An Empirical Study on Financial Health of NTPC and NHPC

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Abstract

The success of any business is largely depends on its effective financial management practices, which starts with procurement of funds and ends with effective utilization of funds. Internal and External users like shareholders, government, bankers, creditors, financial institutions, researcher analysts etc. focus on success and solvency position of the company, for them financial health of an enterprise is utmost important. They use many accounting tools like ratio, trend analysis, decision theory etc. used for measuring financial health of an enterprise results produced by these tools are absolute and represent the present position and not the future.

Edward I Altman, professor of Finance at New York University was the first person who develops a new model popularly known as "Z- Score Model" to predict the financial health of the business concerns. He considered five ratios and assigned a weight for each ratio and produced a single number which indicates the financial health of the business concerns.

In the present research paper an attempt is made to predict the financial health of power industry with special reference to NTPC and NHPC Ltd. from 2010-11 to 2014-15 for five years using Altman's Z-Score Model. It is found out that NTPC are too healthy zone where it is successful in its financial performance and not to fall bankrupt, but NHPC is in not healthy zone where its financial, if failure is certain and extremely likely and would occur properly with in a period of 2 years, viability is considered not healthy

Keywords: Financial health, NTPC, NHPC, Altman's Z-Score Model, Financial performance

Introduction

Power or electricity is one of the most critical components of infrastructure affecting economic growth and well being of nations. The existence and development of adequate infrastructure is essential for sustained growth of the Indian economy. Infrastructure Power or electricity is one of the most critical components of infrastructure affecting economic growth and well being of nations. The existence and development of adequate infrastructure is essential for sustained growth of the Indian economy. Infrastructure investment in India is on the rise, but growth may be constrained without further improvements.

The power sector provides one of the most important inputs for the development of a country and availability of reliable and inexpensive power is critical for its sustainable economic development. To sustain GDP growth rate of around 8-9 %, it is imperative that the power sector also grows at the same rate.

NTPC and NHPC are the leading power generating companies in India which is owned by the government of India, so it necessary to know the financial health of this companies. The Z-Score is a critical business tool which utilizes to inform how to improve the financial health of the business. Here researchers had measured financial health of NTPC and NHPC by Z-Score.

Company Profile

NTPC is India's largest energy conglomerate with the total installed capacity of the company is 45,548 MW (including JVs) with 18 coal based and 7 gas based stations. NTPC was started in 1975 to accelerate power development in India. Since then it has established itself as the dominant power major with presence in the entire value chain of the power generation business. To strengthen its core business, the corporation has diversified into the fields of consultancy, power trading, training of power professionals, rural electrification, ash utilisation and coal mining as well.

NTPC became a Maharatna company in May 2010, one of the only four companies to be awarded this status. NTPC was ranked 431st in the '2015, Forbes Global 2000' ranking of the World's biggest companies. The company has set a target to have an installed power generating capacity of 1,28,000 MW by the year 2032. The capacity will have a diversified fuel mix comprising 56% coal, 16% Gas, 11% Nuclear and 17% Renewable Energy Sources including hydro.

NHPC Limited (formerly National Hydroelectric Power Corporation), a Govt. of India Enterprise, was incorporated in the year 1975 with an authorised share capital of Rs. 2,000 million and with an objective to plan, promote and organise an integrated and efficient development of hydroelectric power in all aspects. Later on NHPC expanded its objects to include development of power in all its aspects through conventional and non-conventional sources in India and abroad.

At present, NHPC is a Mini Ratna Category-I Enterprise of the Govt. of India with an authorised share capital of Rs. 1,50,000 Million. NHPC is ranked as a premier organization in the country for development of hydropower. Presently NHPC is engaged in the construction of 5 projects aggregating to a total installed capacity of 4290 MW including 1000 MW (Pakal Dul HE Project) being executed through JV Company. NHPC is among the top 10 companies in India in terms of investment. Department of Public Enterprise, Government of India recently conferred prestigious Miniratna status to it.

