BANKRUPTCY PREDICTION FOR STEEL INDUSTRY IN INDIA USING ALTMAN Z SCORE MODEL

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ABSTRACT

The stakeholders of the company especially the shareholders and creditors often want to know financial soundness of the company in short and long term and to take the necessary steps at present accordingly so as to maintain an ideal situation. To support the same, a business organisation should have certain analytical models and using it

for predicting unwanted financial and business risks or bankruptcy. In this back ground the Researchers have made an attempt to predict the bankruptcy for the Indian Steel Industry by considering two objectives. They are to identify the company's degree of closeness to bankruptcy and to deduce the various parameters involved in influencing the inferred values to a large extent. This study has been undertaken for ten sample companies form Indian steel industry by applying Altman Z score model which consists of working capital / total assets ratio, retained earnings/ total assets ratio, profit before interest and tax / total assets ratio, market value of equity / debt book value ratio and sales / total assets ratio. It was found that only two of ten companies were in the safe zone that too they just entered the safe zone during the FY 2017-18. The two large scale companies which are the oldest in the industry are also in distress zone but one can see the rise of JSW steel which will soon overtake the two big giants. S.A.L Steel and Hisar Metal Industries are the two safe companies, though they don't work at a scale as large as other but still it is able to look after its liquidity and profitability which drives the company towards growth.

Key words: Welfare Measures, Manufacturing Industry, Amenities Satisfaction, Environment Satisfaction and Monetary Satisfaction.

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1. INTRODUCTION

Every business is carried out with an objective of profit maximisation in turn maximising the wealth of the company. So in that sense, it is needed that company's financial position is to be well and good. Financial position of a company can be measured and understood through its financial statements as the financial statement shows the basic data for financial performance and financial position. In order to know and also to have a control on the performance and position, such financial performance and financial position should be analysed from time to time. Financial analysis refers to an assessment of viability, stability and profitability of the business. Financial evaluation or analysis of a company provides on how the firm has performed in the past and what is its current financial position. It shows the financial strengths and weakness of the company. The main purpose of financial evaluation is to find and establish relationship between component parts of financial statements to get a better understanding of the firm's position and performance.

2. STATEMENT OF THE PROBLEM

The chance and time of default of companies cannot be identified easily which often causes a situation of insolvency or liquidation of assets. The stakeholders of the company often want to know financial soundness of the company in short and long term and to take the necessary steps at present accordingly so as to maintain an ideal situation. To support the same, a business organisation should have certain analytical models and using it for predicting unwanted financial and business risks or bankruptcy. The major problem is that during the course of the business, periodical checks aren't enough to predict the long term consequences but most of the companies still rely on simple checks and certain qualitative aspects only. But bankruptcy depends on various factors which are ignored, gets accumulated and affects the operations of the company adversely. Hence, the problem of facing bankruptcy should be estimated by

building a model to predict bankruptcy so as to prevent any corporate failure in its preliminary stage itself.

3. OBJECTIVES OF THE STUDY

- To find out the bankruptcy status of the steel industry in terms of Altman Z score
- To identify the companies degree of closeness to bankruptcy
- To deduce the various parameters involved in influencing the inferred values to a large extent.

4. METHODOLOGY AND SAMPLING

In order to study the bankruptcy of the Indian Steel industry, a sample of 10 companies has been considered. They are a mix of large, medium and small scale enterprises. The data have been collected from the annual reports (Financial Statements) of the selected companies for a period of 5 years (i.e for 2018, 2017, 2016, 2015 and 2014). The selection of companies for this research is based on Performance of the company, Market capitalisation, Depending on the number of years of existence and Availability of data. There are about in total 50 steel companies listed on NSE and BSE including all the large, medium and small steel companies. Therefore, the sample of 10 companies about 20% of the population which is a good ratio to depict the whole population. Hence, it is assumed that these companies will act as an ideal sample to depict the whole population and will provide appropriate results. Dependent on the above factors, the companies on which research is conducted are furnished in Table1.

