

Bankruptcy Prediction of the BSE Sensex Companies Using ALTMAN Z–SCORE Method

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Abstract- Detecting fraud and identifying manipulated financial statements are critical aspects of financial analysis and auditing. Fraudulent activities, such as intentional misrepresentation or manipulation of financial data, investors, and stakeholders. The effective detection of fraud is essential for the integrity of financial reporting and ensures trust in financial markets. We analyse financial distress among the BSE Sensex 30 stocks by applying the Altman Z-score to assess the financial health and bankruptcy risk of a company. Several key insights and techniques have emerged to enhance our understanding of fraud detection using the Altman Z-score tool and continually improve practices, safeguard the integrity of financial reporting, and promote investor confidence in the marketplace.

Keywords- financial statements, Fraudulent activities, BSE Sensex, Altman Z-score.

I. INTRODUCTION

Detecting frauds and identifying manipulated financial statements is a critical aspect of financial analysis and auditing. Fraudulent activities, such as intentional misrepresentation or manipulation of financial data, investors, and stakeholders. Effective detection of fraud is essential for integrity of financial reporting and ensure trust in the financial markets.

Fraud detection involves a comprehensive and systematic examination of financial records, transactions, and indicators to identify irregularities and potential instances of fraud. It requires a combination of technical knowledge, analytical skills, and investigative techniques.

Detecting fraud can be challenging because perpetrators often attempt to conceal their activities and make them appear legitimate. However, with the right tools, expertise, and methodologies, fraudulent activities can be uncovered.

Identifying manipulated financial statements involves scrutinizing financial data to uncover intentional distortions or misrepresentations.

Manipulations can include inflating revenues, understating expenses, manipulating asset values, misclassifying transactions, or presenting misleading financial ratios. These manipulations can lead to inaccurate assessments of a company's financial health, deceive investors, and misguide stakeholders.

To detect fraud and identify manipulated financial statements, various approaches and techniques are utilized. These may include analysing financial ratios, conducting trend analysis, comparing data against industry benchmarks, assessing internal controls, conducting forensic analytics, examining cash flow patterns, and leveraging expert knowledge of the industry and regulations. Additionally, whistleblowers and anonymous reporting channels play a crucial role in uncovering fraudulent activities

by encouraging individuals to report suspicions or evidence of wrongdoing.

It's important to note that detecting fraud and identifying manipulated financial statements requires a collaborative effort between financial professionals, auditors, forensic accountants, and investigators. These experts apply their specialized skills and knowledge to investigate anomalies, follow proper procedures, and gather evidence. Ultimately, the goal is to ensure transparency, accuracy, and trust in financial reporting, safeguarding the interests of investors, businesses, and the overall financial system.

II. LITERATURE REVIEW

(Atabay & Dinç,2020) has Distribution of data obtained through the frequency analysis conducted in terms of bank, financial statement, opinion types, and reasons are summarized below. Findings relevant to content analysis and those acquired as a consequence of analyses conducted to measure the effect on the investor are detailed under separate titles. This study had two main purposes. The first main purpose is to determine whether banks, which are expected to have corporate social responsibility, manipulate their financial statements. As for the second main purpose, it is to determine to what extent these manipulations affect the investment decisions of shareholders investing in banks. Hasan et al., 2017) in there study reviews rigorously the existing literature fraudulent financial statement reports using M-Score strategy which is a mathematical model proposed by Beneish in 1999.(Foster & Zurada, 2013)(Results reveal that loan default and audit opinion variables: improve the predictive accuracy for financially distressed samples with hazard model characteristics; and change the significance on some variables included in previous hazard models.(Moyes & Hasan, n.d.) Investigates the relative importance of potential factors associated with the likelihood of detecting fraud during the audit of financial statements.(Westhausen, 2017) Over the years, IA has been continuously improving its auditing quality and effectiveness with new analytical methods, specialized software tools, and professional

certifications. However, these efforts have hardly been reflected in statistical or research data, especially in the listing of the top sources of fraud detection. The purpose of this paper is to discuss critical success factors for the enormous development that Internal Auditing (IA) as "third line of defense" (IIA,2016) and one of the strongest anti-fraud controls has reached within the last decades. (AljinovicBarac et al., 2017)The survey results show that manipulations are principally oriented towards creditors, tax authorities and suppliers with the intention to hide bad performance, get better terms of crediting and minimize fiscal and political costs.