Literature

Robert Rufus (May/June-2003) This article also serves to revive Altman's Discriminate Function Z, informally known as the Z-score, as a viable current day valuation tool. Finally, this article serves to encourage caution in the use and reliance of financial ratios. Str. J. H. Pestalozzi, nr. Timisoara, Romania (Jan/Feb-2014) The research paper places an emphasis on the analysis of possible bankruptcy for seven largest U.S airlines using Altman's bankruptcy prediction model (Z-score) for six consecutive years (2007-2012) based on the selected carriers' 10-k annual SEC filings. Partha Ghosh (May-2013) The Altman's Z score model has been employed to investigate the risk of financial distress of Dunlop India Ltd., from 2007-08 to 2011-12. Sasivimol Meeampol, Polwat Lerskullawat, Ausa Wongsorntham Phanthipa Srinammuang ,Vimol Rodpetch, Rungsimaporn Noonoi (2014) : This research aims to examine the financial distress of the listed companies on the Stock Exchange of Thailand (SET). This study used the companies listed on the SET in 2012, which these firms must contain the NC (Non-Compliance) sign. Having organized the data, we have the final sample of 31 firms to be examined.

Objectives of the Study

1. To evaluate the efficiency of selected Indian power companies

2. To examine the overall financial performance of selected Indian power companies

3. To forecast the financial health and viability of the selected Indian power companies

Research Methodology

The present study is concerned with the analysis of financial health of NTPC Ltd. & NHPC Ltd. The entire study is based on secondary data. The data has been collected from websites of the companies. The period of the study is 2010-11 to 2104-15. Altman's model has been adopted to analyze the financial health of NTPC Ltd. & NHPC Ltd.

Research Tools & Techniques

Z score Model

Edward L Altman (1968) developed Z score model in order to detect the financial health of Sick industrial units with a view to prevent the industrial sickness. The model was developed based on empirical studies, to predict the

sickness of a unit in advance. The model is also called as 'multiple discriminant analysis (MDA)'. It is a linear analysis used to develop with five variables. The MDA computes the discriminant coefficient while the independent variables are the actual values taken from the financial statements.

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

Where,

Z = Z SCORE

X_1 = Working Capital / Total Assets

X_2 = Retained Earnings / Total Assets

X_3 = Earnings before Interest and Taxes / Total Assets

X_4 = Market Value Equity / Book Value of Total Debt

X_5 = Sales / Total Assets

Z-Score model can be analyzed as follows:

1. Sickness is predicted basing on value of Z

2. If Z score is more than 2.99 - there is no danger of bankruptcy.

3. If Z score is below 1.81 - there is a definite failure.

4. If Z score is between 1.81 and 2.99 — it shows the grey area.

Table 1   Altman Guideline for Financial Health Zone

Situation	Z-Score	Zone	Remarks
I	Below 1.8	Not Healthy	If failure is certain and extremely likely and would occur properly with in a period of 2 years.
II	Between 1.8 and 2.99	Healthy	Financial viability is considered healthy. The failure in the situation is uncertain to predict.
III	3.0 and above	Too Healthy	Its financial health viable and not to fail

Therefore, the lower the Z score, there is a greater possibility of bankruptcy and vice versa

Data Analysis and Interpretation

Data analysis and interpretation is the heart of the any research work, with the proper analysis and interpretation of data no leads to acceptance of the study. Implication of the research is depends on the analysis and interpretation of data.

By using Z-Score model and ANOVA, researcher has analysed data.

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

Z-Score of NTPC

(Rs. in Crore)

Table 2   Financial Figures of NTPC

Year	Working Capital	Total Assets	Retain Earning	EBIT	Sales
2010-11	20551.80	107627.93	5998.92	11972.88	55062.65
2011-12	20906.84	119199.44	5957.88	13737.50	62052.23
2012-13	22835.55	133641.17	7168.50	17084.34	65673.93
2013-14	21463.71	148221.07	6754.83	17777.38	72018.93
2014-15	15814.99	160189.68	8945.01	15751.77	73246.05

