Comparative Financial Health Analysis of Co-operative Milk Processing Plants in Ahmednagar District of Maharashtra

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Abstract

This paper aims at analyzing and comparing the financial health trends of cooperative milk processing plants in Ahmednagar district of Maharashtra using Altman Z score analysis. The two milk processing plants selected on the basis of simple random sampling method out of 14 milk cooperative milk processing plants. The researcher used quantitative methodology as financial ratios are calculated from the analysis of financial statements of milk processing plants over a period of 12 years during 2001-2012. Statistical t-test taken to compare the mean differences of two cooperative plants to determine whether there is significant difference between the financial healths's of two sampled milk processing plants. Through hypothesis test it is statistically inferred that both the milk processing plants are too much in a healthy position. The study concluded that Milk processing plants are financially healthy and predicted not to be in financial difficulty in next two years as per Z Score model. The study suggested that the financial executives of milk processing plants needs to manage the financial position well as over the 12 years period during 2001-2012, the milk processing plants shows decreasing trends in Z score

Key words: Altman Z Score, Financial health, Milk processing plants

1.0 Introduction

Dairy industry in India is crucial for the socio economic development of our country owing to its income and employment generating potential. There is a tremendous change in the dairy industry before and after liberalization. As a part of economic reforms, dairy industry liberalized in 1991.The cooperative milk processing plants which were earlier protected through government policies get exposed to open competition from the private players. Volatile milk prices, squeezing profit margin, intensified competition, uncertain monsoon and demand supply management etc becomes the key challenges. For the healthy growth of milk processing sector, it is essential that they should grow, earn consistent profit and generate healthy cash flows. Considering the rising income and healthy lifestyles of people, the milk processing sector needs to develop innovative approach and ability to adapt to the market changes. The economic survey of Maharashtra reported that around 40% of the cooperative milk processing plants are running into losses and some of the milk plants are losing their net worth and face financial difficulty. Some plants became bankrupt. There are 15 cooperative milk processing plants in Ahmednagar district out of which 50% are operating below their production capacities and normally faced financial problems. Against this background, to have healthy and strong growth of milk processing sector, the financial aspects of dairy business should be managed on sound principles of financial management. Futuristic and sound financial management decisions are based on the use and applications of financial tools and techniques which helps in managing the financial resources. Financial managers should anticipate future risks and devise strategies to overcome obstacles in achieving the organizational goals. To do this, they need to develop the sophisticated tools and techniques which enhances the accuracy of predicting future and take advance signals to navigate their business well.

In this highly complex, competitive and dynamic world, the survival and growth of business becomes difficult. Financial executives are pressurized to create value and contribute positively in the profitability of businesses. The modern financial managers expected to be innovative, creative and futuristic in his decisions. To do well in any business it becomes crucial for financial executives to manage the financial position of the business to meet the short term and long term requirement of all the stakeholders without losing his focus from the organizational goals.

It is the duty of the financial manager to monitor the financial health of the company particularly the profitability positions, sales position, solvency positions, utilization of capital and assets efficiently. An attempt has been made in this study to evaluate the general trends in the financial health of Co-

operative Milk processing plants using Altman 'Z' score analysis. The Z-score is such a formula used for predicting bankruptcy. It was published in 1968 by Edward I. Altman. This formula is used to predict the probability that a firm will go into bankruptcy within two years. 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 Altman combines a number of accounting ratios viz, leverage, liquidity, activity and profitability to form an index of probability to predict bankruptcy. 'Z' score is the overall index computed from the working capital to total asset*100(X_1), operating profit to net sales*100(X_2), earnings before interest and tax to total assets*100(X_3), equity to debt ratio(X_4), the ratio of sales to total assets(X_5).Edward I. Altman developed following formula on the basis of multi discriminant analysis (MDA).The formula used to evaluate the 'Z' score analysis is

$Z=.021X_1+.014X_2+.033X_3+.006X_4+0.999X_5$

Altman provided following guidelines to classify the firms on the basis of 'Z' score.

Case 1] 'Z' score< 1.8 (Unit is in bankruptcy zone, failure is certain and extremely likely)

Case 2] 1.8<'Z' score>3 (Financial Viability of these units considered to be healthy)

Case 3] 'Z'score>3 (Unit is in too healthy zone)