III. RESEARCH METHODOLOGY

1. Problem Statement

To discover the fraudulent activities, Potential fraud indicators or misrepresentations in the financial reports and differentiate them from legitimate financial statements.

2. Need for Study

The primary need for study is to predict the likelihood of a company going bankrupt. By analysing a company's financial statements and calculating its Z-score, investors, creditors, and analysts can evaluate the financial stability and solvency of the company. This information is crucial for making informed investment decisions or assessing the creditworthiness of a company.

3. Objectives of Study

- To analyse the financial distress among the BSE Sensex 30 stocks.
- To apply Altman Z score is to assess the financial health and bankruptcy risk of a company.

4. Scope of the Study

Scope of studying fraud detection and identification of manipulated financial statements is multidimensional and requires a comprehensive understanding of financial analysis, forensic accounting techniques, internal controls, data analysis, legal considerations, and ethical principles. Engaging professionals with expertise in fraud examination, accounting, auditing, and legal matters

is crucial for conducting thorough investigations in this field.

5. Research Methods

for this research has collected the data of 5 years of 30 shares of companies listed in BSE-SENSEX for the analysis and it has applied the model Altman Z Score Model for the empirical testing.

6. Hypothesis

- **H0** – There is no significant risk in the financial statement's manipulation.
- **H1** – There is significant risk in the fraudulent financial statements.

IV. MODEL ALTMAN Z-SCORE

Financial ratios are one of the information that can be used as a tool for predicting the performance of the company, including information about potential bankruptcy prediction useful for many people, especially on the part of creditors and investors. In 1968, Altman Edward; I provide a formula that serves to predict the potential bankruptcy of a company. Altman through experiments by taking a sample of companies that have undergone bankruptcy that certain financial ratios have "predictive power" than others in predicting financial difficulties (financial distress) and bankruptcy. Altman has found five financial ratios which can be used to detect the bankruptcy of the company, known as Z-score.

In his research Altman (2000), Altman used a sample of 33 pairs of company bankrupt and not bankrupt the exact formulation of the model and is able to identify 90% of bankruptcy cases in 1 year before the bankruptcy occurred. In the process of determining the Altman Z-score uses statistical techniques by using multiple discriminant analysis (MDA). MDA can be used to determine the variables that differentiate the group identifier existing population, can also be used as a grouping criteria. MDA generally is $Z = V_1(X_1) + V_2(X_2) + \dots + V_n(X_n)$ where V_1 and V_2 are parameters (weights) while X_1, X_2, \dots, X_n the financial ratios that contribute to predictive models. By basing the financial ratios of the Z-score model Altman successfully used to classify companies into groups that have a high probability of bankruptcy or

a group of companies that are likely to experience bankrupt low Z-score model Altman allows to predict bankruptcy for up to 2 years before the bankruptcy occurred.

This model also can not be used because sometimes there are absolutely different results if we use different objects. Nevertheless, the use Altman method can be used by companies to undertake preventive measures (early warning) when indicated already in a state into bankruptcy.

The Altman Z-score formula (original) are as follows:
 $Z\text{-score} = 0.012X_1 + 0.014X_2 + 0.033X_3 + 0.006X_4 + 0.999X_5$

Description

X_1 = Working capital/total assets This ratio indicates the company's ability to generate net working capital of the whole of its total assets. Working capital is the difference between current assets and current liabilities.

X_2 = Retained earnings/total assets This ratio indicates the company's ability to generate retained earnings of the total assets of the company. This parameter is useful to measure whether the cumulative profit is able to compensate for the total assets of the company.

X_3 = Earnings before interest and taxes/total assets This ratio indicates the company's ability to generate profits from the assets of the company, before interest payments and taxes.

X_4 = Market value of equity/book value of total debt This ratio indicates the company's ability to meet the obligations of the market value of equity (common stock). The value of equity market itself is obtained by multiplying the number of outstanding common shares at the market price per share of common stock. The book value of debt is obtained by summing current liabilities with long-term liabilities.

