Measuring Financial Soundness of Dairy Industry in India: A Critical Study

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Abstract:
The present study analyses the financial performance of dairy industry of India as well as tries to assess the financial soundness and stability of the said industry in terms of Altman Z score model for the period, 1991-92 to 2009-10. The analysis of the result reveals that diary industry is either in grey zone or nearly safe zone during our study period. We hope that our research will help strategists align their business strategies as per market dynamics, and make sound investment decisions.
Keywords: Altman, dairy, industry, financial performance, India.
JELClassification:L6,L69.

1. Introduction

Financial distress prediction is a critical accounting and financial research area since 1960s and accordingly prediction of corporate financial distress has long been the object of study of corporate finance literature. Corporate financial distress not only incurs severe financial loss to its creditors but also has a high cost to the society and the country's economy. Consequently, financial distress prediction studies are significant to all those involved: owners, shareholders, lenders, suppliers, and government. Given the broad interest in accurate predictions, a superior forecasting model is extremely valuable. Since the seminal work of Altman (1968), numerous researchers have attempted to improve upon and replicate such studies in capital markets worldwide. However, in the context of emerging economies, this topic has received much less attention mainly due to the short history of financial markets in emerging economies. Although corporate failures are perceived to be a setback of developed economic environments (Altman *et al*, 1997), firms operating in emerging economies are no exception.

The financial catastrophe has already thrown many financially strong companies out of business all over the world. All these have happened because they were not able to face the challenges and the unexpected changes in the economy. Financial distress for a company is the ultimate declaration of its inability to sustain current operations given its current debt obligations. Basically, all firms must have some debt loads to expand operation or just to survive. Good economic planning often requires a firm to finance some of its operation with debt. The degrees to which a firm has debt in excess of assets or is unable to pay its debt as it comes due are the two most common factors in corporate financial distress.

Distress prediction model will assist a manager to keep track of a company's performance over a number of years and help in identifying important trends .The model may not specifically dictate the manager what is wrong but it should encourage them to identify problems and take effective action to minimize the incidence of failure. A predictive model may warn an auditor of company's vulnerability and help to protect them against charges of 'negligence of duties in not disclosing the possibility of corporate failure [Jones, F.L (1987)]. In addition, lender may adopt predictive model to aid in assessing a company defaulting on its loan. Regulatory agencies are concerned whether a monitored company is in danger of failure. A company may be made exempted from anti trust prohibitions and permitted to merge under Failing Company Doctrine if it can be demonstrated that it is in danger of insolvency or failure.

The objective of the study is to assess the financial performance of dairy industry of India for the period, 1991-92 to 2009-10 using a commonly used measure, Altman Z score model and to predict the financial soundness of the firms within the said industry.

2. Brief snapshot about dairy industry in India:

In India, the dairy sector plays an important role in the country's socio-economic development, and constitutes an important segment of the rural economy. India is probably the only cow worshipping country in the world and the country has the largest milk consuming population in the world. Indian diary industry has shown an unprecedented growth in milk production from 51.4 million ton in 1990 to about 115 million ton in 2010-11.India surpassed United States in 1998 to become the largest single milk producing country in the world. Indian milk production represented 14.6% of the world milk production, exceeding the combined production of the top five dairy countries in EU-25(Dairy Updates:2007).The average growth rate of dairy industry in India is around 4% ,which is almost 3 times the average growth rate of the dairy industry of the world. Milk production in India has come a long way over the years from a low volume of 17 million tons in 1951 to around 127 million tons in 2011-12 and the largest

producer of milk in 2010.Livestock sector contribute 5.59% in national GDP and 36.6% in agricultural GDP.This sector provides regular employment to 8.5% of the total workforce and this Indian diary sector has the largest livestock population having 57% of the world buffalo and 16 of the world cattle. About 70% of the milk is produced within the country by the marginal farmers having 1-4 animals. The productivity of Indian milked animal is 987 k.g/year whereas world average is 2200 k.g.There are around 835 organized sector diaries in India being registered MMPO with total installed capacity of around 10 crore liters of milk per day. There has been a negative growth rate of 6.5% in indigenous cow's population and at the same time there has been a positive growth of 10% and 35% respectively in the population of buffaloes and hybrid cows(source:IAI Vision 2020).India is ranked 18th position in world exports with 1.6% share in total world exports. India has shown a 16% growth from 2008-12 as against 6% growth in total world's export.

