

Volume 8, Issue 2 (IX)
April - June 2021

ISSN 2394 - 7780

International Journal of
Advance and Innovative Research
(Conference Special)



Indian Academicians and Researchers Association
www.iaaedu.com

International Journal of Advance and Innovative Research

Volume 8, Issue 2 (IX) April - June 2021

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Scientific Journal Impact Factor

CERTIFICATE OF INDEXING (SJIF 2018)

This certificate is awarded to

**International Journal of Advance & Innovative Research
(ISSN: 2394-7780)**

The Journal has been positively evaluated in the SJIF Journals Master List evaluation process
SJIF 2018 = 7.363

SJIF (A division of InnoSpace)



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APPLICATION OF Z-SCORE MODEL FOR FINANCIAL HEALTH CHECKUP: A CASE STUDY OF J.K. CEMENT COMPANY LTD.

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ABSTRACT

Various stake holders such as bankers, financial institutions, investors, employees, government etc. need to know about the financial health of the business. Financial Analysis and Financial Statements are the two main tools which can help the future availability and utilization of the firm. For arriving at the conclusions about the financial health of any business, there are several tools available. Out of all of them ratio analysis is one of the most widely used tool. Despite ratio is a powerful tool, combining different ratios into a single measurement is not possible. Prof. Edward I. Altman has made an effort to combine these ratios into a single model. This model is popularly known as 'Z score model' which is used to predict financial health of the business. The present paper is based on the secondary data of the company. The researcher have attempted to apply Z score model to check the financial health of J.K. Cement, one of the leading Cement Company. The analysis showed the good results of the company in terms of liquidity, profitability, long term solvency, operating efficiency and sales generating capacity.

Key Words: -Financial health, Ratio analysis, Single measurement, J.K. Cement, Z score

INTRODUCTION

The success of any company depends on effective financial practices which starts from proper procurement of funds and ends by proper utilization of funds, this is possible when the financial activities of the firms are analyzed. Thus, financial planning, financial analysis and financial statements helps the firms to know the strength and weakness of the companies. So, after financial planning, financial analysis is the crucial step for a company to be successful. The main tool for financial analysis is the financial statements of the companies. Preparation of financial statements is an important task for any business. With the help of these financial statements, the business can communicate about several aspects about the financial health of the business. Various stake holders are interested in knowing about the financial health of the business. These stake holders can be classified into two categories viz. internal and external. Internal stake holders such as employees, executives, various levels of management use the financial statements for various purposes. External stake holders such as investors, credit agencies, government agencies, bank, financial institutions, other creditors etc. are interested in financial statements to know about the financial soundness of the business. In order to arrive at the conclusions about the financial soundness of the business the users of financial statements apply various tools of financial analysis such as comparative financial statements, common-size financial statements, trend percentages, fund flow and cash flow analysis and ratio analysis. Out of all these tools of financial statement analysis, ratio analysis is the widely used tool because of its efficiency and effectiveness of arriving at the conclusions about the financial soundness of the business.

INTRODUCTION TO Z-SCORE MODEL

Z-Score Model has been established by Edward Altman in the 1960s, he was an assistant professor of finance at New York university during that period. The model was prepared by Altman based on the research work done by considering the data of banks and have provided the bankruptcy model. In his study he considered 22 ratios and finally stated or formed the model considering 5 ratios which help to measure bankruptcy of the firms. This model helps to evaluate the general trend in the financial health of an enterprise over a period. Many accounting ratios are used to know financial health of the enterprise. Edward Altman established Z-Score model, he combined many accounting ratios (liquidity, leverage, activity and profitability) to form an index of profitability. A lower score of Z-Score Models depicts higher odds of bankruptcy. The model helps to analyze the financial solvency status of the firms and helps to take correct decisions regarding not entering the solvency Zone or Distress Zone, with the help of parameters given by Edward Altman.

Table-1 A table Showing Comparison Between 2 Models

Prof. Edward I. Altman's Z score Model	Prof. K. B. Mehata's Z score Model [Altman's modified model for Indian condition]
Formulae: $Z \text{ Score} = 0.012.T_1 + 0.014.T_2 + 0.03.T_3 + 0.006.T_4 + 0.999.T_5$	Formulae: $Z \text{ Score} = 0.712.X_1 + 0.842.X_2 + 3.107.X_3 + 0.42.X_4 + 0.995.X_5$
$T_1 = \text{Working capital} / \text{Total assets}$	$X_1 = \text{Net working capital} / \text{Total assets}$
$T_2 = \text{Retained earnings} / \text{Total assets}$	$X_2 = \text{Retained earnings} / \text{Total assets}$
$T_3 = \text{Earnings Before Interest and Tax (EBIT)} / \text{Total assets}$	$X_3 = \text{Earnings Before Interest and Tax (EBIT)} / \text{Total assets}$
$T_4 = \text{Market value of equity} / \text{Book value of total liabilities}^*$	$X_4 = \text{Book value of equity} / \text{Book value of total liabilities}^* \text{ (Refer note at the end of table)}$
$T_5 = \text{Sales} / \text{Total assets}^*$	$X_5 = \text{Net sales} / \text{Total assets}^* \text{ (Refer note at the end of table)}$
$Z = \text{Overall index/overall score}$	$Z = \text{Overall index/overall score}$
Benchmark for evaluation/zones for discrimination	Benchmark for evaluation/zones for discrimination
$Z \text{ score} < 1.81$	$Z \text{ score} < 1.2$
$1.81 < Z \text{ score} < 2.99$	$1.2 < Z \text{ score} < 2.9$
$Z \text{ score} > 2.99$	$Z \text{ score} > 2.9$
‘Distress’ zone	‘Bankruptcy’ zone
‘Grey’ zone	‘Grey’ zone
‘Safe’ zone	‘Safe’ zone
Note:	
*according to Prof. K.B. Mehata's model instead of market value of shares, book value of shares are considered for the calculation of fourth variable (X_4), because the shares of all companies are not listed in recognized stock exchange.	
*according to Prof. K.B. Mehata's model instead of Sales, net sales are considered for the calculation of fifth variable (X_5). Here, net sales = sales turnover – excise duty.	