X_5 = Sales/total assets This ratio is also called asset turnover and are usually used to measure the efficiency of the overall management of the use of corporate assets to generate sales and profit.

Classification of a healthy company and bankruptcy are based on the value of Z obtained, namely:

1. Z-score for values less than or equal to 1.81 means that the company is experiencing financial difficulties and high risk.
2. Z-score for values between 1.81 to 2.67, the company is considered to be in the gray area (gray area). In this condition, the company experienced financial problems that must be dealt with the handling of proper management. If it's too late and improper handling, the company may face bankruptcy. So in this gray area there is a possibility the company went bankrupt and some are not depends on how the company's management can take immediate action to immediately tackle the problems experienced by the company.
3. For the Z-score values >2.67, providing an assessment that the company is in a very healthy state so that the probability of bankruptcy is very little going on.

V. DATA ANALYSIS

To conduct an Altman Z-Score analysis for the BSE 30 companies or any specific company, you would need the relevant financial statements, including the balance sheet, income statement, and statement of cash flows. These statements can be obtained from public sources such as the company's website, regulatory filings, or financial databases.

Once we you the financial statements, you can calculate the necessary ratios and inputs required for the Altman Z-Score formula, which include working capital, retained earnings, EBIT, market value of equity, and sales. Applying the weights specified in the formula, you can calculate the Z-Score for each company.

Alternatively, there are financial analysis tools and software available that can automate the calculation of Altman Z-Score and other financial ratios based on the provided financial statements.

Table: showing the Altman Z-score value for the BSE Sensex stocks

ADITHYA BIRLA LTD						
	Coeff	2022	2021	2020	2019	2020
Z1	1.2	-	-	-	-	-
Z2	1.4	0.002	0.003	0.001	0.003	0.006
Z3	3.3	0.025	0.117	0.054	0.037	0.048
Z4	0.6	0.042	0.008	0.003	-	0.005
Z5	1	0.006	0.001	0.000	0.000	0.001
Z-Score		0.046	0.011	0.021	0.020	0.021
Zone		0.187	0.033	0.029	0.012	0.029
		District	District	District	District	District

ASIAN PAINTS						
	Co - e	2022	2021	2020	2019	2020
Z1	1.2	0.179	0.150	0.198	0.300	0.330
Z2	1.4	7.403	18.441	0.742	0.919	0.033
Z3	3.3	0.180	0.156	0.161	0.161	0.133
Z4	0.6	0.310	0.304	0.435	0.554	0.492
Z5	1	1.252	1.182	1.251	1.066	1.266
Z-Score		2.246	2.059	2.281	2.289	2.396
Zone		Grey	Grey	Grey	Grey	Grey

BAJAJ FINSERV						
	Co - e	2022	2021	2020	2019	2020
Z1	1.2	2.389	1.469	1.197	0.736	0.390
Z2	1.4	2.231	2.097	1.705	1.473	0.331
Z3	3.3	0.048	0.043	0.033	0.043	0.055
Z4	0.6	0.277	0.629	0.659	0.742	0.919
Z5	1	0.149	0.160	0.156	0.149	0.150
Z-Score		6.464	5.379	4.484	3.681	1.350
Zone		Safe	Safe	Safe	Safe	Distress

BHARAT PETROLEUM CORP LTD						
	Co - e	2022	2021	2020	2019	2020
Z1	1.2	-	-	-	-	-
Z2	1.4	0.043	0.032	0.112	0.035	0.129
Z3	3.3	0.295	0.295	0.023	0.899	0.472
Z4	0.6	0.083	0.065	0.006	0.111	0.056
Z5	1	0.078	0.060	0.025	0.117	0.068
Z-Score		2.322	2.489	2.186	1.890	2.307
Zone		3.002	3.115	2.053	3.544	3.036
		Safe	Safe	Grey	Safe	Safe

BRITTANIA INDUSTRIES LTD						
	Co -e	2022	2021	2020	2019	2020
Z1	1.2	0.290	0.268	0.140	0.101	-0.025
Z2	1.4	0.080	0.078	0.054	0.037	0.037
Z3	3.3	0.235	0.226	0.186	0.264	0.239
Z4	0.6	3.194	4.161	3.029	2.452	1.274
Z5	1	1.926	1.771	1.479	1.640	1.881
Z- Score		5.077	5.445	4.154	4.155	3.457
Zone		Safe	Safe	Safe	Safe	Safe