3. Methodology:

3.1. Sources of Data:

In testing the corporate financial distress as well as financial health and soundness of India's dairy industry, Altman's Z score model has been used in this study which is based on secondary data. The data from the published sources is the basis for analysis. The required accounting information for Z score analysis is obtained from *CMIE Prowess* Database as well as from *Industry Analysis, Center for Monitoring Indian Economy (several issues).* The financial data used are annual and cover a period of 1991-92 to 2009-10(segmented into two periods: 1991-92 to 1999-2000 and 2000-01 to 2009-10) comprising of dairy industry consisting of several firms.

3.2. Econometric model:

Individual financial ratio to predict the financial performance of an enterprise may only provide caution when it is too late to take a corrective action .Further, a single ratio does not convey much of the sense. There is no internationally accepted standard for financial ratios against which the result can be compared. Edwin Altman, therefore, combines a number of accounting ratios (liquidity, leverage, activity and profitability) to form an index of the probability, which was effective indicator of corporate performance in predicting bankruptcy. The Z score is a set of financial ratios in a multivariate context, based on a multiple discriminated model for the firms, where a single measure is unlikely to predict the complexity of their decision making.

The Altman Z-score is a combination of five weighted business ratios that is used to estimate the likelihood of financial distress. The Z scores, developed by Professor Edward I. Altman, is perhaps the most widely recognized and applied model for predicting financial distress(Bemmann,2005).Altman developed this intuitively appealing scoring method at a time when traditional ratio analysis was losing favour with academics (Altman,1968).Altman Z scores model requires a firm to have a publicly traded equity and be a manufacturer. Altman (1968) collected data from 33 bankruptcies and 33 non-bankruptcies, during the period 1946-1965, to find discriminating variables for bankruptcy prediction. In his seminal paper, Altman evaluated 22 potentially significant variables of the 66 firms by using multiple discriminant analysis to build the discriminant function with five variables. This model was later modified to Altman model (1993) that uses the same variables multiplied by different factors.

3.3. Estimation of the formula:

The Z-score is a linear combination of five common business ratios, weighted by coefficients. The coefficients were estimated by identifying a set of firms which had declared bankruptcy and then collecting a matched sample of firms which had survived, with matching by industry and approximate size (assets).Altman applied the statistical method of discriminant analysis to a dataset of publicly held manufacturers. The estimation was originally based on data from publicly held manufacturers, but has since been re-estimated based on other datasets for private manufacturing, non-manufacturing and service companies.

The discriminant function is as follows:

$$Z = 1.2X_1 + 1.4X_2 + 3.3X_3 + 0.6X_4 + 1.0X_5,$$

Where $X_1 =$ Working capital/total assets (WC/TA),

$X_2 =$ Retained earnings/total assets(RE/TA),

$X_3 =$ EBIT/total assets (EBIT/TA),

$X_4 =$ Market value of equity/book value of liability (MVE/TL),

and $X_5 =$ Sales/total assets(S/TA).

Z= Overall index of Bankruptcy.

Eidleman (1995) defines each of the above ratios as follows:

X_1 is a liquidity ratio , the purpose of which is to measure the liquidity of the assets 'in relation to firm's size' .It

is the measure of net liquid asset of a concern to the total capitalization which measures the firms ability to meet its maturing short-term obligations.

X_2 is an indicator of the 'cumulative profitability' of the firm over time which indicates the efficiency of the management in manufacturing, sales, administration and other activities.

X_3 is a measure of firm's productivity which is crucial for the long-term survival of the company. It is a measure of productivity of an asset employed in an enterprise. The ultimate existence of an enterprise is based on earning power. It measures how effectively a firm is using its resources. It measures the managements overall effectiveness as shown by the returns generated on sales and investment.

