AN APPRAISAL OF FINANCIAL SOLVENCY OF ONGC A Z SCORE MODEL

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ABSTRACT

Financial position of any company can be easily evaluated through its profitability, liquidity, solvency and activity ratios. Ratio analysis is one of the most easiest and competent tool to evaluate the financial soundness of a company. In this paper the financial health of ONGC has been evaluated by using ratio analysis and the chances of bankruptcy in the near future is evaluated with the help of Z score developed by Prof. Edward I. Altman (1968). From the study of five years (2010-11-2014-15) it is deduced from the analysis that profit earning capacity and short term investing capacity of ONGC is quite good, but its financing position of assets is comparatively poor. However the Z score value indicates that it is in a strong position, and it has no chances of being bankrupt in the next two years.

Keywords: Ratio Analysis; Z Score; Bankruptcy; Financial Performance

INTRODUCTION

Financial analysis can be defined as an information processing system, which can be used to provide relevant information for decision making. Basically, an analysis of the financial statements on the basis of various performance indicators depicts the financial position of a company. Thereafter, these indicators and their values when compared with established standards, portray the financial position of a company along with the prediction of its consistency and solvency in the long-run. Broadly, to analyse a company’s financial position one can adopt any of the available techniques, viz. ratio analysis, comparative statement analysis, cash flow statement, fund flow statement, decision theory, etc. These techniques prove to be highly beneficial for the investors and stakeholders to diagnose the financial strength of a company. However, the present work entails an analysis of the financial performance and viability for bankruptcy of ONGC in future. The analysis has been done with the help of z-score model.

Z Score – An Overview

Z score model has been developed by Edward Altman, professor of Finance, Stern School of Business, New York University, to evaluate the financial health of a company, on the basis of various ratios. In his work he analysed the financial position with the help of ratio analysis and further with the help of multiple discriminate analysis, through which a determinant coefficient was determined. The purpose of the model is to measure a company’s financial health the purpose of the model is to measure a company’s financial health and to predict the probability of a company’s bankruptcy. The value calculated determines the likelihood of a company to be bankrupt. The value calculated is termed as Z score. Five ratios viz. net working capital to total assets, retained earnings to total assets, earnings before interest and tax to total assets, market value of equity to market value of debt and sales to total assets are calculated from the financial statements and then are fitted to the formula propounded by
Altman. It is a linear equation where the ratios are multiplied by certain coefficients or factors (devised by Altman), which are then added together to determine the Z score. The formula given by Altman is:

\[ Z = 1.2 X_1 + 1.4 X_2 + 3.3 X_3 + 0.6 X_4 + 1.0 X_5 \]

Where:

- \( X_1 = \frac{\text{Working Capital}}{\text{Total Assets}} \)
- \( X_2 = \frac{\text{Retained Earnings}}{\text{Total Assets}} \)
- \( X_3 = \frac{\text{Earnings before Interest and Tax}}{\text{Total Assets}} \)
- \( X_4 = \frac{\text{Book Value of Equity}}{\text{Book Value of Debt}} \)
- \( X_5 = \frac{\text{Sales}}{\text{Total Assets}} \)

The ratios are the widely used tool to measure the financial performance of any company. There are four major ratios which defines the complete financial position of a company, viz.: liquidity ratio, activity ratio, solvency ratio and profitability ratio. The liquidity ratio helps to measure the company’s ability to meet the short term obligations. The solvency ratio measures the debt service capacity in the long run. The activity ratio determines the company’s ability to utilize the assets in an efficient manner. The profitability ratio measures the profit bearing capacity of a company. In the above formula, \( X_1 \) gives the liquidity position to the total capitalization, \( X_2 \) measures the cumulative profitability overtime and leverages, \( X_3 \) measures the operating performance and productivity of assets, \( X_4 \) gives the long-term solvency position and \( X_5 \) gives the sales generating capacity of the assets.

“As per Altman’s model if the Z-Score is < 1.8, then the company is considered to be in bankruptcy zone, and has high probability of failure. If the Z-Score lies in 1.8 to 3.0, then the company is considered to be in grey zone i.e. safety zone, where the company should be under careful watch. If Z-Score is > 3.0, then the company is said to be in good financial health, and will be solvent in the future.”