HDFC BANK						
	Co -e	2022	2021	2020	2019	2020
Z1	1.2	-0.449	-0.46	-0.461	-0.464	-0.035
Z2	1.4	0.187	0.104	0.178	0.235	0.899
Z3	3.3	0.006	0.006	0.007	0.007	0.111
Z4	0.6	0.004	0.004	0.005	0.005	0.117
Z5	1	0.021	0.02	0.022	0.021	1.89
Z- Score		-0.494	-0.51	-0.508	-0.51	-0.507
Zone		Distress	Distress	Distress	Distress	Distress

CIPLA LTD						
	Co -e	2022	2021	2020	2019	2020
Z1	1.2	0.16	0.156	5.077	0.736	0.39
Z2	1.4	0.011	0.06	0.025	0.117	0.068
Z3	3.3	0.021	0.028	0.04	0.087	0.087
Z4	0.6	0.289	0.298	0.34	0.744	1.054
Z5	1	0.666	0.683	0.724	0.762	0.803
Z- Score		1.275	1.389	1.43	1.908	2.156
Zone		Distress	Distress	Distress	Grey	Grey

HIMALAYA FOOD INTERNATIONAL LTD						
	Co -e	2022	2021	2020	2019	2020
Z1	1.2	0.008	-0.19	0.139	0.162	-0.147
Z2	1.4	1.412	1.475	1.486	1.96	0.022
Z3	3.3	0.012	-0.309	-0.026	-0.04	0.331
Z4	0.6	-0.008	-0.415	0.083	0.022	2.01
Z5	1	0.337	0.346	0.291	0.207	0.242
Z- Score		0.379403	1.15177	0.422368	0.283306	2.36467
Zone		Distress	Distress	Distress	Distress	Grey

DR.REDDY LABORATORIES LTD						
	Co -e	2022	2021	2020	2019	2020
Z1	1.2	0.16	0.232	0.232	0.242	0.269
Z2	1.4	0.078	0.082	0.083	0.08	0.078
Z3	3.3	0.009	0.04	0.006	0.053	0.048
Z4	0.6	3.075	7.403	18.441	13.009	15.153
Z5	1	0.633	0.688	0.754	0.716	0.724
Z- Score		2.808	5.657	12.235	9.1	10.407
Zone		Grey	Safe	Safe	Safe	Safe

HUL LTD						
	Co -e	2022	2021	2020	2019	2020
Z1	1.2	0.174	0.149	0.045	0.06	0.068
Z2	1.4	3.944	3.82	1.001	1.173	0
Z3	3.3	0.404	0.378	0.133	0.149	0.162
Z4	0.6	0.09	0.095	0.016	0.028	0.037
Z5	1	2.11	1.974	0.684	0.744	0.829
Z- Score		9.228	8.804	2.588	2.966	1.466
Zone		Safe	Safe	Grey	Grey	Distress

HCL TECH LTD						
	Co -e	2022	2021	2020	2019	2020
Z1	1.2	0.297	0.177	0.298	0.329	0.344
Z2	1.4	0.006	0.053	0.226	0.186	0.037
Z3	3.3	0.167	0.127	0.127	0.133	0.153
Z4	0.6	0.187	0.104	0.178	0.235	0.278
Z5	1	1.032	0.852	0.875	0.962	1.086
Z- Score		2.052	1.545	1.757	1.938	2.172
Zone		Grey	Distress	Distress	Grey	Grey

INFOSYS LTD						
	Co -e	2022	2021	2020	2019	2020
Z1	1.2	0.352	0.37	0.446	0.472	0.524
Z2	1.4	0.166	0.159	0.169	0.188	0.182
Z3	3.3	0.469	0.413	0.344	0.331	0.318
Z4	0.6	34.344	30.64	25.231	24.975	23.445
Z5	1	1.831	1.5	1.201	1.27	1.166
Z- Score		24.641	21.913	18.246	18.177	17.165
Zone		Safe	Safe	Safe	Safe	Safe