X_4 defines how the market views the company. The assumption is that with information being transmitted to the market on a constant basis, the market is able to determine the worth of the company. This is then compared to firm's debt. It is reciprocal of familiar debt equity ratio. Equity is measured by the combined market value of all shares, while debt includes both current and long term liabilities. This measure shows how much of an asset can decline in values before liabilities exceed the assets and the concerns become insolvent. It measures the extent to which the firm has been financed by debt. Creditors look to the equity to provide the margin of safety, but by raising fund through debt, owners gain the benefit of marinating control of the firm with limited investment.

X_5 is defined as a 'measure of management ability to compete'. The capital turnover ratio is the standard financial measure for illustrating the sales generating capacity of the assets.

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 "Zones" of interpretation:

1. Z Score above 2.99 -"Safe" Zones. The company is considered 'Safe' based on the financial figures only.
2. 1.81 < Z < 2.99 -"Grey" Zones. There is a good chance of the company going bankrupt within the next 2 years of operations.
3. Z below 1.81 -"Distress" Zones. The score indicates a high probability of distress within this time period.

Therefore, while using this model, Altman concluded that:

Z score < 1.81 = High probability of bankruptcy,

Z score> 2.99 = Low probability of bankruptcy

Z score= In between 1.81 and 2.99= Indeterminate.

4. Analysis of the result:

The five financial ratios mentioned above have been utilized as yardsticks in the equation for evaluating the financial distress of India's diary companies for the period 1991-92 to 2009-10.

In diary industry, the content of working capital in the total assets(X_1) has increased in first decadal segment,1991-92 to 1999-2000 (from 33.39% in 1991-92 to 38.51% in 1999-2000) excepting some ups and downs in certain years but it gradually is showing confusing (sometimes increasing and sometimes decreasing) trend since 2000-01 of second decadal period,2000-2001 to 2009-10 (from 32.67% in 2000-01, 17.56% in 2004-05 to 35.44 % in 2009-10)with fluctuations but it also reveals the declining use of working capital over the last decadal years. The declining usage of working capital is unfavorable for efficient running of the companies and it affects the financial health of the companies. Low level of working capital may enhance the risk of liquidity. Lower the working capital, greater the risk and also higher the profitability of the firm. A declining working capital ratio over a longer time period could also be a red flag that warrants further analysis.The declining usage of working capital in the industry may have several indications. Declining usage of working capital may cause shortage of liquid funds which may be the hindrance in necessary purchasing and accumulation of inventories causing more chances of stock out. On the other hand, it implies lesser number of debtors which may cause lower incidences of bad debts which may result into overall efficiency in the organizations.

Table-1: Diary Industry: Analysis of Results by using Altman's Model: 1991-92 to 1999-2000