REVIEW OF LITERATURE

Bandyopadhyay A (2006), “Predicting probability of default of Indian corporate bonds: logistics and Z-score model approaches”. In this paper he develops an early warning signal model for predicting corporate default in the emerging market economy. Miller W., “Comparing models of Corporations Bankruptcy predictions distance to default V/S z-score” in this paper he examines the performance of two commonly applied bankruptcy prediction models – the Z score model and structural distance to default model. The paper concludes that the Distance to default model has superior ordinal and cardinal bankruptcy prediction power within a universe. The preceding model provides a more durable bankruptcy signal, but the model also generates less stable ratings than the z-score. Ingoo (1997), in his work has analysed the bankruptcy through three major techniques: multivariate discriminant analysis, case based forecasting and neural network. In his article he studies the bankruptcy chances of Korean firms. He further concludes that neural network was best suited to forecast the health of the company and case based forecasting was the most inappropriate technique to measure the bankruptcy. Reddy in his work has examined the financial performance of two selected pharmacy companies and forecasted the viability with the help of Z score model as examined by Beaver who studied 79 successful and 79 unsuccessful companies with the use of ratio analysis, to evaluate the soundness which was further applied to the Z score model. Johan (2006), used Z score to measure the financial performance of small business firms in Kenya, and also to determine the distress level through cyclical concept. Krishna (2005) in his work has predicted the financial distress and insolvency of IDBI through Z score.

From the above literature it has been found that the z-score model is accurate and effective enough to measure the financial soundness of a company.
OBJECTIVES

1. To evaluate the financial soundness of ONGC.
2. To forecast the financial health of ONGC.

RESEARCH METHODOLOGY

The study is analytical in nature and covers a period of five years (2009-10-2014-15). The study has been divided into 7 parts: Introduction, Overview of Z-score model, Review of literature, Objectives, Research methodology, Company Profile, Analysis and findings, Suggestions and Conclusion.

COMPANY PROFILE

ONGC was formed in 1956 with the vision of great leaders to make our country energy-sufficient. Since then, the company has taken every step to fulfill this promise. Over the years, the company has discovered 6 of the 7 producing basins in India and added 6.4 billion tonnes of Oil and Gas reserves. Today, according to Platts Top 250 Global Energy Ranking, ONGC is the no. 1 E&P Company in the world. The company is ready to touch new horizons of growth by resolutely focusing on its Oil & Gas production capabilities. ONGC aims to explore newer avenues for a greener planet, excel in its exploratory endeavors and evolve into a complete energy solution provider.

ONGC’s quest for energy goes deeper than setting new benchmarks in deep-water drilling in the Krishna Godavari Basin or finding new frontiers of energy. Global decline in crude prices notwithstanding, we have taken significant investment decisions diligently and aggressively, reversing the production trend in offshore. And now we are venturing into deeper offshore plays in our quest for energy security. It is this journey that has placed us among Fortune “World’s Most Admired Companies” and ranked us 3rd in the E&P industry globally on the Platts Top 250 Rankings 2014. It is this spirit of going beyond boundaries that is depicted on the cover of this Annual Report. (L-R) Geoscientists acquiring exploratory data from fields in difficult terrains; A typical sub-sea production system installed on deep seabed; ONGC’s downstream subsidiary Mangalore Refinery and Petrochemicals Ltd (MRPL); ONGC Videsh operations at Sakhalin, Russia.

Vision

To be the global leader in integrated energy business through sustainable growth, knowledge excellence and exemplary governance practices.

Mission

World Class

- Dedicated to excellence by leveraging competitive advantages in R&D and technology with involved people.
- Imbibe high standards of business ethics and organizational values.
- Abiding commitment to safety, health and environment to enrich quality of community life.
- Foster a culture of trust, openness and mutual concern to make working a stimulating and challenging experience for our people.
- Strive for customer delight through quality products and services.

Integrated In Energy Business

- Focus on domestic and international oil and gas exploration and production business opportunities.
- Provide value linkages in other sectors of energy business.
- Create growth opportunities and maximize shareholder value.
Dominant Indian Leadership

- Retain dominant position in Indian petroleum sector and enhance India's energy availability.

Carbon Neutrality

- ONGC will continually strive to reduce CO emissions across its activity chain with the objective of achieving carbon neutrality.