ITC LTD						
	Co -e	2022	2021	2020	2019	2020
Z1	1.2	0.144	0.137	0.11	0.158	0.164
Z2	1.4	4.629	47.59	5.843	4.328	3.903
Z3	3.3	0.366	0.324	0.292	0.302	0.319
Z4	0.6	27.74	24.52	22.08	23.63	21.51
Z5	1	0.977	0.973	0.822	0.731	0.79
Z-Score		25.48	83.54	23.35	22.15	20.4
Zone		Safe	Safe	Safe	Safe	Safe

KOTAK MAHINDRA BANK LTD						
	Co -e	2022	2021	2020	2019	2020
Z1	1.2	-0.236	-0.21	-0.172	-0.186	-0.198
Z2	1.4	0.005	0.006	0.007	0.01	0.012
Z3	3.3	0.027	0.026	0.027	0.029	0.032
Z4	0.6	0.033	0.044	0.057	0.062	0.024
Z5	1	0.116	0.114	0.118	0.108	0.11
Z-Score		-0.058	-0.026	0.037	0.018	-0.01
Zone		Distress	Distress	Distress	Distress	Distress

L& T LTD						
	Co -e	2022	2021	2020	2019	2020
Z1	1.2	0.289	0.329	0.182	0.344	0.468
Z2	1.4	0.312	1.541	1.917	2.66	3.228
Z3	3.3	0.317	0.324	0.281	0.412	0.38
Z4	0.6	22.064	23.069	20.151	29.879	28.247
Z5	1	1.412	1.475	1.486	1.96	1.901
Z-Score		16.045	18.938	17.406	25.384	25.186
Zone		Safe	Safe	Safe	Safe	Safe

MAHINDRA& MAHINDRA LTd						
	Co -e	2022	2021	2020	2019	2020
Z1	1.20	0.072	0.065	0.060	0.124	0.108
Z2	1.40	0.538	0.021	0.024	0.023	0.026
Z3	3.30	0.068	0.046	0.032	0.035	0.046
Z4	0.60	0.133	0.109	0.086	0.106	0.156
Z5	1.00	0.680	0.641	0.451	0.446	0.518
Z-Score		1.070	0.935	0.679	0.773	0.892
Zone		Distress	Distress	Distress	Distress	Distress

MARUTHI SUZUKI LTD						
	Co -e	2022	2021	2020	2019	2020
Z1	1.2	-	-	0.034	-	-0.1
Z2	1.4	0.028	0.045	0.09	0.087	5.389
Z3	3.3	0.081	0.005	0.009	0.002	0.063
Z4	0.6	7.319	6.846	4.123	5.624	7.991
Z5	1	1.345	1.189	0.987	1.183	1.39
Z-Score		6.102	5.389	3.598	4.683	6.273
Zone		Safe	Safe	Safe	Safe	Safe

POWER GRID CORP LTD						
	Co -e	2022	2021	2020	2019	2020
Z1	1.2	-0.071	-0.06	-0.047	-0.033	-0.052
Z2	1.4	0.11	0.073	0.133	0.143	0.161
Z3	3.3	0.034	0.038	0.038	0.038	0.055
Z4	0.6	0.005	0.006	0.007	0.01	0.012
Z5	1	0.133	0.142	0.147	0.155	0.166
Z-Score		0.318	0.301	0.407	0.447	0.519
Zone		Distress	Distress	Distress	Distress	Distress

RELIANCE INDUSTRIES LTD						
	Co -e	2022	2021	2020	2019	2020
Z1	1.200	-0.085	-0.133	0.072	0.026	0.027
Z2	1.400	0.002	0.004	0.020	0.022	0.176
Z3	3.300	0.015	0.017	0.009	0.010	0.009
Z4	0.600	0.017	0.018	0.028	0.026	0.023
Z5	1.000	0.211	0.191	0.176	0.147	0.126
Z Score		0.173	0.105	0.338	0.257	0.202
Zone		Safe	Safe	Safe	Safe	Distress