1.2 Literature Review

Thirunarayanaswamy (2006) in his study states that the sickness in co-operative sugar mills increase year after year. The study found that accumulated losses, absolute technology, mis-management in finance and production factors were the important causes for sickness in the mills. **M.Kannadhasan (2007)** examined the financial health of a watch company in India by using Z score model. The study concluded that the company overall financial health was good. **Nikam G.A. (1986)** attempted to analyze the financial strength of four co-operative sugar mills situated in Aurangabad district. He has suggested that since the co-operative sugar sector is a recent origin particularly in Marathawada and hence the unit has been set up at a high block cost as compared to other private sugar mills. **Narassiah (1996)** analyzed the cash position of Kovur cooperative sugar mills Ltd. Nellore. The result shows that the current ratio is below the standard norms of 2, and the major portion of current assets is inventory. The net cash flow coverage ratio of the mill

was negative because of the inconsistent cash flow and insufficient maintenance of liquidity. **Sarbapriya Ray(2011)** examined the combined effect of various financial ratios with the help of Multiple Discriminate Analysis. The author identified poor management decisions are responsible for corporate failures and this can be realized by tracking accounting ratios. **N.R.V. Ramana Reddy, K. Hari Prasad Reddy(2013)** compared the financial performance of sugar mills using Z score analysis and concluded that financial performance of Sri Venkateswara Sugars Factory Ltd. performance is good compared to Chittoor co-operative sugars Ltd.

1.3 Objectives of the study

1. To analyze the financial health trends of Milk Processing Plants over a period of 12 years during 2001-2012.
2. To compare the financial health and viability of the company.

Research Methodology

There are 14 cooperative milk processing plants which are presently operating in Ahmednagar District of Maharashtra. The researcher selected two cooperative plants on the basis of lottery based simple random sampling method. The identified plants were Rajhans and Godavari respectively. This study is based on the secondary data extracted from annual financial statements of the milk processing plants over a period of 12 years during 2001-2012.The data were analyzed with the help of Working capital to Total assets ratio, Retained earnings to Total assets ratio, EBIT to Total assets ratio, Reciprocal of Debt-Equity ratio, Sales to Total assets ratio and Z score model. The researcher used statistical 't' test to verify whether there is a significant difference in the financial health of the two milk processing plants.

1.4 Hypotheses of the study

H0: There is no significant difference between the financial health of Rajhans and Godavari Milk processing plants

H1: Financial Health of Rajhans Milk Processing Plant is relatively better than Godavari Milk Processing Plant

1.5 Limitations of the study

The following are the limitation of the study
1. The study was limited to 12 years only.
2. The result of the study cannot be generalized to other company.

3.The study is fully based on the figure obtained from the published annual reports.

1.6 Data Analysis and Findings

On the basis of extracted information from the annual financial statements of Rajhans and Godavari milk processing plants, researcher calculated Working capital to Total assets ratio, Retained earnings to Total assets ratio, EBIT to Total assets ratio, Reciprocal of Debt-Equity ratio, Sales to Total assets ratio over a 12 year period during 2001-2012. The ratios tabulated in Table 1 and table 2 for Rajhans and Godavari plants respectively and their Z score determined using following formula:

$Z=.021X_1+.014X_2+.033X_3+.006X_4+0.999X_5$

The Z score information presented in Table 1 reported that the financial health of Rajhans indicated by Z score shows declining trends from the year 2001 to 2012.In the year 2001 Z score was 5.132914 which gradually declines to 3.94.The upper limit of Z score was observed to be 5.132914 in the year 2001 whereas lowest Z score observed to be 3.278614 in the year 2007.

Table 1 **Z** Score of Rajhans Milk Processing Plants
[Year 2001-2012]

Year	X1	X2	X3	X4	X5	Z Score
	NWCTA	**NOPTO NS**	**EBITTOTA**	**EQTODE**	**STO TA**	
2001	0.763773	0.007447	0.064269	0.639575	3.657851	5.132914
2002	0.500836	0.006264	0.051744	0.484921	3.500842	4.544607
2003	0.560251	0.006652	0.047251	0.604425	3.010591	4.22917
2004	0.483446	0.007351	0.051455	0.636749	2.966782	4.145783
2005	0.612291	0.006914	0.039621	0.73651	2.428618	3.823954
2006	0.467969	0.007125	0.041899	0.732257	2.492469	3.741719
2007	0.375849	0.007001	0.035899	0.686557	2.173309	3.278614
2008	0.199695	0.012333	0.074429	0.886373	2.557793	3.730623
2009	0.375187	0.003729	0.021125	0.737628	2.401272	3.53894
2010	0.385347	0.002928	0.016283	0.705585	2.356583	3.466726
2011	0.450382	0.00498	0.030433	0.683043	2.589719	3.758557
2012	0.482412	0.00808	0.051733	0.687899	2.713556	3.94368