Table 1 Sample Companies for the Study

S. No	Name of the Companies
1	Bhushan Steel
2	JSW Steel
3	Electrosteel Steels
4	Monnet Ispat
5	Tata Steel
6	Steel authority of India (SAIL)
7	SAL Steel
8	Jindal Steel and Power
9	Hissar Metal Industries
10	Visa Steel

5. TOOLS FOR ANALYSIS

There are several analytical models existing for predicting bankruptcy but Altman Z score model is considered to be the most accurate and appropriate. Altman was the first one to develop a statistical tool which is able to predict the bankruptcy up to an extent of 95% a year prior to their downfall. Therefore, to achieve the objectives of the study, the model used in this research have been well chosen according to the need and their ability for exact or the best approximate prediction. The model used is Altman Z Score for predicting the financial distress position of the companies under study

It is a multivariate discriminate analysis (MDA), which uses the financial statements for calculating the values necessary for accurate forecasting. The model's formula is described as:

$$\text{Z-score} = 1.21(X1) + 1.41 (X2) + 3.3 (X3) + 0.6 (X4) + 0.999 (X5)$$

Where,

X1 = working capital / total assets

X2 = retained earnings/ total assets

X3 = profit before interest and tax / total assets

X4 = market value of equity / debt book value

X5 = sales / total assets

All the ratios having certain significance have been multiplied with a number which has been deduced strategically and arithmetically by Dr. Edward Altman, after whom the formula is named. Each ratio and its relevance for the company's bankruptcy analysis are explained below.

X1 = Working capital / Total assets

It gives the relationship between the company's current liabilities and total assets. It measures the liquidity position of the company as it shows how much current liabilities can be covered by total assets. The higher the ratio, it's better for the company as they will have high liquidity and will be in a safer position as compared to the ones with low ratio. A low ratio shows that total assets are not enough to cover the current liabilities; therefore, the company's liquidity is in danger.

X2 = Retained earnings/ Total assets

This ratio measures the extent up to which the company is dependent on debt or leverage for financing its resources. The ratio signifies the profitability of a company as a proportion of total assets. The more the ratio, it shows the company's higher dependency on borrowings for funding their resources. If it has a high ratio, then the company funds a large part of its resources through retained earnings.

X3 = Profit before interest and tax / Total assets

This ratio computes the ability of the company to generate profits without accounting for interest and tax as a ratio of total assets. It measures the effectiveness of usage of assets for generating profits. The return on total assets provides information on the money generated from each rupee being invested. If the company is able to generate a new rupee for each rupee invested, then return on total assets is said to be one or 100 percent.

X4 = Market value of equity / Total liabilities

This ratio measures the market value of the company as a ratio of total liabilities. It shows the reaction of the market with respect to company's financial position. Company's survival depends on its market capitalization to a large extent. It calculates the extent to which the market value of equity can drop before the liabilities exceed its assets. This ratio is of importance, as it gives a reflection of the general customer and the investors and does not depend purely on fundamentals.

X5 = Sales / Total assets

It is also referred to as asset turnover ratio, since it measures the ability of the company to generate sales for each rupee of asset invested. It depicts the efficiency of the company in utilizing its assets for generating revenue. The higher the ratio, the better it is for the company and shows a more stable nature. The lower the ratio, the company finds itself in danger as it is not able to make appropriate use of its assets for generating sales.

Categories of companies based on Z Score

On the basis of Z score, the companies can be classified into three categories. The classifications are as follows.

Figure 1 Z Score**SOLVENCY POSITION OF THE SAMPLE COMPANIES**

The solvency position of a business reflects upon its capacity to pay off its financial obligations or debt and its ability to focus on long term financial growth. It is imperative to calculate the company's solvency position separately because simply interpreting the profitability and assuming the solvency position can give misleading results.

