

FINANCIAL PERFORMANCE OF DAIRY COOPERATIVES IN GUJARAT USING ALTMAN Z SCORE MODEL

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Abstract

Cooperative dairies in Gujarat are the main backbone of the milk producers. This research paper is the attempt to analyze the financial performance of the dairy industry with help of Altman Z score model. Here last ten years of data were collected and collected concerned ratios that can be used for Altman Z Score. Based on the calculation the conclusion is made.

Keywords: Altman Z Score, Cooperatives, Dairy, Financial Performance

Introduction

Finance is a key resource of any organization. The availability of finance underpins the operational capability of the enterprise. A second key requirement of the process of strategic analysis is therefore the appraisal of the financial condition in which the enterprise currently finds itself. This chapter summarizes some of the criteria by which the process of financial appraisal may be carried out. It also analyzes and illustrates the concept of zero based budgeting.

India is the world's largest producer of dairy products by volume and has the world's largest dairy herd. The country accounts for more than 13% of world's total milk production and is also the world's largest consumer of dairy products, consuming almost all of its own milk production. Dairying has been regarded as one of the activities that could contribute to alleviating the poverty and unemployment especially in the drought-prone and rain-fed areas. In India, about three-fourth of the population live in rural areas and about 38% of them are poor. Therefore among these people, as well as the large vegetarian segment of the country's population, dairy products provide a critical source of nutrition and animal protein to millions of people in India.

Gujarat Cooperative Milk Marketing Federation Ltd. (GCMMF), is India's largest food product marketing organisation with annual turnover (2016-17) US\$ 4.1 billion. Its daily milk procurement is approx 18 million lit per day from 18,700 village milk cooperative societies, 18 member unions covering 33 districts, and 3.6 million milk producer members.

GCMMF Member Unions

- 1.Kaira District Cooperative Milk Producers' Union Ltd., Anand
- 2.Mehsana District Cooperative Milk Producers' Union Ltd, Mehsana
- 3.Sabarkantha District Cooperative Milk Producers' Union Ltd., Himatnagar
- 4.Banaskantha District Cooperative Milk Producers' Union Ltd., Palanpur
- 5.Surat District Cooperative Milk Producers' Union Ltd., Surat
- 6.Baroda District Cooperative Milk Producers' Union Ltd., Vadodara
- 7.Panchmahal District Cooperative Milk Producers' Union Ltd., Godhra
- 8.Valsad District Cooperative Milk Producers' Union Ltd., Valsad
- 9.Bharuch District Cooperative Milk Producers' Union Ltd., Bharuch
- 10.Ahmedabad District Cooperative Milk Producers' Union Ltd.,Ahmedabad
- 11.Rajkot District Cooperative Milk Producers' Union Ltd., Rajkot
- 12.Gandhinagar District Cooperative Milk Producers'Union Ltd., Gandhinagar
- 13.Surendranagar District Cooperative Milk Producers' Union Ltd., Surendranagar
- 14.Amreli District Cooperative Milk Producers Union Ltd., Amreli
- 15.Bhavnagar District Cooperative Milk Producers Union Ltd., Bhavnagar
- 16.Kutch District Cooperative Milk Producers' Union Ltd., Anjar
- 17.Junagadh District Cooperative Milk Producers' Union Limited,Junagadh
18. Porbandar District Cooperative Milk Producers' Union Ltd, Porbandar

Sales Turnover	Rs (million)	US\$ (in million)
1994-95	11140	355
1995-96	13790	400
1996-97	15540	450
1997-98	18840	455
1998-99	22192	493
1999-00	22185	493
2000-01	22588	500
2001-02	23365	500
2002-03	27457	575
2003-04	28941	616
2004-05	29225	672
2005-06	37736	850
2006-07	42778	1050
2007-08	52554	1325
2008-09	67113	1504
2009-10	80053	1700
2010-11	97742	2172
2011-12	116680	2500
2012-13	137350	2540
2013-14	181434	3024
2014-15	207330	3410
2015-16	229720	3500
2016-17	270850	4100

[Table 1: Sales Turnover]

Source: GCMMF

Review of Literature

A literature review is a text of a scholarly paper, which includes the current knowledge including substantive findings, as well as theoretical and methodological contributions to a particular topic.

