



A Study on Financial Health of Arasu Rubber Corporation, Kanyakumari District of Tamilnadu: A 'Z' Score Approach

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ABSTRACT

Rubber is one of the versatile materials discovered by mankind. It is used for making tyres, tubes, engine mountings, brakes, radiators, hoses, oil seals, beading, mattings, linings, cushions etc. necessary for automobile industry. Arasu Rubber Corporation was established during 1984. The corporation has a major share in the rubber production in Kanyakumari district. The company's profitability, liquidity, leverage, activity and growth could be measured through financial ratios. No single ratio calculation can provide a meaningful picture of a firm's financial condition. Thus, in the present study, Edward Altman's 'Z' score has been used which focuses on a model which captures the predictive viability of a firm's financial health by using a combination of financial ratios that ultimately predicts a score which can be used to determine the financial health of Arasu Rubber Corporation

Key words: *liquidity, leverage, Altman's Z score, financial ratios.*

Introduction

Rubber has multifarious uses and there is hardly any segment of modern life which does not make use of rubber based material. At all India level, Tamilnadu holds the second place in the production of natural rubber. The share of Kanyakumari district in the total area of Tamil Nadu is 97.78 percent in 2007-2008. It is the only district which has suitable climatic conditions for rubber growing. Arasu Rubber Corporation was established by the Government of Tamil Nadu during 1984. The corporation has a major share in the rubber production in Kanyakumari district. It is the only organization in Tamil Nadu that is involved in the active management of rubber plantations and rubber processing.

The companies profitability, liquidity, leverage, activity and growth could be measured through financial ratios. No single ratio calculation can provide a meaningful picture of a firm's financial condition. Thus, in the present study, Edward Altman's 'Z' score has been used which focuses on a model which captures the predictive viability of a firm's financial health by using a combination of financial ratios that ultimately predicts a score which can be used to determine the financial health of a company.

Edward I. Altman [1] introduced the world to the Altman Z-score, a technique designed to predict corporate bankruptcy. Over the past Forty two years, scores of academics and practitioners have put the Z-score to test

under a wide range of industries and economic environments for their financial health. Based on the above facts the present investigation has been taken to study the financial health of Arasu Rubber Corporation based on Altman's 'Z' score approach.

Review of literature

The multiple discriminate analysis [MDS] was used by Altman in his effort to find out a bankruptcy prediction model. Between 1946 and 1965 he selected 33 publicly traded manufacturing bankrupt companies and matched them to 33 firms on a random basis. The result yielded equations called 'Z' score that correctly classified 94% of the bankrupt companies and 97% of the non-bankrupt companies a year prior to bankruptcy. This percentage dropped when trying to predict bankruptcy two or more years before it occurred. The ratios used in Altman model [2] are working capital over total assets, retained earning over total assets, earnings before interest, taxes over total assets market, value of the equity over book value of total liabilities and sales over total assets.

Financial ratios usually lack theoretical justification. Since bankruptcy is cash oriented phenomenon, the use of variable based on cash flows is theoretically appealing. Statistics shows that more than 300 companies go out of business every week [3]. The high rate of bankruptcy is attributed to the combined effect of fierce competition in the market place and heavier debt burdens carried by the companies. While few firms were affected by the challenges, a large number of firms were affected by the competition.

Gupta attempted a refinement of Beavers [4] method with the objective of building a forewarning system of corporate sickness the study among 728 industries revealed that earning before depreciation, interest and taxes to taxes and operating cash flows to sales had higher degree of sickness. In accordance with the literature, the liquidity and profitability ratios turned out to be the most important variable in forecasting default followed by the company size and its activity.

The dynamic Z score[5] suggests that the time tested Altman Z score, originally designed to predict corporate default represents considerable value when used as a corporate performance metric if measured continuously as opposed to one moment in time. Used in this manner this article argues that the Z score should be considered more than in the corporate performance management setting.