Z SCORE ANALYSIS OF BHUSHAN STEEL

The following table and graph provides the calculated components of Altman Z Score model and the change in the Z score value over the period of five years (2014 – 2018).

Table 2 Z score analysis for Bhushan steel

Particulars	2014	2015	2016	2017	2018
X1= W.C/ Total assets	-0.046	-0.008	-0.063	0.360	1.460
X2= R.E/ Total assets	0.098	0.094	0.093	-0.039	-0.683
X3= EBIT/ Total assets	0.034	0.024	0.019	0.022	0.013
X4= Market cap. / Total liabilities	0.245	0.033	0.016	0.021	0.014
X5= Net sales/ Total assets	0.189	0.201	0.218	0.249	0.437
Z Score	0.532	0.421	0.344	0.709	1.284
Average Z score	0.658				

Source: Computed from annual report of Bhushan Steel Ltd.

The table 2 shows that, Bhushan Steel falls under the distress zone as per the Z score value. According to the fig 1, it can be understood that, the company has not even crossed the grey zone line over the past five years. This can be due to high reliance on debt. Though the company is able to make good sales, the debt component is what puts the company into danger. In the recent years, one can see that the company does not have positive retained earnings to total assets ratio, this is because of the negative value of retained earnings. The company is not able to reserve the earnings for its future use. But, the company has shown significant growth in the FY 2017-18, because of which the Z score value also increased from 0.709 to 1.284. The company though is in danger, if it is able to reduce its total liabilities and simultaneously is able to save an amount for the developmental use, the company may survive for further few years as it was able to do for the past five years even after such a low Z score.

Figure 2 Solvency test of Bhushan steel

Z SCORE ANALYSIS OF ELECTROSTEEL STEEL

The following table and graph provides the calculated components of Altman Z Score model and the change in the Z score value over the period of last five years.

Table 3 Z score analysis for Electrosteel steel

Particulars	2014	2015	2016	2017	2018
X1= W.C/ Total assets	-0.067	0.122	-0.235	-0.418	1.609
X2= R.E/ Total assets	-0.064	-0.088	-0.114	-0.232	-1.149
X3= EBIT/ Total assets	-0.010	-0.013	-0.006	-0.026	-0.014
X4= Market cap. / Total liabilities	0.088	0.078	0.063	0.079	0.040
X5= Net sales/ Total assets	0.045	0.137	0.191	0.213	0.443
Z Score	-0.105	0.164	-0.233	-0.651	0.744
Average Z score	-0.016				

Source: Computed from annual report of Electrosteel steel Ltd.

From the table 3 and fig 2, one can make out that Electrosteel is in danger of going bankrupt. Its Z score value shows that it falls under a high risk zone. Though the company's situation has improved and the Z score has increased from a negative value to a positive value of 0.744 in 2018. The company operates at a high risk and can go bankrupt any time. The situation can be handled to an extent if the company starts making profits. Currently, the company is running under loss and also a high amount of liabilities. The return on investments of the company is negative which can be a major reason for stagnation of growth of the company and also its downfall. Under the study period, the average Z score for the company -0.16, which indicates a huge amount of danger? The company has been operating at its low from the past few years but soon some action will have to be taken to avoid the situation of bankruptcy. The company should continue the same policies that it followed in 2017-18 because the Z score value increased to a great extent. It could have been due to the increase in revenue and also working capital.

Figure 3 Solvency test of Electrosteel steel

Z SCORE ANALYSIS OF JSW STEEL

The following table and graph provides the calculated components of Altman Z Score model and the change in the Z score value over the period of five years respectively.

Table 4 Z score analysis for JSW steel

Particulars	2014	2015	2016	2017	2018
X1= W.C/ Total assets	-0.083	-0.019	-0.112	-0.103	-0.070
X2= R.E/ Total assets	0.149	0.139	0.145	0.170	0.209
X3= EBIT/ Total assets	0.093	0.088	0.049	0.108	0.127
X4= Market cap. / Total liabilities	0.567	0.441	0.615	0.796	1.203
X5= Net sales/ Total assets	0.662	0.615	0.511	0.703	0.774
Z Score	1.420	1.341	1.110	1.654	2.125
Average Z score	1.530				

Source: Computed from annual report of JSW Steel Ltd.