ANALYSIS AND INTERPRETATION

Analysis

Table 1. Value of Indicators

<table>
<thead>
<tr>
<th>YEAR</th>
<th>Total Assets</th>
<th>Net Working capital</th>
<th>Retained Earnings</th>
<th>EBIT</th>
<th>Book Value of Equity</th>
<th>Book Value of Debt</th>
<th>Net Sales</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010-11</td>
<td>706567</td>
<td>75237</td>
<td>144332</td>
<td>347510</td>
<td>1145312</td>
<td>39771</td>
<td>741906</td>
</tr>
<tr>
<td>2011-12</td>
<td>905708</td>
<td>96213</td>
<td>179959</td>
<td>400979</td>
<td>1352666</td>
<td>52086</td>
<td>862677</td>
</tr>
<tr>
<td>2012-13</td>
<td>953465</td>
<td>63899</td>
<td>205773</td>
<td>372259</td>
<td>1510417</td>
<td>88428</td>
<td>1018351</td>
</tr>
<tr>
<td>2013-14</td>
<td>1089812</td>
<td>44857</td>
<td>233115</td>
<td>400377</td>
<td>1710556</td>
<td>316809</td>
<td>1093940</td>
</tr>
<tr>
<td>2014-15</td>
<td>1251701</td>
<td>26969</td>
<td>214095</td>
<td>302328</td>
<td>1794742</td>
<td>475827</td>
<td>1061715</td>
</tr>
</tbody>
</table>

Source: Annual report of ONGC, Various Issue, Values in Rs. Crores.

Table 2. Ratio Analysis

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>X1</td>
<td>NWC to Total Assets</td>
<td>0.11</td>
<td>0.11</td>
<td>0.07</td>
<td>0.04</td>
<td>0.02</td>
</tr>
<tr>
<td>X2</td>
<td>R.E. to Total Assets</td>
<td>0.20</td>
<td>0.20</td>
<td>0.22</td>
<td>0.21</td>
<td>0.17</td>
</tr>
<tr>
<td>X3</td>
<td>EBIT Total Assets</td>
<td>0.49</td>
<td>0.44</td>
<td>0.39</td>
<td>0.37</td>
<td>0.24</td>
</tr>
<tr>
<td>X4</td>
<td>BVE to BVD</td>
<td>28.80</td>
<td>25.97</td>
<td>17.08</td>
<td>5.40</td>
<td>3.77</td>
</tr>
<tr>
<td>X5</td>
<td>Net Sales to Total Assets</td>
<td>1.05</td>
<td>0.95</td>
<td>1.07</td>
<td>1.00</td>
<td>0.85</td>
</tr>
</tbody>
</table>

Table 3. Value of coefficients and Z score

<table>
<thead>
<tr>
<th>YEAR</th>
<th>1.2X1</th>
<th>1.4X2</th>
<th>3.3X3</th>
<th>0.6X4</th>
<th>1.0X5</th>
<th>Z SCORE</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010-11</td>
<td>0.13</td>
<td>0.29</td>
<td>1.62</td>
<td>17.28</td>
<td>1.05</td>
<td>20.37</td>
</tr>
<tr>
<td>2011-12</td>
<td>0.13</td>
<td>0.28</td>
<td>1.46</td>
<td>15.58</td>
<td>0.95</td>
<td>18.40</td>
</tr>
<tr>
<td>2012-13</td>
<td>0.08</td>
<td>0.30</td>
<td>1.29</td>
<td>10.25</td>
<td>1.07</td>
<td>12.99</td>
</tr>
<tr>
<td>2013-14</td>
<td>0.05</td>
<td>0.30</td>
<td>1.21</td>
<td>3.24</td>
<td>1.00</td>
<td>5.70</td>
</tr>
<tr>
<td>2014-15</td>
<td>0.03</td>
<td>0.24</td>
<td>0.80</td>
<td>2.26</td>
<td>0.85</td>
<td>4.18</td>
</tr>
</tbody>
</table>

Interpretation

Net Working Capital to Total Assets

This ratio is a measure of the net liquid assets of the firm relative to the total capitalization. This ratio explicitly considers both the liquidity and size characteristics. The ratio of net working capital to total assets depicts the liquidity position of the company. The ratio (X1) ranges from 0.02 to 0.11 (Table 3). It was highest ratio been recorded in 2010-11 and lowest in 2014-15. High degree of fluctuation indicates that ONGC has a low level of investment in current assets, blocking the funds in the form of current assets.
Retained Earnings to Total Assets