A sample of non parametric test for measuring the relative differentiating power of various financial ratios was used [6].

Methodology of the Study

The study attempts to assess the financial Health of the Arasu Rubber Corporation in terms of retained earning to total assets position, networking capital position, and Equity-debt position and Net sales turnover position.

Sources of the data

"A study on Financial Health of Arasu Rubber Corporation, Kanyakumari district of Tamil Nadu : A Z – Score Approach" has been made using data from annual report of Arasu Rubber Corporation, Nagercoil , Kanyakumari district . The period of the study was ten years from 2000-2001 to 2009-2010.

Hypothesis for the study

1. Net working capital ratio is uniform in all the years
2. Retained earning to total assets ratio is uniform in all the years.
3. EBIT to total assets ratio is uniform in all the years
4. Equity debt ratio is uniform in all the years
5. Total asset turnover ratio is uniform in all the years
6. No significant difference in Z-scores value in the selected years

Techniques for the Study

For the purpose of the analysis the researcher has used Altman's Z score to predict, analyze and compare the financial health of the company. The specified variable used is explained in Table- A and the interpretation of Z score value is presented in Table -B. To study the financial health of the company, different ratios are calculated and the simple statistical techniques such as mean and t test were also applied to analyze the consistency, stability and overall trends in the different ratio used in Altman's Z score approach.

Table –A

Financial Ratio	Coefficient of the ratio (recommended by Altman)
Net working capital to total assets (X1)	0.012
Retained earnings to Total assets (X2)	0.014
EBIT to Total assets (X3)	0.033
Market value of equity to total liabilities(X4)	0.006
Net sales to Total assets(X5)	0.0999
Z score= (X1*0.012)+(X2*0.014)+ (X3*0.033) +(X4*0.006)+ (X5*0.0999)	

Table- B

Score	Interpretation
Above 3.00	The company is Financially safe
2.00-2.99	The company is on alert to exercise the caution
1.8-2.00	There are chances that the company could go bankrupt in the next two years
Below 1.8	The company's financial position is embarrassing

Results

Net Working Capital Ratio

Net working capital to total assets ratio of Arasu Rubber Corporation is presented in Table-1.it is concluded that the corporation has lower net working ratio continuously in all the years studied. It indicated that the corporation suffers from meeting its current obligations. However, it could be observed that the networking capital is recovering slowly as years progresses which is observed from the Table-1.the ' t ' test revealed that the ratio of networking capital to total asset(Table-2) showed that ' t ' cal. (-4.775) is lesser than ' t ' crit.(2.26) which suggested that there is no significant difference in networking capital across the years studied.

Retained Earnings to Total Assets

The retained earnings to total assets ratio of Arasu rubber corporation is depicted in Table -3.As observed from in Table-3 , among the different years studied ,the corporation registered highest earnings in the year 2006-07(16.64%).however there is a progressive improvement in the retained earnings from 2000-01 to2006-07 and again it started declining in 2009-10.(0.49%). The retained earnings to total assets position of the corporation is compared and tested using 't' test .as we find in the Table -4 , ' t ' cal. is < ' t ' critic at 5% significant level ,we accept the null hypothesis and conclude that the ratio of retained earnings to total assets of Arasu rubber corporation does not differ significantly .

Return on Total Assets (Ebit/Total Assets)

The return on total assets of the Arasu rubber corporation is depicted in Table-5. Among different years, 2006-07 sustained the highest return on total assets ratio (20.90%) followed by 2003-04 (11.40%) and 2005-06(11.00%).

This indicated that the operational efficiency was the highest during 2006-07 compared to other years. The return on total assets position of Arasu Rubber Corporation is compared and tested using the following hypothesis. The results of ' t ' test as revealed from Table-6 suggested that the calculated value is lesser than the table value ,hence Null hypothesis is accepted and alternative hypothesis is rejected and it is concluded that the ratios of return on total assets of the Arasu rubber corporation does not differ significantly.

