

A STUDY ON FINANCIAL PERFORMANCE ANALYSIS OF BHARAT DYNAMICS LIMITED BY USING Z-SCORE

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Abstract

Financial health is of great concern for a business firm. Financial performance analysis is the process of identifying the financial strengths and weaknesses of the firm by properly establishing the relationship between the items of balance sheet and profit and loss account.

For measuring the financial health of a business firm, there are lots of techniques available. But Altman's Z-score has been proven to be a reliable tool. As the use of Z score helps to consolidate the effect of all ratios, the "Z score" analysis has been adopted to monitor the financial health of the company. The current study has been conducted to assess the financial health of a firm namely Bharat Dynamics Limited (BDL).

Keywords: Financial health, Altman's Z-score, Bharat Dynamics Limited

1. Introduction

Financial performance analysis is the process of identifying the financial strengths and weaknesses of the firm by properly establishing the relationship between the items of balance sheet and profit and loss account. It also helps in short-term and long term forecasting and growth can be identified with the help of financial performance analysis.

The Altman "z-score" is the output of a credit-strength test that gauges a publicly traded manufacturing company's likelihood of bankruptcy. The Altman z-score is based on five financial ratios that can calculate from data found on a company's annual report. This model has proven to be a reliable tool for bankruptcy forecasting in a wide variety of contexts and markets. Z-scores are used to predict corporate defaults and an easy to calculate control measure for the financial distress status of companies in academic studies. The z-score uses multiple corporate income and balance sheet values to measure the financial health of a company. The model incorporates five weighted financial ratios into the calculation of the z-score.

2. Objectives of the Study

The current study has been conducted to assess the financial health of a firm namely Bharat Dynamics Limited (BDL). BDL, a Government of India Enterprise under the Ministry of Defence was established in Hyderabad in the year 1970 to be a manufacturing base for guided missiles and allied defence equipment.

3. Research Methodology

3.1 Data collection

The data required was collected from the secondary sources.

The secondary data has been collected from the published annual reports of the company and also website of the company <http://bdl-india.in> along with structured personal interviews with higher officials of BDL Ltd.

3.2 Tools of the Analysis

The tools used to conduct the study are Altman Z Score method. However, the information on assets, liabilities, etc., from the annual reports are collected and presented in a tabular form using simple percentage method as well as basic mathematical operations (additions, simplification and division) are used.

3.3 Period of the study

For the study, four financial years data has been collected and classified and tabulated. The period covered is 2015-16 and 2018-19. Hence the accuracy of drawn conclusions depends on the precision and extent of data used for the purpose.

4. Data Analysis and Interpretation

The term Analysis and Interpretation refers to the process the process of determining financial strengths and weaknesses of the firm by establishing a strategic relationship between the components of financial statements and other operating data.

New York University professor Edward Altman introduced the Z-score formula in the late 1960s. Rather than search for a single best ratio, Altman built a model that distills five key performance ratios into a single score. As it turns out, the Z-score gives investors a pretty good snapshot of corporate financial health.

Healthy companies should periodically calculate their Z-scores and look for trends or signs of financial problems that may call for remedial action. The Z-score can also helps to identify what sort of action is needed. For example, if a low or declining Z-score is due to a low ratio of working capital to total assets, the company might consider selling off obsolete equipment or inventory.

4.1 Z-Score Formula

The Z-score formula for manufacturing firms, which is built out of the five weighted financial ratios:

$$(i) \text{ Altman Z score} = 1.2 X_1 + 1.4 X_2 + 3.3X_3 + 0.6 X_4 + 1.0 X_5$$

where,

X_1 = Working Capital / Total Assets

X_2 = Retained Earnings / Total Assets

X_3 = Earnings before Tax & Interest / Total Assets

X_4 = Market Value of Equity / Total Liabilities

X_5 = Sales / Total Assets

(ii) Interpretation of Z score:

It is an important tool that predicts the financial health of companies and categorizes them in three zones—'safe', 'grey' and 'distress'. It is a multivariate formula, which is highly popular and is used by a variety of stake holders. A number of studies have established the discrimination power of the Model as well as its capacity to identify the financial health or distress of companies.

