Financial Analysis of Infrastructre Companies at the Time of Covid-19

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ABSTRACT

The objective of this paper is to apply ALTMAN'S Z SCORE in order to predict the bankruptcy of the selected infrastructure company. The study ranges from the period of 5 years i.e., 2015-2019 for 6 selected companies and also how these companies can revive from the pandemic. By applying Z score we can conclude that the investors, stakeholders or shareholders could use this model in finding out the financial positions of the company. As per this model in our case most companies are going to bankruptcy except one or two. Further the companies should regularly calculate Z score for making strategies to improve their financial positions.

Keywords

Financial analysis, Z Score, Covid-19

INTRODUCTION

Infrastructure sector is one of the major key drivers for an economy. This sector is highly responsible in propelling India's overall development as well as enjoys intense focus from government for initiating policies. The government has allowed the private players to invest in this sector in order have an overall development in an economy.

The year 2020 is been one of the worse for Indian economy because of the coronavirus pandemic which led to the crisis in many sectors. One of the sectors which has been impacted the most is the infrastructure sector as the government imposed the lockdown due to which the infrastructure companies has go through the heavy losses as the projects were not giving the enough returns to pay back the debts. As the government imposes the lockdown nationwide many migrant workers went back to their homes due to which many projects are on hold and even the revenue earned by collecting through tolls have also one major reasons for incurring losses for the companies.

Financial distress or bankruptcy in real terms means inability to pay debts or cannot able to generate revenue or income as they could not their financial obligation. When the companies are facing financial crisis due to which many shareholders are in losses because of which many investors are therefore in the positions to find out the financial positions of the company in order to check out whether the company would go into bankruptcy in near future. In order to find out the financial positions of the company many investors go for ALTMAN Z SCORE which according to them is the best options for financial analysis.

LITERATURE REVIEW

1.   Financial analysis is one of the tools to find out where a company stands in the market whether it is in losses or not. This research paper deals with financial analysis of an infrastructure/transport companies based on Z score. It is also known as Altman's Z score which is the output of credit strength that gauges the publicly-traded company's likelihood bankruptcy. It has been used since 1960 regarding the corporate failure and the complex procedure have been developed the way back then in comparison to which the original idea of Altman and Beaver seems to be more powerful.

2.   As we know that in present scenario many sectors are facing problem due to COVID-19. One of the sectors which has impacted a lot is infrastructure wherein it is difficult for the companies to complete the projects on time.

3. Initially Beaver in 1966 come out with univariate analysis wherein he established the single ratio in prediction of bankruptcy in span of 5 years. He then later agreed upon that in spite of laying down number of ratios we can rather take a single ratio in predicting and laid the foundation of multivariate analysis model which consists of number of variables in predicting the bankruptcy of the company.

4. Altman Z Score was published in the year 1968 by Professor Edward Altman which tries to measures the company's financial health. He took 66 companies listed on the stock exchange wherein out of this half of the companies was performing good wherein other half was going into bankruptcy. He then observed several ratios based on the data given and come with conclusion that in predicting the risk of the corporate failure within the span of 2 years with 72% accuracy and false-positively 6%.

5. Aditi Boraste and Prof R.V DEVALKAR "Financial Performance of Construction Companies": This paper focuses on financial ratios for analysing the financial performances of the infrastructure companies. It also explains the ways in which the ratio analysis provides assistance to the companies for long range planning, budgeting and asset management to strengthen the financial performance of the company.

6. According to EH Feroz et al "Financial Analysis: A data envelopment approach": This paper focuses on Data Envelopment Approach which determines the managerial or operational efficiency of a firm. DEA can be applied to revenue generating organisation by converting their financial performance to technically efficiency equipment. One such approach is to disaggregate the Return on Equity (i.e., Du Pont Analysis) measuring the relationship from National Income to Equity Shares.

7. According to Rohit Bansal "A comparative financial study: Evidences from selected Retail Companies": This paper consists the financial analysis of the retail companies consisting of 15 ratios analysis for past 5 years.

8. According to Gnyana Ranjan Bal "Prediction of Financial Distress using Altman Z Score: A study of select FMCG companies": This paper predicted Altman Z score of the five selected FMCG companies from the year 2011-2015. In case of the study the Z score off all the selected companies sounds financial positions and having the less chance of going into bankruptcy.

9. According to M.S Pratibha Raj et al "Analysis of Selected Automobile Companies in India using Z score": This paper consists the financial analysis on automobile industry through Z Score. It concludes that this industry is doing pretty well.