JSW steel falls between the grey zone and Safe zone. This depicts that the company though has crossed the distress zone and is not in danger but still it is not yet completely safe. After years of efforts, JSW steel managed to sustain the company and now it has started to grow. The company from the past two years have been incurring increasing profits along with significant increase in sales. Though the Working capital to total assets ratio improved during the FY 2017-18 to -0.070 from -0.103 in FY 2016-17, it still remains negative which could possibly be the reason for being in distress zone. The Z score value declined till the FY 2016 up to 1.110 but it started to regain its value and increased to 1.654 in during the FY 2016-17 and then further up to 2.125 by the FY 2018 ending. The average Z score of the company during the study period was 1.530. The retained earnings to total assets ratio showed a jump from 0.170 to 0.209 and other financial ratios also improved leading to faster growth in the company.

Figure 4 Solvency test of JSW steel

MONNET ISPAT Z SCORE ANALYSIS

The following table and graph provides the calculated components of Altman Z Score model and the change in the Z score value over the period of five years respectively.

Table 5 Z score analysis for Monnet Ispat

Particulars	2014	2015	2016	2017	2018
X1= W.C/ Total assets	-0.003	-0.157	-0.135	0.440	-0.626
X2= R.E/ Total assets	0.154	0.077	0.085	0.286	0.547
X3= EBIT/ Total assets	0.031	0.008	-0.064	-0.190	-0.034
X4= Market cap. / Total liabilities	0.074	0.036	0.048	0.067	0.027
X5= Net sales/ Total assets	0.212	0.289	0.180	0.151	0.173
Z Score	0.573	0.254	-0.047	0.492	0.093
Average Z score	0.273				

Source: Computed from annual report of Monnet Ispat Ltd.

Monnet Ispat shows a highly fluctuating Z score, ranging between -0.04 to 0.57. The working capital to total assets ratio worsened and fell from 0.440 in the FY 2017 to -0.626 during the FY 2017-18. The retained earnings to total assets ratio and also EBIT to total assets ratio got better than it was in 2017. The overall position has deteriorated and the company has not been able to manage its liabilities. There was a fall in the ratio of market value of equity to total liabilities from 0.067 to 0.027 during the FY 2017-18 because of the major decline in the share price of the company. The net sales to total assets improved in the FY 2018 to 0.173 from 0.151 in the year 2017. Initially, it was struck by the general industry issues and the sales declined. The ratio was also 0.289 in the FY 2014-15 which dropped to 0.180 in the FY 2015-16. The Z score reliability can also be depicted here since the Z score since 2014 remained low and the company straight away falls into the distress zone.

Figure 5 Solvency test of Monnet Ispat

TATA STEEL Z SCORE ANALYSIS

The following table and graph provides the calculated components of Altman Z Score model and the change in the Z score value over the period of five years.

Table 6 Z score analysis for Tata Steel

Particulars	2014	2015	2016	2017	2018
X1= W.C/ Total assets	-0.066	-0.041	-0.054	-0.027	0.072
X2= R.E/ Total assets	0.099	0.100	0.094	0.110	0.149
X3= EBIT/ Total assets	0.105	0.074	0.074	0.078	0.102
X4= Market cap. / Total liabilities	0.766	0.627	0.586	0.750	1.121
X5= Net sales/ Total assets	0.376	0.361	0.310	0.478	0.484
Z Score	1.241	1.073	0.974	1.309	1.790
Average Z score	1.278				

Source: Computed from annual report of Tata Steel Ltd.