Ratios/Years	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000
Net working capital (Rs crores)	804.9	847.9	256.9	367.4	617	2258.9	2325.1	2319.8	1962.9
Total assets(Rs crores)	2410.4	2529.5	783.6	1210.2	1637.8	4632.3	4907.7	5161.6	5096.5
X_1	33.39%	33.52%	32.78%	30.36%	37.67%	48.76%	47.38%	44.94%	38.51%
Retained earning (Rs crores)	763.2	84.2	296.7	351.5	376	1866	1967.7	2062.5	1969.9
Total assets(Rs crores)	2410.4	2529.5	783.6	1210.2	1637.8	4632.3	4907.7	5161.6	5096.5
X2	31.66%	3.33%	37.86%	29.04%	22.96%	40.28%	40.09%	39.96%	38.65%
Earning before interest &tax(Rs crores)	192.2	196.4	132	175.2	251.6	405.9	463.7	448.9	501.9
Total assets(Rs crores)	2410.4	2529.5	783.6	1210.2	1637.8	4632.3	4907.7	5161.6	5096.5
X3	7.97%	7.76%	16.84%	14.48%	15.36%	8.76%	9.45%	8.70%	9.85%
Market value of equity (Rs crores)	62	91	140.6	234.6	295.5	307.1	293	357.7	357.2
Book value of total liability(Rs crores)	643.8	641.9	136.6	351.8	595.9	1661.5	1690	1729.6	1578.3
X4	9.63%	14.18%	102.92%	66.69%	49.59%	18.48 %	17.34%	20.68%	22.63%
Sales(Rs crores)	1246.5	1429.1	1221.5	1765.5	2567.7	3429.2	3802.9	4463.7	4516.9
Total assets(Rs crores)	2410.4	2529.5	783.6	1210.2	1637.8	4632.3	4907.7	5161.6	5096.5
X5	51.71%	56.5%	155.88 %	145.88%	156.78%	74.03%	77.49%	86.48%	88.62%
0.012*X1	0.4007	0.4022	0.3934	0.3643	0.4520	0.5851	0.5686	0.5393	0.4621
0.014*X2	0.4432	0.0466	0.53	0.4066	0.3214	0.5639	0.5613	0.5594	0.5411
0.033*X3	0.2630	0.2561	0.5557	0.4778	0.5069	0.2891	0.3119	0.2871	0.3251
0.006*X4	0.0578	0.0851	0.6175	0.4001	0.2975	0.1109	0.1040	0.1241	0.1358
0.010*X5	0.5171	0.565	1.5588	1.4588	1.5678	0.7403	0.7749	0.8648	0.8862
Z scores	1.682	3.655	3.655	3.108	3.146	2.289	2.321	2.375	2.350

Source: Author's own estimate

The retained earnings to total assets ratio(X_2) measures the company's ability to accumulate earnings using its total assets. Retained earnings to total assets ratio indicates the extent to which assets have been paid for by company profits. Retained earnings to total assets ratio near 1:1 (100%) indicates that growth has been financed through profits, not increased debt. A low ratio indicates that growth may not be sustainable as it is financed from increasing debt, instead of reinvesting profits. Increasing retained earnings to total assets ratio is usually a positive sign, showing the company is more able to continually retain more earnings.

Figure:1

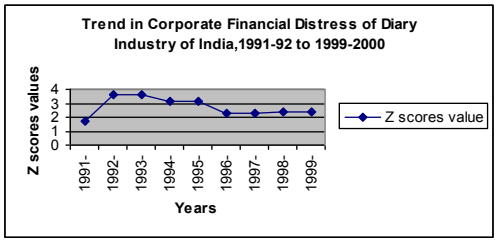


Table-2: Diary Industry: Analysis of Results by using Altman's Model: 2000-01 to 2009-10

Ratios/Years	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
Net working capital (Rs crores)	1756.1	316.9	221.9	678	592	1343	1447	1818	2373	2613
Total assets(Rs crores)	5375.5	2352.6	2255.3	3450	3371	4002	4723	5960	6577	7373
X1	32.67%	13.47%	9.84%	19.65%	17.56%	33.56%	30.64%	30.50%	36.08%	35.44%
Retained earning (Rs crores)	2049.5	369.8	496.9	741	797	831	1100	1426	1634	1779
Total assets(Rs crores)	5375.5	2352.6	2255.3	3450	3371	4002	4723	5960	6577	7373
X2	38.13%	15.72%	22.03%	21.48%	23.64%	20.76%	23.29%	23.93%	24.84%	24.13%
Earning before interest &tax(Rs crores)	633.4	536.5	563.3	611	595	759	766	1075	1270	1520
Total assets(Rs crores)	5375.5	2352.6	2255.3	3450	3371	4002	4723	5960	6577	7373
X3	11.78%	22.80%	24.98%	17.71%	17.65%	18.97%	16.22%	18.04%	19.31%	20.62%
Market value of equity (Rs crores)	376	329.7	311.7	588	433	422	351	390	384	376
Book value of total liability(Rs crores)	1551.6	666.8	435.5	844	756	891	1025	1313	1353	1648
X4	24.23%	49.45%	71.57%	69.67%	57.28%	47.36%	34.24%	29.70%	28.38%	22.82%
Sales(Rs crores)	4213	4331.4	4401	6327	7615	8177	8178	10916	12829	13967
Total assets(Rs crores)	5375.5	2352.6	2255.3	3450	3371	4002	4723	5960	6577	7373
X5	78.37%	184.11%	195.14%	183.39%	225.9%	204.32%	173.15%	183.15%	195.06%	189.43%
0.012*X1	0.3920	0.1616	0.1181	0.2358	0.2107	0.4027	0.3677	0.366	0.4330	0.4253
0.014*X2	0.5338	0.2201	0.3084	0.3007	0.3309	0.2906	0.3261	0.3350	0.3478	0.3378
0.033*X3	0.3887	0.1368	0.1499	0.1063	0.1059	0.1138	0.0973	0.1082	0.1159	0.1237
0.006*X4	0.1454	0.2967	0.4294	0.4180	0.3437	0.2842	0.2054	0.1782	0.1703	0.1369
0.010*X5	0.7837	1.8411	1.9514	1.8339	2.259	2.0432	1.7315	1.8315	1.9506	1.8943
Z scores	2.244	2.957	2.957	2.895	3.250	3.135	2.728	2.819	3.018	2.918