The study done by the different authors is on different sectors and not on this sector therefore this study was undertaken.

RESEARCH OBJECTIVE
The main objective of the study
1. To check whether the company will go into the bankruptcy in the near future through ALTMAN Z SCORE.
2. To help companies to work on their core business and to create value for the investors.
3. To help the investors in decision making.
4. How does COVID-19 impact these companies?

RESEARCH METHODOLOGY
4.1 Data and Methodology
The research is based on the secondary data extracted from balance sheets, annual reports for the respective companies. The study is done on the following companies:
1. L&T Infrastructure Development Private Limited
2. Hindustan Construction Companies
3. ARSS Infrastructure Limited
4. Reliance Infrastructure Limited
5. IRB Infrastructure Developers
6. GMR Infrastructure Limited

These companies have been selected on the bases of their revenue earned from the projects. As these

companies' major revenue comes from the projects they invest in or through toll collections. The study is done on the time span of 5 years (2015-2019).

To check the financial position of the company using ALTMAN Z SCORE. It is method for determining the credit strength and whether the company is filing for bankruptcy in future. This can be calculated by the following ratios:

Z SCORE = X1+X2+X3+X4+X5

Z Score <1.81 then the company is in financial distress.

Z Score between 1.81 and 2.99 represents cautious zone.

Z score > 2.99 then the company is safe.

The data has been taken out from the balance sheets, profit and loss account and also from the cash flow statements of the selected companies for the above-mentioned period.

TABLE 1 Variable Description

VARIABLES	FORMULA	DESCRIPTION
X1	(NET WORKING CAPITAL/TOTAL ASSET) *1.2	It determines the short-term financial obligation of a company. A positive working capital signifies it still can meet its short-term financial obligation and still makes funds available to invest and grow. A negative working capital means it is difficult to meet the short-term financial obligation through funds and had to depend on borrowings.
X2	(Retained Earnings/Total Asset) *1.6	It is the amount of retained earnings or losses of a company. If it is negative than the company funding done through borrowings rather than from retained earnings. If it is positive then the company has enough retained earnings to funds its expenditure
X3	(EBIT/Total Asset) *3.3	It measures the profitability. how much a company can generates its revenue through operations in order to stay profitable.
X4	(Market Capitalization/Total Liabilities) *0.6	The market value is decided by its value of equity. It is obtained by multiplying number of outstanding shares into current prices of the stocks. This ratio decreases when the market value of the company declines when it declares bankruptcy before the value of

|		liabilities increase than asset in the balance sheet and vice versa.			profitability of the company as huge investment is made in order to increase sales
X5	(Sales/Total Asset) *1	It shows how management is effectively utilizing their assets to generate revenue. A high sale to the asset ratio means the company requires a small investment to generate sales which increase profitability of the company wherein a negative growth means decreases in the			

ANALYSIS AND DISSCUSION

1.1 LARSEN AND TURBO INFRASTRUCTURE DEVELOPMENT PRIVATE LIMITED
Table 2: Z Score Of L&T IDPL

PARTICULARS/YEAR	2019	2018	2017	2016	2015
TOTAL ASSET	4188.90	5203.41	5809.89	6067.52	4690.67
TOTAL LIABILITIES	4188.90	5203.41	5809.89	6067.52	4690.67
CURRENT ASSET	4076.20	5083.11	2332.26	1077.51	481.07
CURRENT LIABILITIES	1685.32	2570.74	653.89	768.19	1101.16
NET WORKING CAPITAL	2390.88	2512.37	1678.37	309.32	-620.09
SALES	257.31	486.48	571.2	1013.50	1583.18
TOTAL INCOME	307.14	521.99	572.11	1024.46	1673.27

