



APPLICATION OF ALTMAN Z-SCORE MODEL TO ANALYSE THE FINANCIAL PERFORMANCE OF MARUTI SUZUKI INDIA LIMITED

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ABSTRACT: Most of the companies wish to achieve financial stable condition and perform good financial performance. The companies with unstable financial condition will face bankruptcy. The main objective of the study has attempted to analyse the financial performance of Maruti Suzuki India Limited with the help of financial tool i.e., Altman Z - Score Model. To determine the financial soundness of Maruti Suzuki Limited. The study was based on secondary data collected from the published annual reports of Company, CMIE Prowess IQ data base. Data collected for a period of ten years between 2011-12 to 2020-21. Results of the study shows that seven years out of study period was in Grey zone remaining three years was in Safe zone. The Collected data were analyzed to test the financial health of Maruti Suzuki India Limited by using Altman Z Score Model.

KEYWORDS: Financial Performance, Python, Maruti Suzuki India Ltd, Altman Z- Score Model.

INTRODUCTION

Financial Health of the company is one of the most crucial characteristics for the stakeholders. They all wish to know whether the organisation will do better in future in order to keep their interest intact with the company. The main reason to measure financial health is to prove that the company is profitable and not in imminent danger of bankruptcy. There are many techniques to accurately evaluate the financial health and long-term sustainability of the company. One in all the foremost ways to measure is to use financial ratios which use factors like debt, assets, sales, net profit, etc. to see this the current state of the company.

Frequent analysis of financial statements and the company position will give real picture of its financial status. Applying a model to analyse the financial condition of a company may help the management to predict the future and take corrective actions. It may reduce the bankruptcy.

Maruti Suzuki India Limited is a holding company. The Company is engaged in the manufacture, sale of motor vehicles, components and spare parts (automobiles). The other activities of the Company comprise facilitation of pre-owned car sales, fleet management and car financing. Its geographical segments include the domestic segment, which includes sales to customers located in India, and the overseas segment, which includes sales to customers located outside India.

Maruti Suzuki India Limited, formerly known as Maruti Udyog Limited, is an automobile manufacturer in India. It is a 56% owned subsidiary of the Japanese car and motorcycle manufacturer Suzuki Motor Corporation. As of March 2021, it had a market share of 43.65% of the Indian passenger car market.

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REVIEW OF LITERATURE

Subbarayudu, S., et al. (2020) "A Study on Working Capital with reference to Ultratech Cements Ltd in Anantapuramu District" analyze the financial position of the company. The study of working capital was based on tools like Ratio Analysis, Statement of changes in working capital. The major source of data for this project was collected through annual reports, Profit and Loss account of 5 years period from 2013-14 to 2017-18. Through this study, it was found that the financial status Ultra Tech Cement is good.

Shaikh Salman Masood and Haitham Nobanee (2020) say that this project is based on the financial position of the company tata motors ltd by ratio analyses and research to analysis the information is taken from google on money control for five years 2017, 2018, 2019, 2020, 2021. This can show that whether changing a major (or) minor and the financial position of tata motors ltd.

Mohammady, Esmatullah (2019) analyzed financial performance of public and private sector banks in Afghanistan using CAMEL approach. In this study, the data for 4 years (2014-2017) has been evaluated by the researcher and it has been found that almost base on all CAMEL parameters, private sector banks on average are performing far better than public sector banks. Researcher believed that this study can be helpful for policy makers in government and also for banks to meet their shortcomings and improve their financial performance to meet the standards and requirements.

Lokganathan et al (2019) in their study entitled, "A Study on Financial Performance of Selected Public Sector Banks in India Using Camel Approach" attempted to evaluate the performance of public sector banks in India using CAMEL approach. The study was a descriptive based analytical research design. Researchers selected five public sector banks out of 27 public sector banks for the study. The study had used the secondary data published by the Reserve Bank of India for the period 2014-2018. The study

Evaluates the performance of selected public sector banks are Bank of Baroda, Canara Bank, Indian bank, Punjab national bank, and State bank of India. Through this study, it was found that on an average SBI was at the top position followed by Bank of Baroda and Punjab National Bank. It is also noted that Indian bank was at the bottom position in selected CAMELS ratio.