REVIEW OF LITERATURE

Altman, E. (1968) has studied the theory of Traditional Ratio Analysis and Multiple Discriminant Analysis with the help of this method the researcher has developed Z-Score Model combining the ratios. The researcher has taken into consideration 66 corporations with 33 firms in each group. The researcher has analyzed the several factors which affect the firms. To measure the financial soundness the researcher has derived Z-Score Model. The researcher has reached the conclusion that discriminant ratio model proved to be accurate in predicting bankruptcy perfect in 94% of the sample of 1st 33 units and 95% of all firms in the bankrupt and non-bankrupt groups assigned to their actual group classification. The researcher also suggested the practical and theoretical implications of model. The researcher also told that the subject need to further researched and investigate the problems and even the model.

Devraj, T. and Gopalkrishnan, M. (2017) have taken into consideration IT companies for studying the financial performance of the companies with the help of Z-Score Model. The researcher has studied the data of 5 companies namely Wipro Ltd., Justdial Ltd., Mind Tree, Infosys Ltd., and Tata Elxsi Ltd. The researchers have studied financial performance to conclude the financial stability and strength and weakness of the selected companies. The researchers have found the results with the help of Z-Score model, they found that overall financial health of information technology is in healthy zone.

Geethalakshmi, A. and Jothi, K. (2017) have considered the field of Pharmaceutical Company for their research work. The main objective for their research work is to evaluate the financial health of the companies using Z-Score Model and to suggest for future growth and development of the selected companies in India. The researchers have taken into consideration the period of 2006-07 to 2015-16 for their study and they have

considered 5 pharmaceutical companies for their studies- Sun Pharmaceutical Ltd., Aurobino Pharma, Cipla Ltd., Reddy Laboratories and Cadila Health Care. They have used Edward I Altman Z-Score model for their study and to reach to conclusion. As per the research work, researchers found that Sun Pharmaceutical’s overall financial health is good and will have good growth in future. The researchers found that mainly all the companies financial health is good and will also prosper soon. They also found that overall pharmaceutical companies liquidity position is fluctuating, companies’ asset value is declining, and liabilities are exceeding the assets. As per the researchers’ suggestions if the sales generating capacity of the companies’ assets increases they may improve their market position and may increase a competitive condition.

Objectives of Present Research Paper

- 1) To study the financial health of the company using Z-Score given by K.B. Mehata
- 2) To study the bankruptcy stage of the company.

RESEARCH METHODOLOGY

To carry out the research work properly and systematically, it is necessary to prepare a research methodology first. In present research paper, following research methodology is used.

Title of the Study

The title of the study is as under

“Application Of Z-Score Model for Financial Health Checkup: A Case Study of J.K. Cement Company Ltd.”

Sample Size

The study is undertaken by considering the data of different companies associated with Cement Industry. The study includes the data of J.K. Cement.

Method of Data Collection

The researcher has used secondary data for the analysis. The details of different ratios are taken from www.moneycontrol.com. The details have been collected from the Annual Reports of the company. The researcher has considered the data of last 5 years for the study from 2016 to 2020.

Limitations of Present Research Paper

The main limitations of the present research project are.

- 1) The method of data collection is secondary, so the analysis has been done from the data that has been available in the financial statements of the company.
- 2) The data has been collected for 5 years only so the result is not applicable for coming years.
- 3) The outcomes are only available for the above company and not the other companies.

Analysis and Interpretation

Z-SCORE ANALYSIS

TABLE – 2 A table showing calculation of Z-Score of J.K.Cement

Z Score = 0.717X₁+0.842X₂+3.107X₃+ 0.420X₄+ 0.995X₅						
Year	0.717X₁	0.842X₂	3.107X₃	0.420X₄	0.995X₅	Z Score
2020	0.0450	0.3271	0.3457	0.0068	0.6837	1.4083
2019	0.0470	0.3412	0.3108	0.0080	0.7045	1.4116
2018	0.0479	0.2924	0.3553	0.0076	0.7834	1.4865
2017	0.0266	0.2599	0.3136	0.0074	0.7379	1.3454
2016	0.0426	0.2438	0.2254	0.0073	0.7179	1.2371

Table – 3 A Table Showing Overall Interpretation of Z- Score

Year	2020	2019	2018	2017	2016
J.K. Cement	1.4127 (Grey Zone)	1.4161 (Grey Zone)	1.4910 (Grey Zone)	1.3493 (Grey Zone)	1.2410 (Grey Zone)

MAJOR FINDINGS

- From the present study the researcher found that the selected company lie in grey zone.
- It was found by the researcher that the company is financially sound.

CONCLUSION

The results shows that company is financially sound. The company has been successful in maintaining liquidity, operating efficiency, long run solvency and investors' confidence. As company lies in the grey zone with more analysis by the management for the factors affecting, they can improve the condition and enter the safe zone.

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