$Z > 2.99$ – “Safe” Zone

$1.81 < Z < 2.99$ – “Grey” Zone

$Z < 1.81$ – “Distress” Zone

- In this model, if the Z value is greater than 2.99, then the firm is said to be in the “safe zone” and has a negligible probability of filing bankruptcy.
- If the Z value is between 2.99 and 1.81, then the firm is said to be in the “grey zone” and has a moderate probability for bankruptcy.
- And finally, if the Z value is below 1.81, then it is said to be in the “distress zone” and has a very high probability of reaching the stage of bankruptcy.

(iii) The explanation of Z score components

a. Working Capital/Total Assets (WC/TA)

This ratio is a good test for corporate distress. A firm with negative working capital is likely to experience problems meeting its short-term obligations because there are simply not enough current assets to cover those obligations. By contrast, a firm with significantly positive working capital rarely has trouble paying its bills.

b. Retained Earnings/Total Assets (RE/TA)

This ratio measures the amount of reinvested earnings or losses, which reflects the extent of the company's leverage. Companies with low RE/TA are financing capital expenditure through borrowings rather than through retained earnings. Companies with high RE/TA suggest a history of profitability and the ability to stand up to a bad year of losses.

c. Earnings before Interest and Tax/Total Assets (EBIT/TA)

This is the most significant factor in the Altman score. It measures the true productivity of the firm's assets, independent of any tax or leverage factors. Since a firm's ultimate existence is based on the earning power of its assets, Altman found that this measures continually outperforms other profitability measures in assessing the risk of corporate failure, including cash flow.

d. Market Value of Equity/Total Liabilities (ME/TL)

This ratio shows that if a firm were to become insolvent, how much the company's market value would decline before liabilities exceed assets on the financial statements. This ratio adds a market value dimension to the model that isn't based on pure fundamentals. In other words, a durable market capitalization can be interpreted as the market's confidence in the company's solid financial position.

e. Sales/Total Assets (S/TA)

This informs investors how well management handles competition and how efficiently the firm uses assets to generate sales. Failure to grow market share translates into a low or falling S/TA ratio. The asset-turnover ratio is a standard financial ratio measuring the ability of the company's asset to generate sales and the management's capacity in dealing with competitive condition.

Table:1 Showing the Five ratios of the BDL Ltd from 2015-16 to 2018-19

Ratios /Years	Financial Ratios	2015-16	2016-17	2017-18	2018-19
x1	WC to Total Assets	0.204	0.187	0.165	0.254
x2	R.E to Total Assets	0.325	0.167	0.026	0.046
x3	EBIT to Total Assets	0.087	0.095	0.117	0.112
x4	MVE to BE	1.096	0.859	1.145	1.020
x5	Sales to Assets	0.426	0.583	0.695	0.561

The Z-Score uses various accounting ratios and market-derived price data to predict financial distress and future bankruptcy. The company has a positive working capital, suggesting that it can meet its short-term obligations with its current assets. Its retained earnings indicate that the company has a relatively low leverage, which allows it to finance its core operations with equity. Furthermore, the company has strong EBIT, suggesting strong efficiency and high revenues indicating an efficient use of its assets.

Table:2 Showing The Altman Z Score of the Bdl Ltd

Ratios /Years	2015-16	2016-17	2017-18	2018-19
1.2x1	0.245	0.225	0.197	0.305
1.4x2	0.456	0.234	0.036	0.064
3.3x3	0.287	0.316	0.387	0.403
0.6x4	0.658	0.515	0.687	0.612
1.0x5	0.426	0.583	0.695	0.561
Z score	2.072	1.873	2.002	1.945

5. Conclusion

Financial performance analysis includes analysis and interpretation of financial statements in such a way that it undertakes full diagnosis of the profitability and financial soundness of the business.

The company financial growth / strength can be identified in five major areas, viz., working capital, retained earnings, earnings before interest and tax, market value of the equity and total sales.

Altman Z score can help in measuring the financial health of a business organization by the use of multiple balance sheet values and corporate income. This method is successful in predicting the status of financial distress in any firm.

The calculated Z scores of the BDL Ltd were not below the 1.81, hence it was not at all falling in distress zone during the study period.

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