Patel, Bhumi (2019) analyse the financial performance with the help of ratio analysis at Patco Food Pvt ltd. This is analytical study based on the secondary data and is collected from the official website of Patco Food Pvt Ltd from 1-4-2011 to 31-3-2015. Based on the analysis, it was found that the company has got enough funds to meet its debts & liabilities, the income statement of the company shows sales of the company increased every year at good rate and profit also increased every year. Overall, the financial performance of the company for the five years was analyzed and it was proved that the company was financially sound.

Mukdad Ibrahim (2019) in his paper, "Measuring the Financial Performance of a Telecommunications Corporation" measures the financial performance of the Emirates Telecommunications Group Company, the largest provider of internet and telephony services in the United Arab Emirates, during the years 2016 to 2018. This paper empirically analyzed three groups of indicators, profitability, liquidity and capital structure. The researcher has used Ratio analysis technique and used relevant ratios that reflect various aspects of the firm's financial health. The findings indicated a noticeable improvement in the level of profitability in 2018 when compared to the previous years, possibly indicating a strengthening in the firm's ability to control costs in its pursuit of higher profit margins.

Sankaran. V.S. (2019) in his research paper, "Financial Performance Analysis with Reference To Shipping Sectors" attempts to understand the overall financial position of shipping sectors the researcher had selected sample of fifty companies selected from various areas of Chennai city. The data collection instrument used for the study was balance sheet i.e. secondary data. The researcher has recommended that the company should look into ways of improving sales in period of low demand to improve profitability and also increase financing to expand and grow the business. The paper concludes with a positive response of financial performance in shipping sectors.

Kiran, K. (2019) in her research paper, "A Comparative Analysis of Financial Performance of Selected Telecom Companies Using Z Score Model" focuses on assessing the financial health of selected Telecom units i.e BSNL, Bharti Airtel, Vodafone and Idea from 2013-14 to 2017-18. The study revealed that Vodafone needs to take corrective actions immediately as Z score is warning its bankruptcy in near future. Moreover, Airtel has also to be serious to improve its performance. financial years 2007-08 to 2011-12 which has depicted the financial distress of BSNL.

Petrit Haranaj and Beke kuqi (2019) the main purpose of the study to determine forecast and evaluate the best of the economic conditions and company performance in the future and he found out the other purpose of this study to analyse the financial statement and then give the information for the financial managers to make through decision about their business. The financial statement applies tools analytical techniques and required method for business analysis.

Dr.A.Ramya, Dr.S.Kavitha (2017) This study "Financial Analysis of Maruthi Suzuki India Limited Company" Financial performance analysis is the process of determining the operation and financial characteristics of a firm from accounting and financial statements. The goal of such an analysis is to determine the efficiency and performance of the firm's management, as reflected in the financial records and reports. The study focus on overall financial position of particular Maruti Suzuki company during the specific period based on the selected variables, which may interest not only for the respective companies in the industry but also brings a process of development operational aspects of the entire industry. The study is much important to the management from the point of decision-making purpose, to identify the strength, weakness areas of the company and finally helps to maximize the intrinsic value of the company.

Mrs.B. Kishori (2017) The financial performance of the company is measured by analyzing the financial statement. The relationship analysis show and relationships. These also help to predict the future, show weakness, strengths. The ratios usually are compared to other companies within the industry average to see where the company stands. The analysis is done by using various ratios of ratio analysis and analysing the comparative income statement of the company.