TOTAL EXPENSES	224.24	353.2	571.37	1008.47	1170.62
EBITDA	82.9	168.79	0.74	15.99	502.65
DEPRECITION	4.5	4.39	3.94	4.71	4.33
EBIT	78.4	164.4	-3.2	11.28	498.32
MARKET CAPITLIZATION	115329.73				
RETAINED EARNINGS	307.09	233.13	399.95	0	237.6
(NET WORKING CAPITAL/TOTAL ASSET) *1.2	0.6849	0.5793	0.3466	0.0602	-0.1226
(RETAINED EARNINGS/TOTAL ASSET) *1.6	0.1172	0.0716	0.1101	0	0.0626
(EBIT/TOTAL ASSET) *3.3	0.0617	0.1042	-0.00182	0.0060	0.2710
(MARKET CAPITILIZATION/TOTAL LIABLITIES) *0.6	16.5193	13.2985	11.9103	11.2309	11.4046
(SALES/TOTAL ASSET) *1	0.0614	0.0934	0.0983	0.1644	0.2609
Z SCORE	17.4447	14.1474	12.4637	11.4618	11.8766
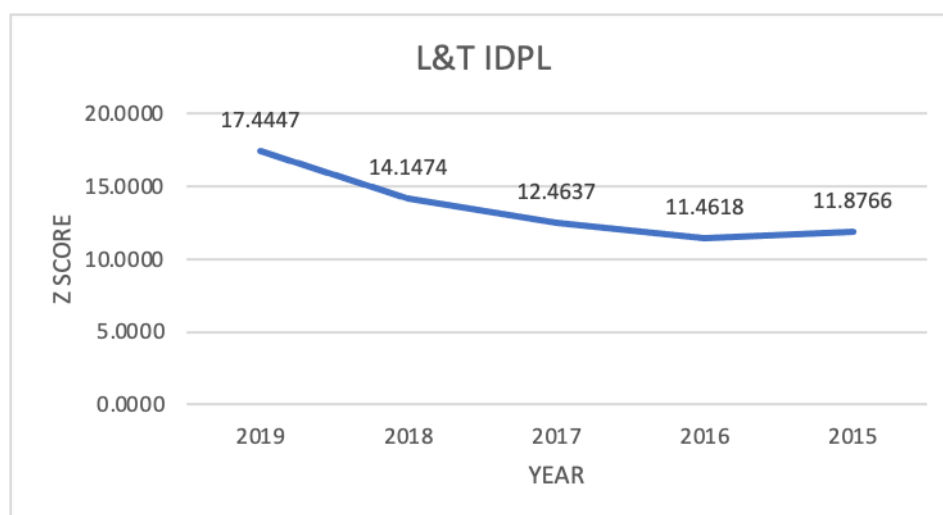
L&T IDPL being one of the pioneers in private public partnership wherein it deals with projects of both public and private companies. Looking at the sales of the company it is continuously decreasing which as effected its sales to total asset ratio clearly indicating a decrease in the profitability of the company. The net profit with company indicates that the performance of the company is not up to the mark in comparison with the last year but looking at 2017 the company was in the losses. It is because in 2017 the income earned and expenses made were almost same wherein looking at the overall scenario the income earned and the expenses made are constantly

decreasing which has affected the EBIT to total asset ratio. This ratio clearly indicates that the company is not going into profitability. The net working capital to the total asset has been increasing which clearly indicates that the it has funds to recover from short term financial obligation rather than totally depending on the borrowings. Looking at the retained earnings t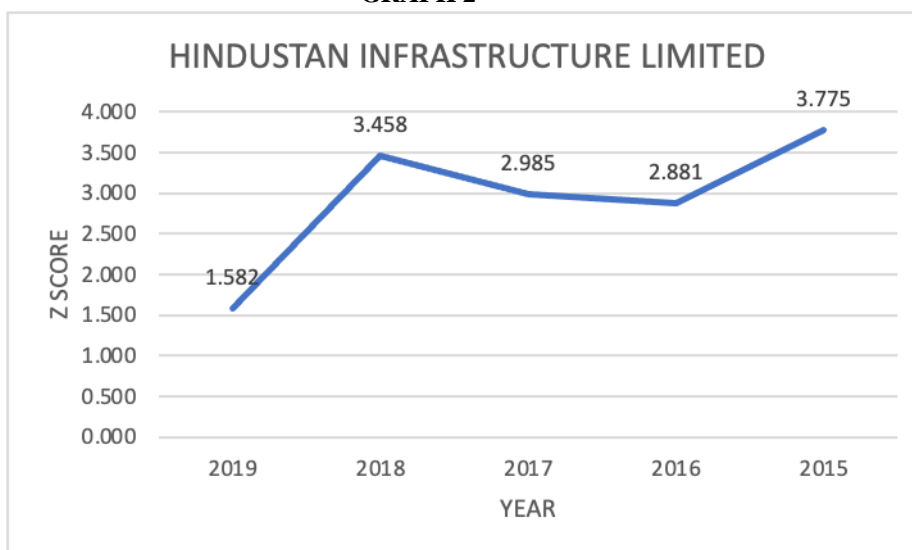o the total asset ratio of the company clearly indicates the company is depended on the retained earnings for the funds rather than on their borrowings. At last, from graph, it is clearly indicating that the company is in safer zone from 2015 to 2019.