Equity-Debt Ratio (EDR)

The equity-debt ratio of Arasu rubber corporation id depicted in Table-7.Among the study period, the year 2008-09 recorded the highest equity-debt ratio (548.7%). followed by 2007-08(472.7%) and 2006-07(422.6%).The equity-debt position of the corporation is compared and tested using the Null hypothesis. The ' t 'test results are depicted in Table-8 . As observed in Table-8, the ' t 'test results for the Equity-debt ratio showed that ' t ' cal.(15.52) is greater than ' t 'crit. (2.26) which suggested that there



existed significant differences among different years of study for the equity-debt ratio.

Total Assets Turnover Position

The total assets turnover of the Arasu rubber corporation is depicted in Table-9. It is observed that the year 2007-08 registered the highest total asset turnover ratio (67.73%). This implies that the year 2007-08 generated sales of 67.73 for every rupee of investment in fixed. This is followed by the year 2008-09 (67.73%) and 2006-07 (62.79%). The total assets turnover position of the corporation is compared and tested using the following hypothesis and the 't' test results are depicted in Table-10. The 't' test revealed that for the total assets turnover ratio, the 't' cal. (11.14) is more than the 't' crit. (2.26) thereby suggesting significant differences in the total assets turnover across the years studied.

Discussion

The 'Z' score values of the Arasu rubber corporation during the study period under review have been depicted in Table-11. It is understood from the table that during the years 2005-06, 2006-07, 2008-09 and 2009-10 the corporation registered the score much above the suggested value of financial health. It is also understood that the financial health of the Arasu rubber corporation in the future years is expected to be sound enough to maintain liquidity. The Table-11 also revealed that during 2000-01 and 2001-02, the score was less than 1.8 indicating that the financial position of the corporation is very weak, sounding an alert to various stakeholders of the corporation. The corporation, however, has improved its score as more than 2.00 during 2002-03, 2003-04 and 2004-05 which suggest that the corporation is improving so as to sustain from bankruptcy. The financial health has improved progressively viz., 2005-06, 2006-07, 2007-08, 2008-09 and 2009-10 which suggested that the corporation is financially safe. The 'Z' score position of the corporation has been tested through the null hypothesis. The results pertaining to the 't' test are depicted in Table-12. The calculated value is more than the table value, hence null hypothesis is rejected and alternative hypothesis has been accepted and it can be concluded that there existed significant differences among different years with regards to 'Z' score.

From the Analysis and Interpretations the Major Findings of the Study are as Follows

- i) It is understood that the financial position of the company has improved progressively from 2000-01 to 2009-10 which suggested the company is financially safe.
- ii) The working capital has slowly improved as the years progress thus suggested that the company has gone for debt raising.
- iii) The debt position of the corporation was lower than the market value of the equity, which helped the company to maintain a reasonable leverage position.

- iv) The operating efficiency was low throughout the study period and hence, increase in EBIT did not match with the increase in total assets.
- v) The retained earnings ratio of the corporation is not satisfactory even though 2005-06 and 2006-07 recorded a marginal satisfactory effect.
- vi) However, the results of the sales volume clearly showed that the corporation has succeeded in achieving the standards ratio through sales.

Financial health of any corporation is a matter of concern for every stakeholder of the business. It is in fact, the financial position of the company that drives the decision making process of any stakeholder. In this context, Altman's 'Z' score plays an important role in judging the financial soundness of the Arasu Rubber Corporation. The study on an overall basis, revealed that out of the different years of study, the company was very weak during the first 5 years of the study period (i.e., from 2000-1 to 2004-05) and the financial position has improved as the year progresses and it has reached the safe level during the last 5 years (i.e., from 2005-06 to 2009-10) as observed by the 'Z' score value.