Lekha S (2017) emphasises that the camels rating system is used by the bank supervisory authorities in order to evaluate an overall performance and rate the financial institutions based on the financial statement of the bank according to six factors represented by the acronym CAMELS. Soundness of the bank is measured on a scale 1 to 5. Banks that are given a score of less than two are considered to be the high-quality institutions.

Ravichandran. M Venkata Subramanian (2016) financial analysis referred to financial statement analysis or accounting analysis refers to an assessment of the viability, stability and profitability of a business, sub-business or project. The main idea behind this study is to analysis the financial operating position of the company. This research is done with help of secondary data which is gathered from the annual report of the company. The financial performance can be measured by using various financial tools such as profitability ratio, solvency ratio, comparative statement, etc

Dr. Ashok Kumar Rath (2016) “A study on financial statement analysis of tata steel Odisha project, kalinga nagar”. Indian economy was in deep crisis in july 1991, the assets of a company can be financed either by increasing the owner’s claims or the creditors’ claims. The owner claims increase when the firm raises funds by issuing ordinary shares or by retaining the earnings, the creditors’ claims increase by borrowing.

RESEARCH OBJECTIVE

The key objective of the study is to analyse the financial performance of Maruti Suzuki India Limited by engaging Altman Z Score model.

RESEARCH METHODOLOGY

The present study is analytical in nature. In this study secondary data is largely used, the required data for analysis have been collected for ten years spanning from 2012 to 2021. Data obtained from published sources like annual reports of Maruti Suzuki India Limited, CMIE Prowess IQ database. Maruti Suzuki India limited selected for the study based on Judgemental sampling technique. To analysis the financial performance of Maruti Suzuki India Limited study has been used Altman Z Score model as a statistical tool. The study has used Python for carrying out the data analysis.

Z-Altman Score

As per the Z-Score model, the safe zone started from the range 2.99, the value greater than 2.99 showed that the company was financially good. The grey zone of Z – score model ranges between the values 1.81 to 2.99, that indicated that company’s financial health was good and there will be low chances of bankrupt in near future. Below the Z – score 1.81, the company falls the category of Distress zone, which indicates that company’s financial performance was not good.

Z score was formulated for predicting bankruptcy of public listed firms and was published by Edward I. Altman in 1968. He was working as assistant professor of finance at New York University. The Z score predicts probability of firms going bankruptcy within two years. The Z score comprises of five variables namely Z1, Z2, Z3, Z4 and Z5

Formula

$$\text{Z-Score} = (1.2 * Z1) + (1.4 * Z2) + (3.3 * Z3) + (0.6 * Z4) + (1.0 * Z5)$$