1.2 HINDUSTAN CONSTRUCTION COMPANY

TABLE 3: Z SCORE OF HINDUSTAN CONSTRUCTION COMPANY

PARTICULARS/YEARS	2019	2018	2017	2016	2015
TOTAL ASSET	4214.92	6086.07	6670.89	6464.67	5969.77
TOTAL LIABILITIES	4214.92	6086.07	6670.89	6464.67	5969.77
CURRENT ASSET	3904.32	2774.56	2439.47	772.67	4588.34
CURRENT LIABILITIES	5953.24	4964.66	4380.06	3393.32	3495.34
NET WORKING CAPITAL	-2048.92	-2172.10	-1940.59	-2620.65	1093.00
SALES	4341.00	4575.08	4195.94	4190.89	4134.80
TOTAL INCOME	2055.82	4826.08	4436.92	4377.10	4281.78
TOTAL EXPENSES	3807.61	3931.20	3442.31	3382.50	3353.03
INTEREST	698.91	658.97	772.37	701.71	651.13
TAX	-630.47	34.44	37.55	45.66	45.67
EBIT	2124.26	5520.49	5246.84	5124.47	4978.58
MARKET CAPITLIZATION	709.61				
RETAINED EARNINGS	-1656.32	269.82	192.29	152.88	147.92
(NET WORKING CAPITAL/TOTAL ASSET) *1.2	-0.58333	-0.42827	-0.34908	-0.48645	0.21970
(RETAINED EARNINGS/TOTAL ASSET) *1.6	-0.628	0.070	0.046	0.037	0.039
(EBIT/TOTAL ASSET) *3.3	1.663	2.993	2.595	2.615	2.752
(MARKET CAPITILIZATION/TOTAL LIABLITIES) *0.6	0.101	0.069	0.063	0.065	0.071
(SALES/TOTAL ASSET) *1	1.029	0.751	0.628	0.648	0.692
Z SCORE	1.582	3.458	2.985	2.881	3.775

GRAPH 2

Hindustan Infrastructure Limited is going into the losses as the expenses of the company are more than revenue generated which directly impacted the EBIT to the total asset ratio of the company indicating that it has inadequate asset for short term financial funds. Net working capital to the total asset is constantly into negatives which clearly indicates that the company's expenses are increasing wherein the revenue earned are decreasing which indicates that it is difficult for the company to pay short term financial health because it has inadequate asset. Retained to total asset ratio was increasing from 2015-18 wherein they were having some retained earnings to pay off the expenses but in 2019 this ratio went into negative leaving the company with no retained earnings to pay off the expenses and had to pay off through borrowings. Market capitalization to the total liabilities has increased which clearly indicates that the market value of the company has increased but not that great. Sales to total asset has increased which indicates that the company has increased its profitability. The Z score of the company clearly tells that the company has gone into financial distress because of the above reasons.
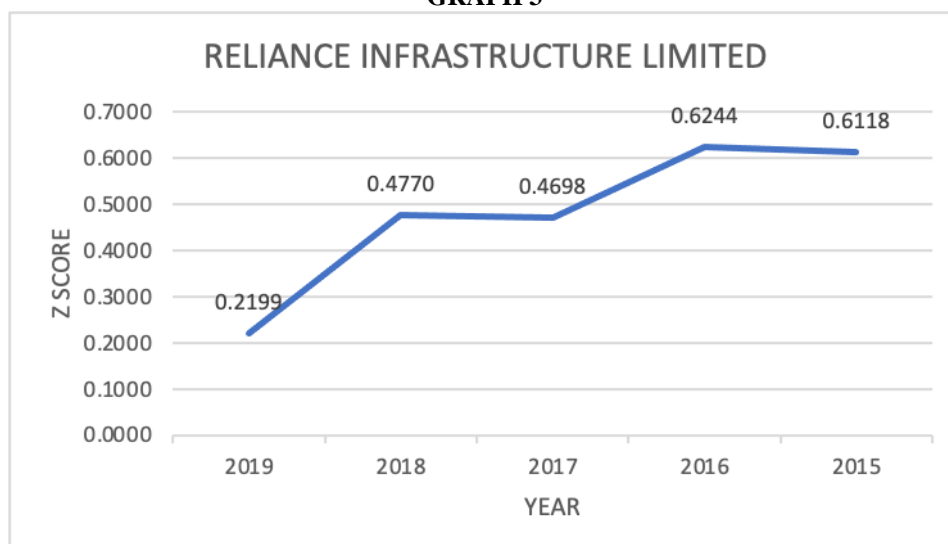
1.3 RELIANCE INFRASTRUCTURE LIMITED
TABLE 4: Z SCORE OF RELIANCE INFRASTRUCTURE LIMITED