NESTLE INDIA LTD						
	Co -e	2022	2021	2020	2019	2020
Z1	1.200	0.329	0.227	0.214	0.000	0.046
Z2	1.400	4.391	2.586	2.475	2.316	2.619
Z3	3.300	0.239	0.305	0.312	0.309	0.324
Z4	0.600	13.976	7.729	7.680	7.631	9.768
Z5	1.000	1.375	1.724	1.690	1.790	1.882
Z Score		17.090	11.259	11.048	10.630	12.535
Zone		Safe	Safe	Safe	Safe	Safe

TATA MOTORS LTD						
	Co -e	2022	2021	2020	2019	2020
Z1	1.200	-0.022	-0.072	-0.065	-0.032	-0.011
Z2	1.400	0.190	0.252	0.256	0.224	0.191
Z3	3.300	-0.027	-0.172	-0.079	-0.092	-0.077
Z4	0.600	0.007	0.001	0.002	0.001	0.004
Z5	1.000	0.892	0.983	0.810	0.728	0.842
Z Score		0.780	0.328	0.472	0.386	0.576
Zone		Distress	Distress	Distress	Distress	Distress

SUN PHARMA LTD						
	Co -e	2022	2021	2020	2019	2020
Z1	1.2	0.595	0.637	0.983	0.81	0.449
Z2	1.4	0.187	0.191	0.208	0.215	0.196
Z3	3.3	0.029	0.03	0.04	0.004	0.016
Z4	0.6	0.056	0.081	0.097	0.181	0.19
Z5	1	0.411	0.449	0.481	0.495	0.554
Z Score		1.021	1.119	1.243	1.172	1.302
Zone		Distress	Distress	Distress	Distress	Distress

TATA STEEL LTD						
	Co -e	2022	2021	2020	2019	2020
Z1	1.2	0.058	-0.009	-0.012	-0.043	0.007
Z2	1.4	0.372	0.602	0.724	0.671	1.95
Z3	3.3	0.101	0.065	-0.015	0.052	0.163
Z4	0.6	0.001	0.003	0.001	0.002	0.017
Z5	1	0.592	0.675	0.595	0.637	0.855
Z Score		1.516	1.722	1.546	1.699	4.139
Zone		Distress	Distress	Distress	Distress	Safe

WIPRO LTD						
	Co -e	2022	2021	2020	2019	2020
Z1	1.2	0.139	0.190	0.318	0.316	0.325
Z2	1.4	0.113	0.103	0.126	0.141	0.148
Z3	3.3	0.190	0.252	0.256	0.224	0.191
Z4	0.6	0.190	0.252	0.256	0.224	0.191
Z5	1	13.505	19.567	19.707	16.858	13.981
Z Score		14.571	20.922	21.263	18.308	15.322
Zone		Safe	Safe	Safe	Safe	Safe

ULTRA TECH CEMENT LTD						
	Co - e	2022	2021	2020	2019	2020
Z1	1.200	-	-0.034	-	0.040	-
Z2	1.400	0.014	0.010	0.010	0.010	0.013
Z3	3.300	0.038	0.031	0.048	0.069	0.074
Z4	0.600	2.360	1.604	4.604	5.085	9.995
Z5	1.000	0.558	0.544	0.536	0.519	0.627
Z Score		2.117	1.583	3.444	3.861	6.848
Zone		Grey	Distress	Safe	Safe	Safe

TCS LTD						
	Co - e	2022	2021	2020	2019	2020
Z1	1.200	0.609	0.523	0.498	0.466	0.464
Z2	1.400	7.440	6.519	6.086	5.523	0.003
Z3	3.300	0.308	0.290	0.285	0.310	0.343
Z4	0.600	0.759	0.512	0.456	0.466	0.518
Z5	1.000	1.274	1.298	1.256	1.355	1.569
Z Score		13.893	12.316	11.589	10.949	3.568
Zone		Safe	Safe	Safe	Safe	Safe

VI. FINDINGS AND SUGGESTIONS

Based on the analysis of the Altman Z-score, the findings indicate that 15 companies' financial statements, TCS,INFOSYS,L&T,ITC LTD,ASIAN PAINTS LTD,BRITANIA INDUSTRIES LTD, and DR. R EDDY LABOURATORY, HUL LTD, MARUTHI SUZUKI LTD, NESTLE INDIA LTD, RELIANCE INDUSTRIES LTD, TATA STEEL LTD, TATA COMPANY LTD, WIPRO LTD.

which has a safe financial position and a low risk of bankruptcy. The Altman Z-score falls within the range associated with the Safe Zone, suggesting a high level of financial stability and healthy financial condition.