Tata Steel which is considered one of the oldest companies in the industry and is a strong competitor to each of the company both in and outside the industry is also in the distress zone. Till the FY 2016, Tata steel experienced some disruptions in its operation but soon they stabilised by FY 2017. The ratio of EBIT to total assets which is important in influencing the Z score went through an increase from 0.074 in the FY 2016 to 0.078 in the FY 2017 and then finally to 0.102 during the FY 2017-18. The Z score value also declined in the FY 2016 but after that the Z score line had a positive slope. It increased from 0.974 at the end of FY 2016 to 1.309 by the FY 2017 and further increased to 1.790 in the FY 2017-18. The working capital to total assets ratio was negative till the year 2017 but the company has worked on its liquidity, since the ratio rose from -0.027 to 0.072 by the end of the FY 2017-18. Market value of equity to total liabilities is another point of variation, the ratio has improved a lot over the past two years from 0.586 in the FY 2016 to 0.750 by the end of the FY 2017 and then the share price increased causing much increase in the ratio to 1.121.

Figure 6 Solvency test of Tata steel

Z SCORE ANALYSIS OF SAIL

The following table and graph provides the calculated components of Altman Z Score model and the change in the Z score value over the period of five years.

Table 7 Z score analysis for SAIL

Particulars	2014	2015	2016	2017	2018
X1= W.C/ Total assets	-0.016	-0.060	-0.162	-0.195	-0.121
X2= R.E/ Total assets	0.407	0.384	0.340	0.278	0.254
X3= EBIT/ Total assets	0.035	0.038	-0.052	-0.020	0.018
X4= Market cap. / Total liabilities	0.598	0.499	0.302	0.359	0.369
X5= Net sales/ Total assets	0.508	0.460	0.398	0.467	0.516
Z Score	1.534	1.351	0.689	0.773	1.007
Average Z score	1.071				

Source: Computed from annual report of SAIL

SAIL, yet another giant mostly run by the government of India is one of the most reputed companies for steel production and supply but its characteristics don't match with the Z score. Its average Z score under the study period is 1.071 which depicts that the company is in distress zone and close to insolvency if any suitable measures are not taken. The working capital to total assets ratio increased from -0.195 in the FF 2017 to -0.121 by the FY 2018 but still is negative in value. The Retained earnings to total assets ratio also declined from 0.278 during the FY 2016-17 to 0.254 in the FY 2017-18, which shows that the company make more use of debt to fund its assets than reinvesting its earned profits. The EBIT to total assets ratio was negative in the FY 2016 and FY 2017, which improved in 2018 but still the slight increase to 0.018 is not enough to bring the company to the safe zone.

Figure 7 Solvency test of SAIL

Z SCORE ANALYSIS OF S.A.L STEEL

The following table and graph provides the calculated components of Altman Z Score model and the change in the Z score value over the period of five years.

Table 8 Z score analysis for S.A.L Steel

Particulars	2014	2015	2016	2017	2018
X1= W.C/ Total assets	0.431	-0.740	-0.813	-0.663	0.103
X2= R.E/ Total assets	-0.125	-0.444	-0.627	-0.518	-0.419
X3= EBIT/ Total assets	-0.036	-0.102	-0.065	0.026	0.231
X4= Market cap. / Total liabilities	0.372	0.490	0.849	1.323	2.245
X5= Net sales/ Total assets	0.794	1.266	1.349	1.245	1.804
Z Score	1.239	-0.287	-0.211	0.606	3.450
Average Z score	0.959				

Source: Computed from annual report of S.A.L Steel Ltd.

As of 2018, S.A.L Steel is in the safe zone with a Z score of 3.45. The company experienced a crisis in 2015 which had a lasting impact till the FY 2016 after which the company depicted immense growth. The working capital to total assets ratio increased from -0.663 in the FY 2016-17 to 0.103 by the FY 2017-18. The other ratios like retained earnings to total assets also showed improvement but still were negative, the ratio increased from -0.627 in the FY 2015-16 to -0.518 in the FY 2016-17 and then to -0.419 by the end of the FY 2017-18. The jump of Z score from 0.606 to 3.450 clearly shows the company's successful future and is safe from the fear of insolvency. FY 2015 and 2016 were the most dreadful years for S.A.L Steel, it might have been because of the influence from the hike in the steel prices followed by low demand in those years.