This ratio is a measure of cumulative profitability over time. The ratio of retained earnings to total assets indicates that the proportion of fixed assets being financed by the retained earnings. Retained earnings are the free reserves and cheaper source of finance as compared to debt. A low ratio in the analysis indicates that the growth is not a real growth, as the company is being financed through increasing debt, rather than re-investing profits. The ratio ($X_2$) ranges from 0.17 to 0.22 (Table 3) which indicates that 17-22% of fixed assets are financed through the retained earnings indicating a weaker position of ONGC as it is relying more on the external sources of finance rather than internal sources.

Earnings Before Interest And Tax To Total Assets

This ratio is a measure of the true productivity of the firm’s assets abstracting from any tax or leverage factor. EBIT to Total Assets ratio is a common variant of the return on assets. This ratio indicates the operating performance and productivity capacity of the assets. The ratio ($X_3$) ranges from 0.24 to 0.50 (Table 3) showing a medium operating efficiency of ONGC, also indicating that the company is efficient enough in utilizing the fixed assets. However, it can portray a better picture of utilization.
Book Value of Equity to Book Value Of Debt

Book value of equity to debt is a common indicator of bankruptcy. It is a measure which indicates how much the company’s assets can decline in value before the liabilities exceed the assets and the company becomes insolvent. The ratio ($X_4$) of ONGC ranges from 28.80 to 3.77 (Table 3). From the analysis, it can be concluded that ONGC is relying more on debt rather than equity, therefore slowly increasing the share of debt.

Graph 4. Book Value of Equity to Book Value Of Debt

Net Sales to Total Assets

The sales are very important in measuring the overall performance of the company since all the activities are directly or indirectly depends on the sales revenue. This ratio is a measure of the ability of the firm’s assets to generate sales. The ratio($X_5$) ranges between 0.85 to 1.07(Table 3) indicating that the company is not efficiently utilising its assets to generate sales.

Graph 5. Book value of net sales to Total assets

Graph 6 represents the Z score of ONGC (Table 3) is compared to the lowest range (1.8) and highest range (3) of Altman’s Z score model. It can be seen that ONGC has a viable financial position, and in the coming future it is not intended to be bankrupt, rather it is going to have a sound financial performance.

Graph 6: Value of Z score
SUGGESTIONS

- The ratio of working capital ratio shows that the current investment position of the company is weak, and blocking the funds. However, if the company does not take care, and if the ratio dips more than, then it shall be a point of concern as its current position of investment shall be questioned.

- A good company always finances its assets from its retained earnings, but from the analysis of ONGC, it can be seen that its finances are more dependent on debt than on retained earnings. If it maintains the same habit then its debt value shall increase which will automatically affect its financial performance. It should finance its assets more from retained profits than from debt.

- A low ratio of EBIT indicates that the productivity capacity of assets is decreasing and if the situation remains the same, it will surely create an alarming situation for ONGC as its operating capacity of assets shall reach to nil.

- From 2010-11 to 2014-15 the equity to debt ratio has decreased, but if the company does not take care of as it shall create a situation where it has to depend on debt. If it maintains the same trend of increased equity participation, as it will be easy for ONGC to decrease its borrowings.

- The fluctuating trend indicates that the company might shift into a situation of bankruptcy.

CONCLUSION

The Z-Score of ONGC based on Altman’s model of Z score is ranging from 2.037 to 4.18 during the period of study. It one of the best way to compare a company’s Z-Score over a period of time to get a better idea as to how the company is performing. The lower the Z-Score, the more likely a company shall drift to zone of bankruptcy.

From the above analysis, it can be concluded that Z-Score of ONGC over a period of five years from 2010-11 to 2014-15 varying from 2.037 to 4.18, which is much higher than 3.00. So, it can be predicted that bankruptcy is unlikely to occur for ONGC in the next two years, indicating that the overall financial health of ONGC is good, indicating it to be investor friendly company with a sound financial performance in the future. However, the declining trend depicts that the company might shift into the zone of bankruptcy, if the indicators discussed are not properly managed.

REFERENCES


8. www.investopedia.com