Table 3 Financial Ratios of NTPC

Year	WC/TA	RE/TA	EBIT/TA	MVE/DEBT	S/TA
2010-11	0.1910	0.0557	0.1112	5.5840	0.5116
2011-12	0.1754	0.0500	0.1152	4.2394	0.5206
2012-13	0.1709	0.0536	0.1278	3.5190	0.4914
2013-14	0.1448	0.0456	0.1199	2.5959	0.4859
2014-15	0.0987	0.0558	0.0983	2.1083	0.4572

Table 4 Z-Score of NTPC

Year	$1.2X_1$	$1.4X_2$	$3.3X_3$	$0.6X_4$	$1.0X_5$	Z Score
2010-11	0.23	0.08	0.37	3.35	0.51	4.54
2011-12	0.21	0.07	0.38	2.54	0.52	3.72
2012-13	0.21	0.08	0.42	2.11	0.49	3.30
2013-14	0.17	0.06	0.40	1.56	0.49	2.68
2014-15	0.12	0.08	0.32	1.26	0.46	2.24
					Z -Score	3.30

Interpretation

Here Z-Score of NTPC is above 2.675 during 2010-11 to 2013-14 which shows a sound financial position of the companies, in year 2014-15 Z-Score is fall under 2.675 its heading towards bankruptcy, if this situation continue for next few years.

Average Z-Score during 2010-11 to 2014-15 is 3.30 which is a indication of sound financial position.

Z-Score of NHPC

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

(Rs. in Crore)

Table 5 Financial Figures of NHPC

Year	Working Capital	Total Assets	Retain Earning	EBIT	Sales
2010-11	2,306.00	38,283.21	4,579.13	2,797.51	4,225.25
2011-12	4,338.39	42,806.33	6,246.89	3,680.60	5,654.69
2012-13	4,857.67	45,258.02	7,573.27	3,323.90	5,306.64
2013-14	3,432.61	44,648.17	7,793.04	2,862.46	5,537.04
2014-15	5,472.22	46,457.42	9,783.46	3,992.42	6,802.25

Table 6 Financial Ratios of NHPC

Year	WC/TA	RE/TA	EBIT/TA	MVE/DEBT	S/TA
2010-11	0.0602	0.1196	0.0731	2.2481	0.1104
2011-12	0.1013	0.1459	0.0860	1.5089	0.1321
2012-13	0.1073	0.1673	0.0734	1.3966	0.1173
2013-14	0.0769	0.1745	0.0641	1.3092	0.1240
2014-15	0.1178	0.2106	0.0859	1.3319	0.1464

Table 7 Z-Score of NHPC

NHPC						
Year	$1.2X_1$	$1.4X_2$	$3.3X_3$	$0.6X_4$	$1.0X_5$	Z Score
2010-11	0.07	0.17	0.24	1.35	0.11	1.94
2011-12	0.12	0.20	0.28	0.91	0.13	1.65
2012-13	0.13	0.23	0.24	0.84	0.12	1.56
2013-14	0.09	0.24	0.21	0.79	0.12	1.46
2014-15	0.14	0.29	0.28	0.80	0.15	1.67
					Z -Score	1.65

Interpretation

Here Z-Score of NHPC is below 2.675 during 2010-11 to 2014-15 which shows a weak financial position of the companies, it heading towards bankruptcy, if this situation continues for next few years.

NHPC should have to take corrective measures to improve the financial soundness of the company so that it can be protected against industrial sickness.

Table 8   Statements Showing the Z-Score Health Zone for the Selected Power Company

Power Company	Z Score Model Financial Health	Inference
NTPC	3.30	Too Healthy
NHPC	1.65	Not Healthy

Findings

Net Working Capital to Total Assets (X1)

Working capital is the excess of total current assets. The ratio of working capital to total assets shows liquidity position relative to total capitalization. Consistent operating losses will cause current assets to shrink relative to total assets. A negative ratio, resulting from negative working capital is a serious problem. The ratio of working capital to total assets shows the liquidity position of the company.