PARTICULARS/YEARS	2019	2018	2017	2016	2015
TOTAL ASSET	28252.45	58786.92	57435.43	51164.33	49570.58
TOTAL LIABILITIES	28252.45	58786.92	57435.43	51164.33	49570.58
CURRENT ASSET	12895.60	24855.93	23764.41	21713.75	22711.55
CURRENT LIABILITIES	8038.47	22861.32	20167.15	16044.00	16532.31
NET WORKING CAPITAL	4857.13	1994.61	3597.26	5669.75	6179.24
SALES	793.84	8969.51	8730.34	9960.81	10535.56
TOTAL INCOME	1379.48	11766.86	11506.73	12221.79	12098.21
TOTAL EXPENSES	1185.25	6347.54	6755.14	7814.15	8575.15
EBITDA	194.23	5419.32	4751.59	4407.64	3523.06
DEPRECITION	81.83	889.09	930.32	488.57	486.86
EBIT	112.4	4530.23	3821.27	3919.07	3036.2
MARKET CAPITLIZATION	501				

RETAINED EARNINGS	-676	891	641	1219	1284
(NET WORKING CAPITAL/TOTAL ASSET) *1.2	0.2063	0.0407	0.0751	0.1329	0.1495
(RETAINED EARNINGS/TOTAL ASSET) *1.6	-0.0382	0.0242	0.0178	0.03812	0.0414
(EBIT/TOTAL ASSET) *3.3	0.0131	0.2543	0.2195	0.2527	0.2021
(MARKET CAPITILIZATION/TOTAL LIABLITIES) *0.6	0.0106	0.0051	0.0052	0.0058	0.0060
(SALES/TOTAL ASSET) *1	0.0280	0.1525	0.1520	0.1946	0.2125
Z SCORE	0.2199	0.4770	0.4698	0.6244	0.6118

GRAPH 3

Reliance Infrastructure Limited has going through the losses since 2009 and most probably it might go to bankruptcy. The company have to depend on borrowings to pay off their expenses as retained earnings of the company are going into negative which is not enough to cover up the expenses. The total expense of the company has declined from the past 5 years as well as the revenue earned. Though the revenue in 2019 is greater than expenses still it affected the profits of the company has profitability declined which is clearly indicated by EBIT to total asset. The valuation of the company has also declined has many of the investors lost their trust in the company due to which market capitalization to the total liabilities decline. Though the company has total assets more than total liabilities which indicates that the net working capital to the total asset has increased it is because the company has enough asset to cover up their short-term financial health. As overall Z Score of the company indicates that the company went into financial distress and may go into bankruptcy.

1.4 GMR INFRASTRUCTURE LIMITED
TABLE 5: Z SCORE OF GMR INFRASTRUCTURE LIMITED

PARTICULARS/YEARS	2019	2018	2017	2016	2015
TOTAL ASSET	17938.63	23067.33	11721.59	14855.92	13999.69
TOTAL LIABILITIES	17938.63	23067.33	11721.59	14855.92	13999.69
CURRENT ASSET	464.38	181.12	178.68	463.44	551.14
CURRENT LIABILITIES	4439.20	3423.52	1717.46	935.7	1172.38
NET WORKING CAPITAL	-3974.82	-3242.40	-1538.78	-472.26	-621.24
SALES	101.04	1106.01	1179.77	799.1	649.74
TOTAL INCOME	673.15	1064.68	-2472.57	-762.76	406.82
TOTAL EXPENSES	845.19	811.06	451.41	210.91	200.03
EBITDA	-172.04	253.62	-2923.98	-973.67	206.74
DEPRECITION	24.49	19.06	16.13	15.77	20.03
EBIT	-196.53	234.54	-2940.11	-973.67	206.79
MARKET CAPITLIZATION	10623.26				
RETAINED EARNINGS	89.16	1123.26	-4471.01	-1456.10	71.41
(NET WORKING CAPITAL/TOTAL ASSET) *1.2	-0.2658	-0.1686	-0.1575	-0.0381	-0.0532
(RETAINED EARNINGS/TOTAL ASSET) *1.6	0.0079	0.0779	-0.6102	-0.1568	0.0081
(EBIT/TOTAL ASSET) *3.3	-0.0361	0.0335	-0.8277	-0.2197	0.0440
(MARKET CAPITILIZATION/TOTAL LIABLITIES) *0.6	0.3553	0.02763	0.5437	0.4290	0.4552
(SALES/TOTAL ASSET) *1	0.0613	0.0479	0.1006	0.0537	0.0464
Z SCORE	0.1226	0.2670	-0.9511	0.0680	0.5006