Kyriazopoulos Georgios (2012) Summing up the study of bankruptcy prediction model, it is concluded that this model is a very useful tool for analysts, credit institutions and administrations of the same companies to assess their performance. For this reason, it is used by international rating agencies. In the Z-score model used by Altman indicators had a sensitivity as to the information of the time course of the business in a depth of 10 years.

T. HimaBindu et al. (2015) based on Altman Z score they concluded that the overall financial health of dairy industry is in healthy zone. Most of the sample units found in too healthy zone (Model Dairy Private Limited, Tirumala Milk Products Private Limited, Aseem Dairy & Milk Products Limited, Dodla Dairy Limited and Heritage Foods Ltd).

N. Selvaraj (2015) The Z score values vary between 2.0910 and 2.5845 during the study period. Though the Z score values are above 1.8 during the study period which are not higher than the standard value of 2.66, it shows that though the financial position is healthy at present, the study unit is likely to become financially sick within the next few years. It implies that unless necessary corrective steps are taken to improve the financial status of the study unit, it may become a loss making bank permanently.

Objective of the study

1. To examine financial performance of the district co-operative milk producers' union ltd by using Altman Z score
2. To suggest ways and means to improve profitability without an addition of financial resources.

Research Methodology

Hence here the main purpose of this research is to investigate financial performance appraisal only for selected dairies that's why it's falls in the category of longitudinal- descriptive type of research design. This research is based on secondary data. researcher has collected data in a form of annual reports from selected dairies and for few of them researcher has contacted NDDB in the form of their annual reports. The study is made for a period of ten years from 2004-05 to 2013-14. this study is confined to co- operative sector only and out of eighteen district co-operative milk union limited the researcher has selected fourteen dairies units.

Data Analysis

The Altman Z-score:

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 be calculated from data found on a company's annual 10K report. It uses profitability, leverage, liquidity, solvency and activity to predict whether a company has a high degree of probability of being insolvent. Further Appropriate Tools will be used.

The Altman Z-Score (named after Edward Altman, the New York University professor who devised it) is a statistical tool used to measure the likelihood that a company will go bankrupt. Though Altman devised the Z-Score in the 1960s, the notion of trying to predict which companies would fail was far from new at that time. However, Altman added a statistical technique called multivariate analysis to the mix of traditional ratio-analysis techniques, and this allowed him to consider not only the effects of several ratios on the "predictiveness" of his bankruptcy model, but to consider how those ratios affected each other's usefulness in the model. The Altman Z Score serves a lot of essential purposes. Some of them are enumerated here:

- The Altman Z Score ascertains credit ratings and probabilities in the short-term and long-term future and for both privately-held and publicly traded companies.
- The Altman Z Score leads to robust and logical credit scoring, which is based on a significant sample of companies where their financial health or credit setbacks are analyzed and used as a predictive factor.
- The Altman Z Score credit event prediction has high accuracy value as compared to other rating agency models.

Those stakeholders who are interested to determine the credit worthiness of a company use the Altman Z Score formula to ascertain credit risk. For instance, banks as an institution use Altman Z Score to determine the risk of issuing loans to companies and firms. Calculating the Altman Z Score is simple and easy as everything is based on strong data.

Turnaround managers and mergers and acquisition managers use the Altman Z Score model to determine risks and develop strategies to mitigate the risks. Similarly, the insurance industry and the corporate governance departments use the scoring system for various purposes. Application of Altman Z Score / Bankruptcy Score Formula. The formula is used to predict corporate defaults or bankruptcy or in academic language, financial distress position of companies. The formula is based on discriminant analysis technique in statistical analysis. The formula uses multiple variables from income statement and balance sheet of companies. The Altman Z-score is a combination of five weighted business ratios that is used to estimate the

likelihood of financial distress. The Z-Score was developed in 1968 by Edward I. Altman, an Assistant Professor of Finance at New York University, as a quantitative balance-sheet method of determining a company's financial health. A Z-score can be calculated for all non-financial companies and the lower the score, the greater the risk of the company falling into financial distress.

Here are the Z score for the dairies under study; the objective of this is to determine the dairies financial strength.