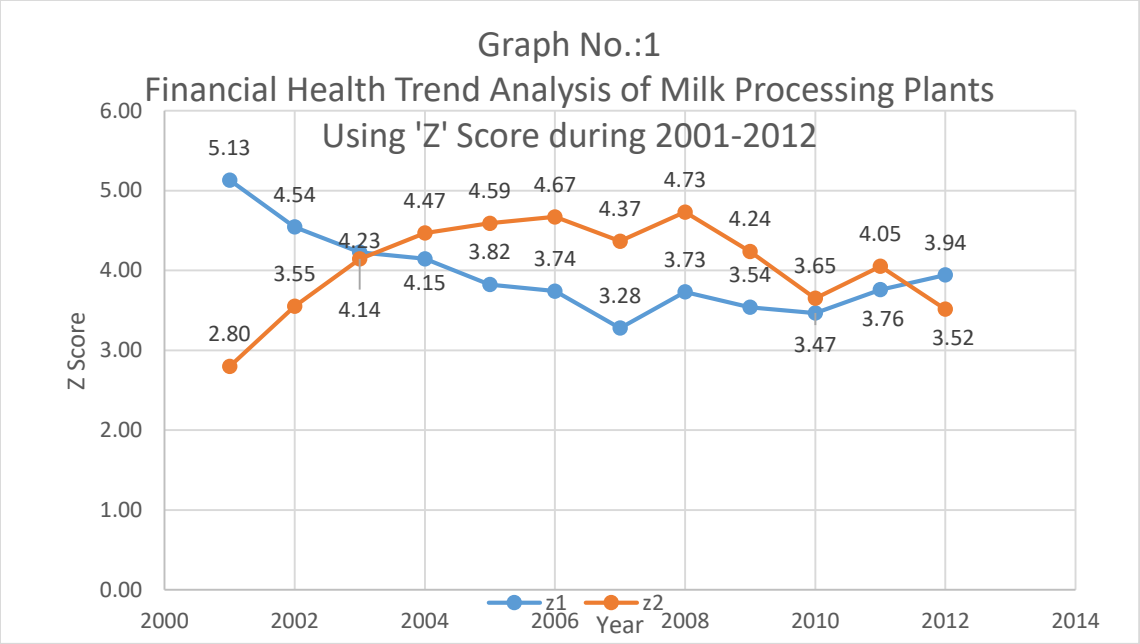
The Z score information presented in Table 2 reported that the financial health of Godavari indicated by Z score shows increasing trends from the year 2001 to 2012.In the year 2001 Z score was 2.797 which gradually improves to 4.73108 upto 2008.The upper limit of Z score was

observed to be 4.73108 in the year 2008 whereas lowest Z score observed to be 2.797 in the year 2001.

Table 2 **Z** Score of Godavari Milk Processing Plants
[Year 2001-2012]

Year	X1	X2	X3	X4	X5	Z Score
	NWCTA	**NOPTONS**	**EBITTOTA**	**EQTODE**	**STO TA**	
2001	0.253432	0.023525	0.108962	0.448042	1.96304	2.797
2002	0.28342	0.021718	0.135976	0.456182	2.653541	3.550837
2003	0.21996	0.020301	0.157502	0.457561	3.288156	4.143481
2004	0.279527	0.019966	0.16681	0.462102	3.540948	4.469353
2005	0.266045	0.019222	0.167276	0.450006	3.688123	4.590674
2006	0.254474	0.019414	0.172765	0.453677	3.771539	4.671869
2007	0.181658	0.021158	0.178837	0.403206	3.582368	4.367227
2008	0.118261	0.005041	0.050433	0.317157	4.240187	4.731078
2009	0.176402	0.023999	0.201674	0.272865	3.561505	4.236445
2010	0.0232	0.02157	0.16196	0.262143	3.182298	3.651171
2011	0.088974	0.020846	0.173161	0.248743	3.520461	4.052185
2012	0.127414	0.040832	0.274201	0.22736	2.846091	3.515898

Financial health trends of Rajhans and Godavari milk processing plants compared using Z score over a 12 year period during 2001-2012 as shown in Graph 1.The graphical presentation shows that the financial health of Rajhan milk plant is declining but after the year 2010 it shows improvement where as in Godavari milk plant during initial years i.e. from 2001 to 2008 it shows continuous improvements in Z score except in the year 2007. After 2008,it is observed that the Z score shows declining trends. The graph revealed that the both the milk processing plants need to take adequate measures to improve their financial health.



z1=Rajhans z2=Godavari

1.7 Hypothesis Testing

From Table 3 it is observed that the P(T<=t) one-tail is 0.298 which is above significant value of 0.05.It is statistically inferred that there is no significant difference in financial health of Rajhans and Godvari milk processing plants

Table 3 t-Test: Two-Sample Assuming Equal Variances			
	z1	*z2*	
Mean	3.944607291	4.064768	
Variance	0.2605572	0.338527	
Observations	12	12	
Pooled Variance	0.299542065		
Hypothesized Mean Difference	0		
df	22		
t Stat	-0.53778623		
P(T<=t) one-tail	**0.298061776**		
t Critical one-tail	1.717144374		
P(T<=t) two-tail	0.596123551		
t Critical two-tail	2.073873068		

1.8 Conclusions and Recommendations

The financial health of the two milk processing plants was tested with the help of Z score model. As per the Altman guidelines the result shows that Z score of milk processing plants found to be above 3 (Unit is in too healthy zone).It means that both the milk processing plants are in too healthy zone. But considering the trends decreasing trends of financial health shown by Z score over the period of 12 years during 2001-2012, both the milk processing plants needs to improve the financial positions by taking timely adequate measures.

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