GRAPH 4
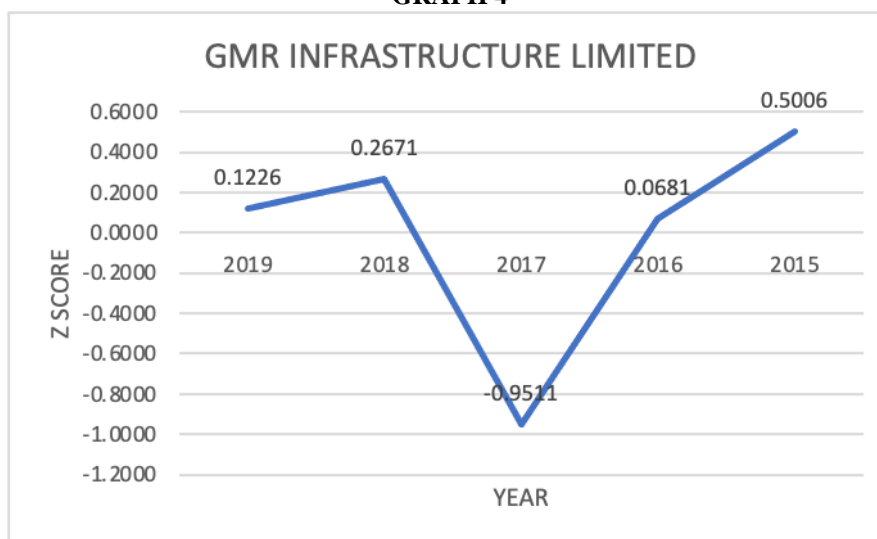
GMR Infrastructure Limited is going to financial distress has per the graph. Looking at the table it seems that the company has left with no asset to overcome the short-term financial health as net working capital to the total asset are going in negative. There is change in the retained earnings to the total asset ratio as they there is a decrease in the retained earnings and had to depend on the borrowings for their expenses. Looking at EBIT to the total asset ratio the profitability of the
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company has declined drastically. Though market value of the company is high still the ratio of market capitalization to the total liabilities is not that great indicating that company may go into bankruptcy. Sales to the total asset of the company is not up to the mark as sales of the company has declined. This proves that the company has gone into financial distress and may go into the bankrupt   soon
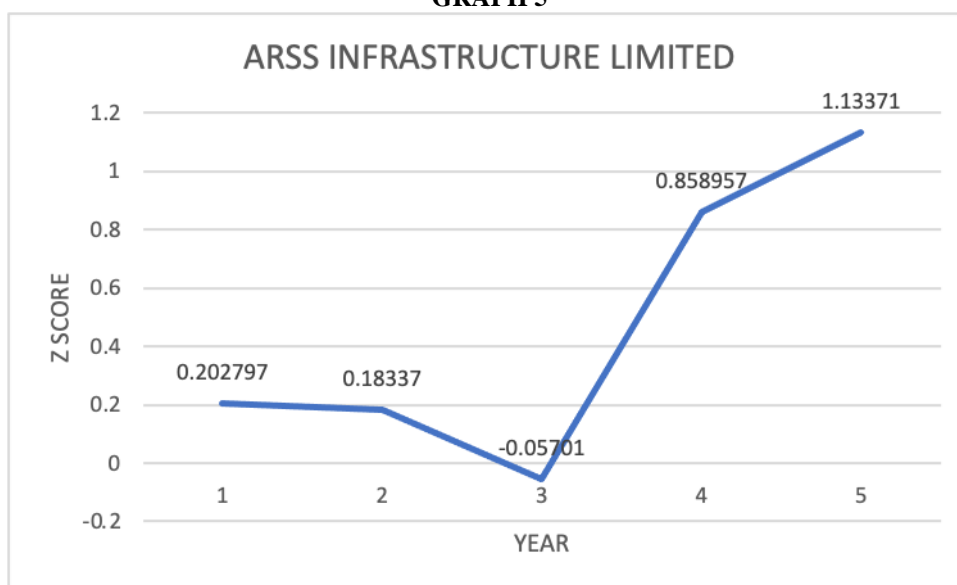
1.5 ARSS INFRASTRUCTURE LIMITED
TABLE 6: Z SCORE OF ARSS INFRASTRUCTURE LIMITED