Dairies	1.2 (X1)	1.4 (X2)	3.3 (X3)	0.6 (X4)	1.0 (X5)	Z - SCORE	Zones
DUDHSAGAR	0.325033	0.036444	0.285672	0.069915	6.085256	6.802321	Safe
VASUDHARA	-0.0175	0.037669	0.205893	0.061189	5.372665	5.659914	Safe
SUMUL	-0.09732	0.02337	0.222954	0.267412	7.761756	8.178171	Safe
GOPAL	0.157654	0.017859	0.269212	0.132165	9.585883	10.16277	Safe
AMUL	0.63972	0.034544	0.312654	0.170243	6.394895	7.552056	Safe
BARODA	0.36654	0.03785	0.16922	0.232615	4.85483	5.522777	Safe
BANAS	0.718489	0.039372	0.286313	0.102197	5.422497	6.568869	Safe
SABAR	0.645435	0.024384	0.292328	0.202223	4.873722	4.816492	Safe
DUDHDHARA	-0.17546	0.02498	0.064859	0.189441	3.104277	3.208101	Safe
PANCHAMRUT	-0.1443	0.05628	0.409869	0.101725	4.919067	5.342644	Safe
UTTAM	0.564435	0.032484	0.329228	0.502623	7.387722	8.816492	Safe
MADHUR	-0.10908	0.031728	0.406399	0.347262	14.17385	14.85016	Safe
SARVOTTAM	0.09732	0.05337	0.32294	0.4674	5.76756	6.178171	Safe
SURSAGAR	0.366784	0.018223	0.459325	2.873211	17.78577	21.50331	Safe

Table 2: Z score calculation

[Source: Computed from the annual reports of the Dairies under study]

The variables used in the model and their descriptions are as follows;

X1: Working Capital to Total Assets

Working capital over total assets is a measure of liquid assets in relation to the firm's size. Working capital is simply defined as the difference from current assets and current liabilities and it can either be positive or negative. It is good to have positive working capital as it is an indication of a firm's capacity to pay-off its short term obligations.

X2: Retained Earnings to Total Assets

Retained earnings also known as earned surplus is the accumulated amount of reinvested earnings and losses of a firm over its entire life. It is a measure of cumulative profitability over the life of the company. Moreover, it can also be considered as a measure of leverage of a firm. Higher retained earnings to total assets ratio implies that retained earnings have much utilized to finance total assets rather than debt.

X3: Earnings before Interest & Tax over Total Assets

A firm's ultimate existence is based on the earning capacity of its assets, this ratio appears to be particularly relevant for studies related to corporate failure. It is a version of return on assets, an effective way of assessing a firm's ability to squeeze profits before factors like interest and tax are deducted. The ratio answers to a question that whether the assets are efficiently utilized or not in generating profit.

X4: Market Capitalization over Total Liabilities It shows how much the firm's assets can decline in value before the liabilities exceed assets and the firm becomes insolvent. This ratio adds a market value dimension that most other failure studies did not consider. According to Chavakhin and Gertmenian (2003), the soundness of a company's financial position gets reflected in its market capitalization. That is, if a firm has significant market capitalization, it should be perceived as an indication of the market's belief in its solid financial position. Furthermore, even if the firm starts experiencing temporary financial difficulties, it could resort to issuing more common stock at relatively high prices if it has significant market capitalization.

X5: Sales to Total Assets It measures the sales generating ability of the firm's assets. It is one measure of management's ability in dealing with competitive conditions. The ratio is the least significant on an individual basis as it was statistically insignificant when it was tested by Altman on a univariate statistical significance test. Despite its unique relationship to other variables in the model, it comes at second in its contribution to the overall discriminating ability of the model.

The results indicated that, if the Altman Z-Score is close to or below 3, it is wise to do some serious due diligence before considering investing. The Z-score results usually have the following quot; Zonesquot; of interpretation:

Z Score above 2.99 -"Safe" Zones. The company is considered 'Safe' based on the financial figures only.

Z Score 1.8 to 2.99 -"Grey" Zones. There is a good chance of the company going bankrupt within the next 2 years of operations.

Z below 1.80 -"Distress" Zones. The score indicates a high probability of distress within this time period.

The Z-score has subsequently been re-estimated based on other datasets for private manufacturing companies, as well as non-manufacturing / service companies.

Conclusion

From the above analysis of Z score for all the dairy cooperative firms, it is being observed that all falls in the safe zone. So it can be said that there are no predictions to bankrupt in near future. Hence this is a mathematical model, it overlooks economic conditions.

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