Source: Estimated by author

In our study, the content of retained earning to total assets was recorded as 31.66% in 1991-92 and during the next couple of years, the ratio gradually improves (40.28% in 1996-97 and declined to 38.65% in 1999-2000) but again it is declining during the entire second decadal period which means that companies failed to generate adequate reserve for future prospect of the business. This means that firms within diary industry may have compelled to pay off major portion of assets out of increased debt instead of reinvesting profit.

The ratio of a company's earnings before interest and taxes (EBIT) against its total net assets(X_3) is considered an indicator of how effectively a company is using its assets to generate earnings before contractual obligations must be paid. The greater a company's earnings in proportion to its assets (and the greater the coefficient from this calculation), the more effectively that company is said to be using its assets.

This is a pure measure of the efficiency of a company in generating returns from its assets, without being affected by management financing decisions. Return on Assets gives investors a reliable picture of management's ability to pull profits from the assets and projects into which it chooses to invest. The overall efficiency of an enterprise can be judged through the ratio of EBIT/Total asset. The operating efficiency ultimately leads to its success. The ratio of EBIT to total assets ranges from 7.97% to 9.85 % (between 1991-92 to 1999-2000) is an alarming signal for the companies within the said diary industry and it increases gradually amid various ups and downs from 11.78% to 20.62%(between 2000-01 to 2009-10) which shows optimistic picture for the entire industry.

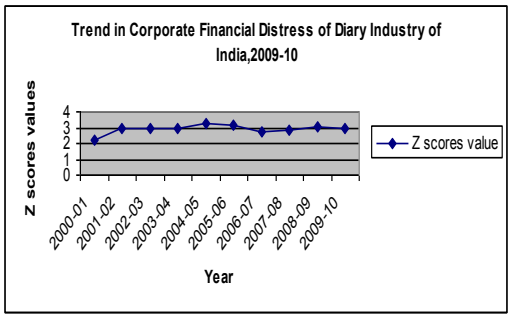
Market Value of Equity to Total Liabilities(X_4) ratio shows how much business's assets can decline in value before it becomes insolvent. Those businesses with ratios above 200 percent are safest. The result shows that India's diary sector did not maintain the above standard during the study period. The market value of equity was less than that of debt. In the study, the ratio of market value of total equity to book value of debenture was 9.63% in 1991-92 gradually increased to 71.57%% in 2002-03.It was 24.23%% in 2000-01 which decreased to 22.82% in 2009-10.It means that book value of debenture ranges from 90.37% in 1991-92 to 77.18% in 2009-10.

Decrease in this ratio has an indication that the firm's sale price are relatively low and that its cost is relatively high. The proportion in which interest bearing funds (debt) and interest free funds (equity) employed had a direct impact on its financial performance. The sector will have the chance of facing interest burden in near future. Therefore, a reasonable change in the financial structure is needed to protect the company from adverse

financial performance.