PARTICULARS/YEARS	2019	2018	2017	2016	2015
TOTAL ASSET	1720.93	1723.53	1726.35	2059.96	1941.63
TOTAL LIABILITIES	1720.93	1723.53	1726.35	2059.96	1941.63
CURRENT ASSET	242.37	210.98	215.17	903.72	895.49
CURRENT LIABILITIES	113.38	84.86	118.7	342.93	352.71
NET WORKING CAPITAL	128.99	126.12	96.47	560.79	542.78
SALES	459.1	584.34	836.65	623.3	655.53
TOTAL INCOME	498.65	591.44	384.94	627.25	658.2
TOTAL EXPENSES	465.88	609.06	611.71	420.04	449.21
EBITDA	32.77	-1762	-226.77	207.21	208.99
DEPRECITION	22.02	23.94	32.63	164.84	36.55
EBIT	10.75	-41.56	-259.4	42.37	172.44
MARKET CAPITLIZATION	28.54				
RETAINED EARNINGS	-198.43	-187.26	-132.46	197.64	192.62
(NET WORKING CAPITAL/TOTAL ASSET)	0.089944	0.08781	0.067057	0.32668	0.158729

*1.2					
(RETAINED EARNINGS/TOTAL ASSET) *1.6	-0.18449	-0.17384	-0.12277	0.15351	0.158729
(EBIT/TOTAL ASSET) *3.3	0.020614	-0.07957	-0.49586	0.067876	0.297327
(MARKET CAPITILIZATION/TOTAL LIABLITIES) *0.6	0.00995	0.009935	0.009919	0.08313	0.009376
(SALES/TOTAL ASSET) *1	0.266774	0.339037	0.484635	0.302579	0.33762
Z SCORE	0.202797	0.18337	-0.05701	0.8588957	1.13371

GRAPH 5

ARSS Infrastructure Limited are going into the losses looking at the retained earnings to the total asset the company has left with no retained earnings to cover the expenses and had to depend on the borrowings. As sales of the company is decreasing from past 5 years which impacted the company sales to the total asset clearly indicating that profitability of the company has declined. Net working capital to the total asset has also declined indicating that the company does not have enough funds to meets its short-term financial health. Revenue generated by the company is constantly go into bankruptcy.

decreasing wherein the expenses also decreases but in the year 2018 and 2019 the expenses were more than the revenue due to which the company went into the losses in 2018 and 2017. As it also impacted the EBIT to the total asset of the company which is also decreasing clearly indicating that the company are not in profits. The market value of the company has also declined which has directly impacted the market capitalization to the total liabilities which is indicating that the company market value of the company as decline and soon

1.5 IRB INFRASTRUCTUR LIMITED
TABLE 7 Z SCORE OF IRB INFRASTRUCTURE LIMITED

PARTICULARS/YEAR	2019	2018	2017	2016	2015

TOTAL ASSET	6480.42	7261.29	5584.52	4831.25	4147.22
TOTAL LIABILITIES	6480.42	7261.29	5584.52	4831.25	4147.22
CURRENT ASSET	62.54	1457.32	184	2359.50	1830.49
CURRENT LIABILITIES	3298.07	3117.08	3425.58	2970.02	2927.02
NET WORKING CAPITAL	-3235.53	-1659.76	-3241.58	-660.88	-1096.53
SALES	3384.78	2898.94	3412.54	2767.54	1955.71
TOTAL INCOME	3623.49	3325.42	3635.95	3160.62	2199.31
TOTAL EXPENSES	2935.37	2584.22	3040.43	2533.94	2756.32
EBIT	688.12	741.20	595.52	636.68	442.99
MARKET CAPITLIZATION	2252.79				
RETAINED EARNINGS	4236.16	3772.96	3191.1	2950.4	2096.39
(NET WORKING CAPITAL/TOTAL ASSET) *1.2	-0.59913	-0.27429	-0.69655	-0.16415	-0.31728
(RETAINED EARNINGS/TOTAL ASSET) *1.6	1.0459	0.83136	0.91427	0.97711	0.95484
(EBIT/TOTAL ASSET) *3.3	0.35041	0.33685	0.3519	0.42806	0.35249
(MARKET CAPITILIZATION/TOTAL LIABLITIES) *0.6	0.20858	0.18618	0.24204	0.27978	0.32592
(SALES/TOTAL ASSET) *1	0.52231	0.39923	0.61107	0.57284	0.47157
Z SCORE	1.52806	1.47929	1.42279	2.09363	1.78755