Figure 8 Solvency test of S.A.L Steel

JINDAL STEEL AND POWER Z SCORE ANALYSIS

The following table and graph provides the calculated components of Altman Z Score model.

Table 9 Z score analysis for Jindal steel and power

Particulars	2014	2015	2016	2017	2018
X1= W.C/ Total assets	-0.092	-0.035	-0.153	-0.094	-0.098
X2= R.E/ Total assets	0.257	0.243	0.219	0.340	0.331
X3= EBIT/ Total assets	0.058	0.031	0.022	0.014	0.029
X4= Market cap. / Total liabilities	0.809	0.426	0.162	0.289	0.569
X5= Net sales/ Total assets	0.315	0.290	0.276	0.258	0.292
Z Score	1.242	0.945	0.568	0.840	1.073
Average Z score	0.934				

Source: Computed from annual report of Jindal Steel and Power Ltd.

The Z score line for Jindal steel and power lies below the grey zone, that mean the company is under high risk of insolvency. The Z score value increased from 0.68 to 0.840 in FY 2017 and then to 1.073 in FY 2018. The average Z score was 0.934. The working capital to total assets ratio declined from -0.094 in the FY 2016-17 to -0.098 by the end of the FY2017-18. Retained earnings to total assets ratio also decreased from 0.340 during the FY 2016-17 to 0.331 by the FY 2017-18. Market value of equity to total liabilities ratio increased by a large number because of the surge in the share price as well as due to the new shares issued. The ratio hiked from 0.289 in the FY 2016-17 to 0.569 by the FY 2017-18. Therefore, the Z score line also shows that in 2016 there was a fall in the value but after which in 2017 it took an upward trend.

Figure 9 Solvency test of Jindal steel and power

HISAR METAL INDUSTRIES Z SCORE ANALYSIS

The following table and graph provides the calculated components of Altman Z Score model.

Table 10 Z score analysis for Hisar metal industries

Particulars	2014	2015	2016	2017	2018
X1= W.C/ Total assets	0.033	0.016	0.019	0.080	0.093
X2= R.E/ Total assets	0.086	0.090	0.104	0.111	0.132
X3= EBIT/ Total assets	0.093	0.104	0.087	0.097	0.127
X4= Market cap. / Total liabilities	0.067	0.071	0.090	0.367	0.419
X5= Net sales/ Total assets	2.418	2.385	2.199	1.849	2.215
Z Score	2.923	2.915	2.708	2.641	3.182
Average Z score	2.874				

Source: Computed from annual report of Hisar Steel Ltd.

Hisar metal industries have been between the grey zone and safe zone from FY2014 to FY 2017 and now it is completely free from any danger or risk of insolvency. After experiencing a trivial drop in Z score value of 2.708 in FY2016 again cutback to 2.641 in FY 2017, Hisar metal industries recovered from the loss and directly jumped to the safe zone with a Z score value of 3.182. The EBIT to total assets ratio dropped in the year 2016 from 0.104 to 0.087. Net sales to total assets ratio also dropped in the FY 2016 from 2.385 to 2.199 and then to 1.849 by the FY 2016-17. Thereafter during the FY 2017-18, it increased to 2.215. As long as it is able to upgrade its resources by reinvesting its profits and avoid relying on debt will make the company and its financials strong. Though they were in the grey zone, they still had to worry about any crisis affecting them negatively but now they are secure and strong enough to face any adversities without a direct risk of bankruptcy.

Figure 10 Solvency test of Hisar metal industries

VISA STEEL Z SCORE ANALYSIS

The following table and graph provides the calculated components of Altman Z Score model and the change in the Z score value over the period of five years.