Net Sales to Total Assets ratio(X_5) indicates the effectiveness with which a firm's management uses its assets to generate sales. A relatively high ratio tends to reflect intensive use of assets. It is a measure of how efficiently management is using the assets at its disposal to promote sales. A high ratio indicates that the company is using its assets efficiently to increase sales, while a low ratio indicates the opposite. The financial performance and profitability centered on sales revenue. The ratio of sales volume to total assets, though ideally expected to be 2:1, during the study period clearly showed that this sector had not been successful in achieving the standard ratio through sales but ratio gradually improves. Poor ratio of turnover indicates that companies failed to fully utilize the assets which will have an adverse impact on the financial performance of the company.

Figure:2



The comparison of two decade wide period(1991-92 to 1999-2000 and 2000-01 to 2009-10) shows that in the study years 1992-93 to 1995-96,2004-05 to 2005-06 and 2008-09,the companies under the industry lie and pass through the path of either safe zone because in all those years , Z score values fall within the safe zone(.2.99)' (Fig-1 and 2 above). Excepting these above mentioned years, most of the years in our study period, the company passes through intermediate zone. It indicates that there is optimistically sign of gradual revival of diary companies during the end of last decade, especially public sector companies within the said industry, from the distress zone. This is because many of the public sector companies under our study is hopefully generating adequate revenues for internal consolidation as well as for meeting shareholders expectation.

Table-3: Trend in Z scores components and Z Scores value during 1991-92 to 2009-10

Industries	X1		X2		X3		X4		X5		Z Scores value
	1991-92 to 1999-2000	2000-01 to 2009-10	1991-92 to 1999-2000	2000-01 to 2009-10	1991-92 to 1999-2000	2000-01 to 2009-10	1991-92 to 1999-2000	2000-01 to 2009-10	1991-92 to 1999-2000	2000-01 to 2009-10	1991-92 to 2009-10
.Diary	↑	↑	↑	↓	↑	↑	↑	↓	↑	↑	Either safe zone or grey zone

Source: Own estimate

5. Conclusion and findings:

The findings of the study are as follows:

(i) The first component of distress prediction by Altman Z scores model(X_1) indicated by content of working capital in the total assets shows that in dairy industry under our study, it has increased during the both decadal period, 1991-92 to 1999-2000 and 2000-01 to 2009-10 with some fluctuating ups and downs in the trend.

The increasing usage of working capital is congenial for efficient running of the companies and it is motivating for the financial health of the companies. High level of working capital may enhance the availability of liquidity. Greater the working capital, lesser the risk but lower the profitability of the firm. An increasing working capital ratio over a longer time period would definitely be a green signal for more availability of working capital.The increasing usage of working capital in the industry may have several indications. Increasing usage of working capital may cause abundance of liquid funds which may be the conduit of funds for necessary purchasing and chances of stock out is gradually diminished. On the other hand, it implies more number of debtors which may cause more incidences of bad debts which may result into overall inefficiency in the organizations

(ii) The retained earnings to total assets ratio(X_2) measures the company's ability to accumulate earnings using its total assets. It has been observed from the study that trend in retained earnings to total assets ratio(X_3) ratio

(indicated by X_3 component in Altman's Z score model) has increased during first decadal period, 1991-92 to 1999-2000 in diary industry of our study . The result depicts that the said ratio has decreased in the diary industry under our consideration. This indicates that companies within this industry failed to generate adequate reserve for future prospect of the business. This means that firms within industry may have compelled to pay off major portion of assets out of increased debt instead of reinvesting profit.

(iii) The ratio of a company's earnings before interest and taxes (EBIT) against its total net assets(X_3) is considered an indicator of how effectively a company is using its assets to generate earnings before contractual obligations must be paid.

The greater a company's earnings in proportion to its assets (and the greater the coefficient from this calculation), the more effectively that company is said to be using its assets.