The ratio of working capital to total assets is calculated in Table -4 for NTPC & Table-7 for NHPC. It is observed from the table that the ratio ranges between 0.12 to 0.23 for NTPC and 0.07 to 0.14 for NHPC. It indicates that during 2010-11 to 2014-15 NTPC had moderate level of investment in current assets and which shows that current funds are moderately block in the form of current assets and try to put remain in potential investments. NHPC is having very low level of (conservative) investments in current assets, which shows the poor working capital management of the

company.

This analysis will help all the companies in maintaining the appropriate working capital i.e. neither low nor high level of investments in current assets without disturbing the basic liquidity position of the companies.

Retained Earnings to Total Assets (X2)

The ratio of retained earnings to total assets indicates that how much portion of total assets has been financed by retained earnings. Higher the ratio greater the financial stability of the company at times of low profitability periods and also it depicts that the company utilizing its own earnings as cheaper source of finance rather than dent finance. The percentage of retained earnings of both companies is furnished in Table-4 for NTPC & Table-7 for NHPC. From the Table- it is observed that on an average 0.06 to 0.08 of total assets of NTPC and 0.17 to 0.29 for NHPC are financed by its retained earnings during the study period.

This study shows that both the company have been utilizing more debt rather than retained earnings. The decreasing trend of retained earnings during the study period indicates that the unsuitable growth of the NTPC & NHPC and this situation may compel both the companies in the bankruptcy at low profitable times.

EBIT to Total Assets (X3)

This ratio expresses operating performance and productivity of the assets which is mentioned in the table -4 for NTPC & Table-7 for NHPC.

The ratio varies from 0.32 to 0.42 for NTPC and 0.21 to 0.28 for NHPC. During selected period the operating efficiency of NHPC Company is very low. Company is unable to operate the fixed assets properly.

Book Value of Equity to Book Value of Total Debts (X4)

This ratio is used to ascertain the soundness of the long-term financial policies. The company having 1:1 equity debt mix is considered as quite good. Excessive debt trends to cause insolvency. Fixed interest paid to debt where as variable dividend is paid on equity. If debt is more than the equity, it will reduce the profit of the company, despite increases the profitability of the shareholders. It will be a curse in times of bad performing.

From the Table -4 for NTPC & Table-7 for NHPC it is observed that the on an average equity portion of NTPC 1.26 to 3.35 and NHPC 0.80to 1.35 in comparison to debt portion in the capital structure during the study period. The NTPC had higher equity portion to total capital compare to NHPC. On the basis of the analysis pertaining to this ratio, it may be conclude that the financial health of the NTPC is quite good when compare to NHPC and it provide a margin of safety to

its creditors in times of bankruptcy.

Sales to Total Assets (X5)

Sales revenue plays a pivotal role in overall performance of the companies because all the operations are more or less depend on the sale revenue. Sales to total assets ratio measure the power of the asset in generating the sales.

Higher ratio indicates the better performance and while poor ratio indicates the poor financial management of the company in the optimum utilization of its assets in generating the sales revenue. The ratio varies from one company to another. The relevant information of the selected companies is furnished in the table -4 for NTPC & Table-7 for NHPC. It is observed that the average ratios of NTPC range from 0.46 to 0.52 while it was 0.11 to 0.15 for NHPC during the study period. While comparing the performance of NTPC is superior to NHPC in this regard.

Conclusion

The Z-Score of NTPC Ltd. and NHPC Ltd. based on Altman's model is 3.30 and 1.65 respectively during the study period (i.e. 2010-11 to 2014-15). It is observed that the NTPC are in too healthy zone where it is successful in its financial performance and not to fall bankrupt. But NHPC is in not healthy zone where its financial viability is consider to failure is certain and extremely likely and would occur properly with in a period of 2 years. Finally it can be concluded that the overall financial health of NTPC is very good and NHPC is very bad. The study will be useful to all the stakeholders of power industry and researcher for carrying out further research on financial health of any business concern.

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Abbreviations

EBIT   - Earning Before Interest and Tax

WC   - Working Capital

S   - Sales

NTPC   - National Thermal Power Corporation Limited

NHPC - National Hydroelectric Power Corporation Limited

TA   - Total Assets

RE   - Retain Earning

MVE   - Market Value of Equity

MDA   - Multiple Discriminant Analysis