Table 11 Z score analysis for Visa steel

Particulars	2014	2015	2016	2017	2018
X1= W.C/ Total assets	0.272	0.272	0.418	-0.053	-0.727
X2= R.E/ Total assets	-0.039	-0.039	-0.194	-0.357	-0.432
X3= EBIT/ Total assets	-0.008	-0.008	-0.003	-0.027	-0.033
X4= Market cap. / Total liabilities	0.444	0.444	0.364	0.514	0.369
X5= Net sales/ Total assets	0.239	0.239	0.133	0.385	0.459
Z Score	0.750	0.750	0.572	0.040	-0.907
Average Z score	0.241				

Source: Computed from annual report of Visa Steel Ltd.

Visa Steel is highly in danger and is near closure because of such a low Z score, which proves that its assets would not support for long and it might have to file for bankruptcy. The company is deteriorating at a fast pace. Its Z score value is declining each year from 0.750 in FY2015 to 0.572 in FY 2016 to 0.04 in FY2017 and then furthermore to -0.907 in FY 2018. The working capital to total assets kept declining for all the years which aggravated the issue, it dropped from 0.418 in the FY 2015-16 to -0.053 during the FY 2016-17 and then further down to -0.727 in the FY 2017-18. EBIT to total assets which is the most influential financial ratio in terms of proximity to bankruptcy, the ratio fell drastically. In the FY 2015-16, it was -0.003 which dropped to -0.027 in the FY 2016-17 and then to -0.033 by the end of the FY 2017-18.

Figure 11 Solvency test of Visa steel

6. FINDINGS OF THE STUDY

- It was found that a common factor affecting the stability of most of the sample companies was deteriorating working capital and putting the liquidity position at stake. After testing hypotheses it became clearer since there is no significant difference in working capital to total assets ratio between the companies and within the companies during the study period.
- It was observed that the different variables more or less remained same throughout the years and there was negligible change be it positive or negative within the companies. The retained earnings to total assets ratio also doesn't show any significant difference within the companies during the study period and the same pattern was followed by the other ratios except for net sales to total which showed significant difference.
- It was revealed that except for working capital to total assets ratio was the only one which did not show significant difference between the sample companies as mentioned above, all the other ratios which were applied showed significant difference between the companies. This was because different companies had separate and distinct reasons for their failure and success.
- It was found that only two of 10 companies were in the safe zone that too they just entered the safe zone during the FY 2017-18. The two large scale companies which are the oldest in the industry are also in distress zone but we can see the rise of JSW steel which will soon overtake the two big giants. S.A.L Steel and Hisar metal industries are the two safe companies, though they don't work at a scale as large as other but still it is able to look after its liquidity and profitability which drives the company towards growth.

7. CONCLUSION

The study tells about the financial health of the sample companies belonging to the steel industry. The application of Altman Z score reveal the true position of the companies and also give a glimpse of the areas of default for each company. But, along with the financial aspects there are certain qualitative aspects connected which also have an influence of the financial health of the company. The study gives insights on the financial information needed to make judgements about the company's performance and is an alarm for the companies which are found to be in distress zone according to the Z score analysis. Based on the solvency test, each company's management can take charge and design strategies specific for its use so as to build up the business which somehow had taken a downturn.

Certain patterns can be formed from the financial ratios of the distinct companies, which helped in gaining knowledge on the aspects which needs improvement for fostering growth in the company and the industry as a whole. According to the findings, we can conclude that a large amount of debt both short term and long term causes several imbalances in the company's financial and puts the future in jeopardy. Working capital management is a vital area on which each and every company should focus. It refers to efficiently making use of the current assets and current liabilities and striking the right balance between the two. It is done so because many companies suffer from a large proportion of cash being spent on meeting the debt obligations, if the working capital is looked after then at least the short term operating cost and the short term debt will be maintained.

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