It has been observed from the study that trend in EBIT to total asset ratio (indicated by X_3 component in Altman's Z score model) has increased during first decadal period, 1991-92 to 1999-2000 of our study in diary firms within the respective industry. It has been observed from the study that diary industry have witnessed gradual upward trend in the said ratio(X_3) signifying operational efficiency of the firms within those industries in terms this parameter.

(iv) Market Value of Equity to Total Liabilities(X_4) ratio shows how much business's assets can decline in value before it becomes insolvent. Those businesses with ratios above 200 percent are safest It has been observed from the study that trend in Market Value of Equity to Total Liabilities(X_4) ratio (indicated by X_4 component in Altman's Z score model) has increased during first decadal period, 1991-92 to 1999-2000 of our study in diary firms within the respective industry. The result depicts that the said ratio has decreased in diary industry.

(v) Net Sales to Total Assets ratio(X_5) indicates the effectiveness with which a firm's management uses its assets to generate sales. A relatively high ratio tends to reflect intensive use of assets. It is a measure of how efficiently management is using the assets at its disposal to promote sales. A high ratio indicates that the company is using its assets efficiently to increase sales, while a low ratio indicates the opposite. The financial performance and profitability centered on sales revenue. The ratio of sales volume to total assets, though ideally expected to be 2:1, during the study period clearly showed that this sector had not been successful in achieving the standard ratio through sales but ratio gradually improves. Poor ratio of turnover indicates that companies failed to fully utilize the assets which will have an adverse impact on the financial performance of the company.

It has been observed from the study that trend in Net Sales to Total Assets ratio(X_5) (indicated by X_5 component in Altman's Z score model) has increased during first decadal period, 1991-92 to 1999-2000 of our study in diary firms within the respective industry. The result depicts that the said ratio has increased in second decadal period of our study, 2000-01 to 2009-10 in diary industry.

(vi) It has been obtained from the study in table-3 that with regard to X_1 component representing working capital to the total assets (X_1) ratio, the dairy industry under our consideration of study have been showing upward trend in this ratio in both decadal periods**.**

Likewise, with respect to X_2 component representing retained earning to total assets, it has been observed from the study that the industry comprising several milked firms has shown upward trend in first decadal period, 1991-92 to 1999-2000 and declining trend in second decadal period,2000-01 to 2009-10.

Regarding X_3 component showing representing earning before interest and tax(EBIT) to total assets and X_5 components representing sales to total equity respectively , dairy industry's X_3 and X_5component analysis suggest that during both first and second decadal period,1991-92 to 1999-2000 and 2000-01 to 2009-10 respectively ,these two components show gradual upward trend.

Regarding X_4 components representing market value of equity to book value of liability, dairy industry under our study shows upward trend in first decadal period and declining downward trend in second decadal period.

Therefore, it can be concluded from the analysis of this particular section that individual component analysis of Altman's Z scores model in respect of dairy industry is not symmetrically providing identical result when we attempts to analyse and compare trend in individual component of Z score model under our study.

The analysis of the result ultimately reveals that diary industry is in either grey zone or nearly safe zone.

It is also apparent that this model is useful in identifying financially troubled companies that may be bankrupt. This empirical evidence will provide a warning signal to both internal and external users of financial statement in planning, controlling and decision making. The warning signs and Z score model have the ability to assist management for predicting corporate problems early enough to avoid financial difficulties. In the light of the above financial problems faced by the sector concerned, it is suggested that capital structure of India's dairy manufacturing sector has to be changed in such a way to have ideal debt equity ratio and hence rescheduling of debt is an urgent necessity. The sector should take necessary step to fully utilize the available capacity and therefore, fixed asset are to be purchased only when the company can utilize its capacity fully. The company must fix up achievable sales target and steps should be taken to achieve it. Managerial incompetence should be taken care of, if any. For this, decentralization in decision making process should be introduced which gives the employees the initiative and responsibility to adapt their behavior and decisions according to changes in working environment.

We hope that our comprehensive research will help clients align their business strategies as per market dynamics, and make sound investment decisions.

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