OF THE DATA

This have a look at is based on secondary data. The data collected from annual reports of GSFC & GNFC. Another required information collected from websites, magazines, journals, various publication etc.

VII. SAMPLE DESIGN

Out of 22 fertilizer companies listed in the BSE. For the purpose of the study, only the Gujarat fertilizer companies that are listed on BSE were selected as the sample, namely GSFC (Gujarat State Fertilizers and Chemicals Ltd), and GNFC (Gujarat Narmada Valley Fertilizers Company Limited) from Gujarat

VIII. DATA ANALYSIS TECHNIQUES

This research work mainly focuses on assessing the financial position of the fertilizer companies GSFC and GNFC in Gujarat. For this, the accrued data were systematized, tabulated and analyzed. The data were analyzed using Altman's Z-score model and some ratios were calculated to apply the z-score model.



The Altman Z-score is a mathematical method that became designed to expect financial disaster or insolvency. It becomes firstly advanced and published in 1968 by using the big apple college professor Edward Altman – and given that that time, the Altman Z-score has grown to be a widely-used and dependent on the measure of economic misery. The tool takes into attention important measures of standard overall performance and creates a robust tool for comparing an organization's health and normal customary performance.

So as to determine a Z-score, distinctive formulation can be carried out to manufacturing and non-manufacturing companies.

Altman Z –Score Formula (Non-Manufacturing Companies)

$$Z = 6.56X_1 + 3.26X_2 + 6.72X_3 + 1.05X_4$$

Altman Z –Score Formula (Manufacturing Companies)

$$Z = 1.2X_1 + 1.4X_2 + 3.3X_3 + 0.6X_4 + 1.0X_5$$

Where:

Z = Score

X₁=Working Capital/Total Assets (WC/TA)

X₂ =Retained Earnings/Total Assets (RE/TA)

X₃ =Earnings before Interest and Taxes/ Total Assets (EBIT/TA)

X₄ =Book Value of Equity / Total Liabilities (BVE/TL)

X₅ = Total Sales / Total Assets (TS/TA)

A. Altman Z Score Five Ratios

1. Working Capital/Total Assets

Advantageous working capital approach that a corporation can meet its short-time period financial duties and nevertheless make funds available to make investments and develop.

2. Retained Earnings/Total Assets



If a corporation reports a low ratio of retained earnings to ordinary belongings, it way that the agency is financing its expenses with borrowed charge variety, and no longer with charge range from retained income. This will increase the possibility of the enterprise going bankrupt.

As an alternative, a high ratio of retained profits to popular belongings indicates that the organization is the use of retained earnings to finance capital fees. This suggests that the economic organization company has done profitability over time and does now not want to rely upon leveraged rate variety. **3. Earnings Before Interest and Tax/Total Assets**

EBIT, a degree of a company's profitability, refers back to the company's ability to income entirely from its operations. The ratio of EBIT to overall property demonstrates the organization's capability to generate sufficient revenue to stay worthwhile, finance ongoing operations and repay debt.

4. Book or Market Value of Equity/Total Liabilities

The market value of the equity/total liabilities ratio shows the degree to which a company's market value would decline when it declared bankruptcy before the value of liabilities exceeded the value of assets on the balance sheet. A high market value of the equity ratio to total liabilities can be interpreted as meaning high investor confidence in the company's financial strength.

5. Sales/Total Assets

A excessive income-to-overall assets ratio way that management calls for a small funding to generate sales, which will increase the overall profitability of the business. In contrast, a low or declining sales-to-total assets ratio means that management will have to use more resources to generate enough sales, which will reduce the profitability of the business.



B. Zone of Discrimination

$Z > 2.99$ “Safe” Zone	$1.81 < Z < 2.99$ “Gray” Zone	$Z < 1.81$ “Distress” Zone
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IX. 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.

1.1 Gujarat State Fertilizers and Chemicals Ltd (GSFC)

Particulators	2020-21	2019-20	2018-19	2017-18	2016-17
X₁	0.22	0.21	0.20	0.18	0.21
X₂	0.83	0.67	0.69	0.70	0.72
X₃	0.05	0.02	0.07	0.05	0.05
X₄	0.04	0.02	0.03	0.03	0.03
X₅	0.68	0.76	0.83	0.61	0.58
Z SCORE	2.30	2.04	2.29	2.00	2.02

Source : computed

1.2 Gujarat Narmada Valley Fertilizers Company Limited (GNFC)

Particulators	2020-21	2019-20	2018-19	2017-18	2016-17
X₁	0.30	0.22	0.19	0.13	0.04
X₂	0.70	0.61	0.64	0.60	0.46
X₃	0.12	0.05	0.11	0.18	0.12
X₄	0.07	0.05	0.06	0.06	0.04
X₅	0.62	0.62	0.78	0.81	0.58
Z SCORE	2.38	1.93	2.31	2.42	1.68

Source : computed



X. CLASSIFICATION OF Z SCORES

Company	Year	Z-value	Zone
Gujarat State Fertilizers & Chemicals Ltd.	2020-21	2.30	Gray
	2019-20	2.04	Gray
	2018-19	2.29	Gray
	2017-18	2.00	Gray
	2016-17	2.02	Gray
Gujarat Narmada Valley Fertilizers & Chemicals Ltd.	2020-21	2.38	Gray
	2019-20	1.93	Gray
	2018-19	2.31	Gray
	2017-18	2.42	Gray
	2016-17	1.68	Distress

XI. INTERPRETATION

The table above suggests that the GSFC Z-score from 2016-17 to 2020-21 is in the kind of 2.02 to 2.30, which means that that the business enterprise has continually maintained its grey region. If the management takes some corrective steps, then inside the future the business enterprise can even get hold of a safe sector.

Gujarat Narmada Valley Fertilizers & Chemical Ltd. shows the gray zones for 2017-18 to 2020-21 with a Z value. in the initial length (2016-17) of the chosen duration, the enterprise has finished poorly, but, in later years showed improvement and entered the gray vicinity. Management has to be careful not to lose potential investors.

The z score value calculated by gsfc and gnfc shows that they are both in the middle zone. This means that management had to do some work and better financial management should be done to avoid entering the danger zone. because if corrective actions are not taken by the management team, there will be a possibility of bankruptcy in the future.



XII. CONCLUSION

This study explored the feasibility of using the Altman bankruptcy model to examine the financial health of GSFC and GNFC. Unfortunately, the results show that neither of the two companies belongs to a completely safe zone. If top management develops effective strategies to better control and manage resources, then the likelihood of a win-win situation for management and investors may increase.

For company managers in managing the company's finances must be more effective and efficient so that the company does not experience financial distress. For investors can be used as a reference in making decisions to invest by looking at companies that show companies that have good financial performance.



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