Where,

Z1 = WORKING CAPITAL/TOTAL ASSETS

Z2 = RETAINED EARNINGS/TOTAL ASSETS

Z3 = EARNINGS BEFORE INTEREST & TAX/TOTAL ASSETS

Z4 = MARKET VALUE OF EQUITY/TOTAL LIABILITIES

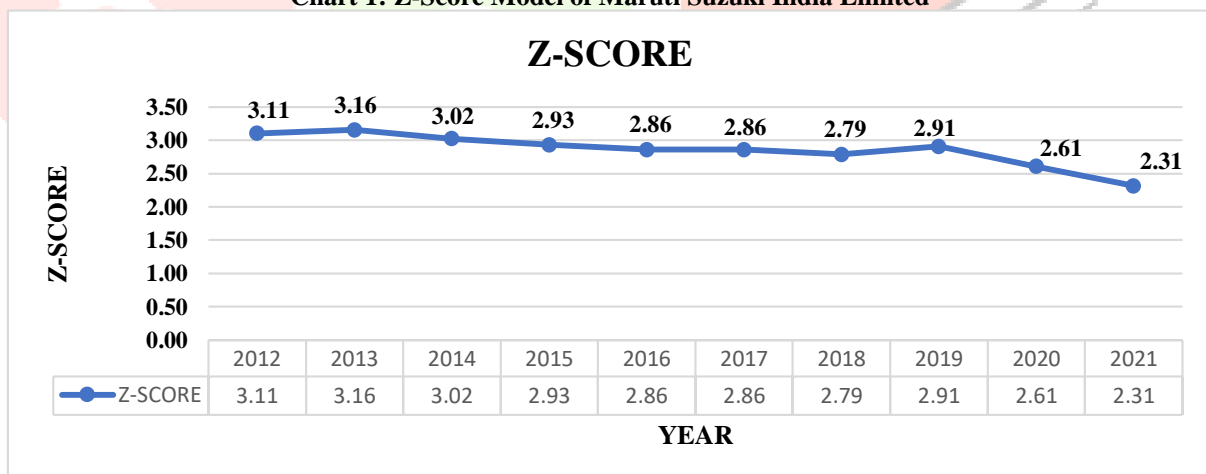
Z5 = SALES/TOTAL ASSETS

Table 1 - Z score of Maruti Suzuki India Limited from 2012 to 2021

Z-SCORE						
YEAR	Z1	Z2	Z3	Z4	Z5	Z-SCORE
2012	0.2438181	0.9443041	0.3175678	0.0038875	1.5956767	3.11
2013	0.1893530	0.9650208	0.3692012	0.0033889	1.6304172	3.16
2014	0.2396251	0.9548758	0.3953749	0.0029670	1.4311314	3.02
2015	-0.0223576	0.9828166	0.4788251	0.0027004	1.4893923	2.93
2016	-0.0913648	0.9925246	0.5856989	0.0021602	1.3719146	2.86
2017	-0.1039317	0.9910545	0.6413386	0.0017678	1.3274928	2.86
2018	-0.1519654	0.9811137	0.6116079	0.0015260	1.3434827	2.79
2019	-0.0340807	1.0231187	0.5487922	0.0014397	1.3668813	2.91
2020	-0.0549583	1.0807055	0.3727107	0.0014484	1.2087620	2.61
2021	0.0415109	1.0233307	0.2429949	0.0012930	1.0037835	2.31

Source: Calculated from Annual Reports of Maruti Suzuki India Limited from 2012 to 2021

Chart 1: Z-Score Model of Maruti Suzuki India Limited



As per Z Score Model, if

$Z > 2.99$	SAFE ZONE
$1.81 < Z < 2.99$	GREY ZONE
$Z < 1.81$	DISTRESS ZONE

Findings of Z- Score analysis of Maruti Suzuki India Limited

By analysing the values of Z Score, it can be able to find out the predicative ability of Z-Score model of Maruti Suzuki India Limited. In the last 10 years of analysis, the Z-Score for FY 2020-21, 2019-20, 2018-19, 2017-18, 2016-17, 2015-16, 2014-15 is between 1.81 and 2.99, therefore they are in grey zone. The Z-Score for the FY 2013-14, 2012-13 and 2011-12 is above 2.99, therefore they are in safe zone. In the FY 2011-12, 2012-13 and 2013-14, the company was in safe zone i.e., unlikely to file

for bankruptcy. From the FY 2014-15, 2015-16, 2016-17, 2017-18, 2018-19, 2019-20, 2020-21, the company was in grey zone i.e., with moderate chance of filing bankrupt.

Thus, the Z-Score analysis of Maruti Suzuki India Limited point out that in the preliminary years the company's financial health was sound but in later years, the company's financial position was unsatisfactory because according to Altman's Z-Score model maximum of years in grey zone.

Conclusion

Financial soundness of a company is a centre theme for the shareholders as they have to do the investment in the company. Therefore, periodical analysis of the financial performance of a company is very crucial as any decision taken by the company depends on its financial soundness. In the present study, Altman's Z score plays a vital role in deciding the financial solvent of a company and there by judge its financial health. The present study was conducted to analyze and predict the financial performance of Maruti Suzuki India Limited. The study revealed that the company is not financially sound during the study period of ten years. It means the company's overall financial health was average during the study period of ten years

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