The consistent presence in the Safe Zone TCS, INFOSYS, L&T ,ITC LTD, ASIAN PAINTS LTD, BRITANIA INDUSTRIES LTD, RELIANCE INDUSTRIES LTD,TATA COMPANY LTD, and WIPRO LTD indicates that the company has maintained a prudent financial management approach, effective risk mitigation strategies, and a solid competitive position in the industry. I reflect positively on the company's ability

to navigate economic downturns, withstand financial shocks, and pursue growth opportunities.

Based on The Altman Z-Score for Companies CIPLA LTD,HCL LTD,BHART PETROLEUM LTD,ULTRA TECH LTD,HIMALAYA INTERNATIONAL FOOD LTD in the Grey Zone, indicating a moderate level of financial distress risk. Some financial indicators demonstrate satisfactory performance, while others highlight the potential areas of concern.

Companies should closely monitor liquidity, profitability, asset management, and leverage ratios to mitigate the risk of financial distress. It is crucial for the company to implement effective strategies to improve its financial health and ensure long-term sustainability. Further analysis and expert evaluation are recommended to gain a comprehensive understanding of the company's financial condition and to develop appropriate action plans.

Based on the Altman Z-Score for Companies ADITHYA BIRLA LTD,BAJAJ FINSERV,BHARTI AIRTEL LTD,HDFC BANK,KOTAK MAHINDRA BANK,MAHINDRA & MAHINDRA,POWER GRID CORP,SUN PHARMA LTD,TATA MOTORS LTD,TATA STEEL LTD in the Distress Zone, indicating a high risk of financial distress. The company exhibits significant weaknesses in liquidity, profitability, asset management, and leverage ratio. Low liquidity ratios indicate an imminent risk of defaulting on short-term obligations, while negative or extremely low profitability ratios highlight the challenges in generating sustainable earnings. Inefficient asset utilization and heavy reliance on debt financing further contribute to the risk of financial distress.

Companies should take immediate action to address these concerns and implement strategies to improve their financial health. S-steps, such as cost reduction, enhancing operational efficiency, optimizing inventory management, and exploring alternative financing options, are crucial for a company's survival. Professional financial guidance and expert evaluation are recommended to devise a comprehensive turnaround plan and to identify the most viable solutions to overcome financial distress.

Suggestions

1. Companies with a safe Altman Z-score are positive signals for stakeholders, including investors, creditors, and employees. It implies that the company has a strong ability to meet its financial obligations, generate profits, and sustain its operations in the long term.

2. This suggestion provides confidence to investors and lenders, indicating that the company is financially stable and a reliable investment or credit prospect. I also imply that the company may enjoy easier access to capital and credit in favorable terms.

3. When a company has a grey Altman z score, the study suggests investors and creditors, while making decisions in investing in shares of a particular company to look at the Altman z score of the company over multiple periods, assess whether the company's financial condition has been improving or deteriorating over time.

4. Evaluate the company's core business model, products or services, market position, and competitive advantages. Whether the company has the potential to overcome financial difficulties and regain stability.

5. It is crucial to emphasize that investing in or extending credit to a company with a grey Altman Z-score involves inherent risks. I am advisable to consult with financial advisors, conduct thorough due diligence, and carefully evaluate all available information before making decisions.

6. Companies having distress Altman z score, It is essential to note that investing in or extending credit to a company with a distress Altman Z-Score involves significant risks. It is advisable for investors, creditors, and others to seek professional advice, conduct thorough due diligence, and carefully evaluate all available information before making any decisions.

VII. CONCLUSION

Detecting fraud and identifying manipulated financial statements is a critical area of study for

investors, auditors, and regulators. The ability to uncover fraudulent activities is essential to maintaining market integrity, protecting investors, and ensuring the accuracy and reliability of financial information. Throughout the study, several key insights and techniques have emerged to enhance our understanding of fraud detection using the Altman Z-score tool and continually improving practices, as well as safeguarding the integrity of financial reporting and promoting investor confidence in the marketplace.

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