GRAPH 6
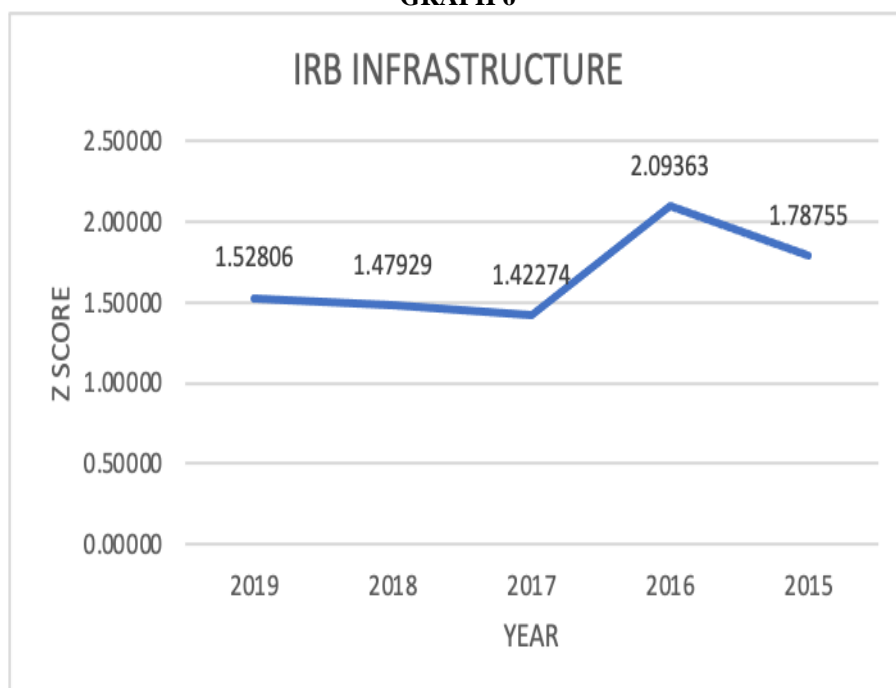
IRB Infrastructure Limited is constantly in the financial distress since 2009 according to the Z score Analysis. Looking at the net working capital to the total asset is in negatives which clearly indicates that the company have inadequate asset to overcome short term financial health. Retained earnings to the total asset of the company has increased which indicates that the company need not have to depend on borrowings for its expenses. Looking at the income and the expenses of the company they are not affected that much due to which EBIT to total asset has increased from last year which means company has generated revenues in order to be in profitability. Market value of the company is higher which indicates that the company has the ability to revive itself and may stop itself from going into bankruptcy. Sales to the total asset has increased from 2018 to 2019 and was maximum in 2017 which clearly indicates that company are in profits. IRB infrastructure went into financial crisis because it does not have adequate asset to payback its expenses. Only in 2016 the company was in the safer zone which clearly indicates that the company has the potential to revive itself.

IMPACT OF COVID -19

Due to COVID-19 many sectors have badly affected such as aviation, tourism, hospitality etc one of those sectors which have impacted a lot is infrastructure sector. Imposition of nationwide lockdown from April 2020 to May 2020 had a negative impact on this sector because many projects which were going on had to keep at stop, revenue generated from the toll collection reduced as many infrastructure companies could pay back the debt, cover up their short-term financials or salaries to the workers. As there was no work for the migrant's laborers on the field slowly, they were going back to their hometown leading to the further delay in the completion of the projects. When initially the unlock stared it was tough for the companies to restart the projects because many migrants' workers were not willing to travel back which is the rising concerns for many companies. But then the government has come up with multiple plans for the infrastructure sector to grow.

CONCLUSION

The study conclude that Altman Z Score is one of better financial tools for the investor, stakeholders, shareholders etc. to analysis the companies whether they are going to be bankrupt or not in the near future. It was the successful in analyzing the bankruptcy of the 6 infrastructure companies wherein investors, shareholders or stakeholders has to invest in. As a result, L&T IDPL the only company who has the capacity to come out through this crisis where else all other company are in financial distress and had to make strong strategies to revive their companies or they will have to file for bankruptcy. The companies like Reliance Infrastructure Limited or ARSS Infrastructure Limited are under the huge debts wherein they are likely in position to sell of their assets to cover up their debts.

Overall, the infrastructure sector is in the losses this year revenue generated from the companies are not up to the expectation and it has affected the profitability of the companies.

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