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Annexure

Table 1: Networking Capital Ratio (%) of Arasu Rubber Corporation

Year	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	Mean	S.D.
Net working capital	-62.55	-69.18	-20.70	-23.10	-29.30	-26.17	-15.73	-15.50	-22.30	-13.20	-29.77	19.71

Source: Computed from Annual reports of Arasu Rubber Corporation

Table 2: One sample *t* test for net working capital ratio of Arasu Rubber Corporation

Variable	df	<i>t</i> cal.	P -value	<i>t</i> crit.	95% confidence interval of the difference	
					lower	upper
Net working capital	9	-4.775	0.001	2.262	-43.8775	-15.6685

Source: one sample test had been done using SPSS Software

Table 3: Retained Earnings to total Assets Ratio(%) of Arasu Rubber Corporation

Year	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	Mean	S.D.
Retained Earnings to total Assets	-17.65	-16.03	02.05	05.99	02.30	06.15	16.64	05.39	0.40	0.49	1.02	10.39

Source: Computed from Annual reports of Arasu Rubber Corporation

Table 4: One sample *t* test for Retained Earnings to total Assets Ratio(%) of Arasu Rubber Corporation

Variable	df	<i>t</i> cal	P -value	<i>t</i> critic	95% confidence interval of the difference	
					lower	upper
Retained Earnings to total Assets	9	0.311	0.763	2.262	-6.412	8.458

Source: one sample test had been done using SPSS Software

Table 5: Return On Total Assets (EBIT/Total Assets (%)) of Arasu Rubber Corporation

Year	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	Mean	S.D.
Return On Total Assets	-12.60	-10.80	04.69	11.40	06.80	11.00	20.90	08.00	0.77	05.13	4.38	10.17

Source: Computed from Annual reports of Arasu Rubber Corporation

Table 6: One sample *t* test for Return On Total Assets (EBIT/Total Assets(%) of Arasu Rubber Corporation

Variable	df	<i>t</i> cal	P -value	<i>t</i> critic	95% confidence interval of the difference	
					lower	upper
Return On Total Assets	9	1.36	0.207	2.262	-2.900	11.650

Source: one sample test had been done using SPSS Software



Table 7: The Equity-Debt Ratio (%) of Arasu Rubber Corporation

Year	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	Mean	S.D.
Equity-Debt Ratio	294.7	304.2	327.7	340.4	359.0	378.6	422.6	472.7	548.7	415.5	386.4	79.9

Source: Computed from Annual reports of Arasu Rubber Corporation

Table 8: One sample *t* test for Equity-Debt Ratio (%) of Arasu Rubber Corporation

Variable	df	<i>t</i> cal	P -value	<i>t</i> critic	95% confidence interval of the difference	
					lower	upper
Equity-Debt Ratio	9	15.52	0.00	2.262	32.92	44.35

Source: one sample test had been done using SPSS Software

Table 9: The Total Assets Turnover Ratio (%) of Arasu Rubber Corporation

Year	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	Mean	S.D.
Total Assets Turnover	34.31	31.27	37.49	43.38	37.66	56.79	62.79	67.73	66.53	52.43	49.03	13.91

Source: Computed from Annual reports of Arasu Rubber Corporation

Table 10: One sample *t* test for Total Assets Turnover Ratio (%) of Arasu Rubber Corporation

Variable	df	<i>t</i> cal	P -value	<i>t</i> critic	95% confidence interval of the difference	
					lower	upper
Total Assets Turnover	9	11.14	0.00	2.262	39.08	58.99

Source: one sample test had been done using SPSS Software

Table 11: 'Z' Score Values of Arasu Rubber Corporation

Year	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	Mean	S.D.
'Z' Score Values	0.71	0.74	2.29	2.68	2.45	3.00	3.93	3.70	3.75	3.28	2.65	1.16

Table 12: One sample *t* test for 'Z' Score Values of Arasu Rubber Corporation

Variable	df	<i>t</i> cal	P -value	<i>t</i> critic	95% confidence interval of the difference	
					lower	upper
'Z' Score	9	7.25	0.00	2.262	1.83	3.48

Source: one sample test had been done using SPSS Software
