

# Testing Tea industry's Economic Wellbeing in India

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## Abstract

The present study analyses the economic wellbeing of Tea 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. Moreover, SWOT analysis and Porter's 5 forces model have been done to identify the strength and weakness of the said industry. The analysis of the result reveals that tea industry is either in grey zone or nearly safe zone during our study period. The research concludes with a note of optimism that Tea Fund (SPTF) set up by commerce ministry to implement uprooting and replanting programme would help in improving productivity and yield and thereby reduce cost in years to come.

**Keywords:** Altman, tea, industry, economic, wellbeing, India.

**JEL Classification:** L6, L69.

## 1. Introduction

The tea industry is one of the oldest organized industries in India with an outsized network of tea producers, retailers, distributors, auctioneers, exporters and packers. The Tea Industry in India derives its importance by being one of the major foreign exchange earners and for playing a vital role towards employment generation as the industry is highly labour intensive. Pompous heritage of tea industry in India that extended almost two and a half centuries has been exalted by means of acquiring a dignified status on the global tea map. India is the second largest tea producer in the world. Fascinatingly, India is also the world's largest consumer of black tea with the domestic market consuming 911 million kg of tea during 2013-14. The market size of tea is estimated to be approx. Rs. 10,000 crore with a penetration of more than 90% in the domestic market. India is ranked fourth in terms of tea exports which reached 232.92 million kg during 2015-16 and are valued at USD 686.67 million. The top export markets in terms of volume for 2015-16 were Russian Federation (48.23 million kg), Iran (22.13 million kg) and Pakistan (19.37 million kg). In terms of value, the top export markets were Russian Federation (US\$ 102.48 million), Iran (US\$ 87.39 million) and UK (US\$ 62.8 million). All varieties of tea are produced by India- CTC accounts for around 89 per cent of the production, orthodox/green and instant tea account for the remaining 11 per cent. Production of tea reached 1,233.14 million kg in 2015-16. Around 1,008.56 million kg of tea was produced in North India and 224.58 million kg was produced in South India. The all-India production of tea estates increased by 1.62%, while the production of the Bought Leaf Factory (BLF) sector increased by 5.81%, which indicates increase of small tea growers' share in production. Thus, about 33.85% of the total tea production is being contributed by small growers. Among the major tea growing states, the share of small growers to the production is highest in Tamil Nadu (53.16%) followed by West Bengal (40.4%) and Assam (27.55%). CTC tea production constitutes 90.93% of the total tea production at 1121.35 million kgs, increasing by 23.19 million kgs in 2015-16, compared to last year. Orthodox production constitutes 7.51% at 92.60 million kgs, increasing by 8.47 million kgs in 2015-16 as compared to last year, while green tea production constitutes 1.56% and stood at 19.19 million kgs, increasing by 4.30 million kgs. India has around 563.98 thousand hectares of area under tea production, as per figures for December 2013. Tea production is led by Assam (304.40 thousand hectares), West Bengal (140.44 thousand hectares), Tamil Nadu (69.62 thousand hectares) and Kerala (35.01 thousand hectares). According to estimates, the tea industry is India's second largest employment generating industry. It employs over 3.5 million people across some 1,686 estates and 157,504 small holdings; most of them are women.

In spite of its significance, tea industry of India is passing through a crisis phase since 1990's [Choudhury, Dr. Rabindra Kr(2006)]. The industry has viewed a lot of structural changes during recent years, which include emergence of small tea growers in place of large plantation and introduction of bought leaf factories (BLF). The present crisis has led to the closure of many tea estates [e.g., 20 estates in Kerala, 30 in West Bengal, about 70 in Assam have been closed down since the late 1990's (Bhomik, Sharit, K(1991))]. It is estimated that more than 60,000 plantation workers have lost their jobs since 2002 and livelihood of another ten thousand are in danger. Workers of the running estates are facing wage cut, tougher picking demand, job insecurity and the casualisation of work, terrible living and working condition etc. In early 2005, the tea industry observed major companies withdrawing from production and concentrating on the packaging/ retailing sector (e.g. Tata Tea, Hindustan Lever Limited etc. in India). They intend to focus on brand building business and on exploring the market substantially, rather than on the plantation business, which is a low margin

segment[Ushadevi T V(2004)].The tea industry in this country has some inherent weaknesses—due to poor yield arising out of poor condition of the gardens ( more than 30 percent of the tea grown areas being above the economic threshold age limit), defective auction mechanism, old factory setup (which is affecting tea quality and price realization), poor garden management, frequent changes of garden management/managers, in-experienced owners (like traders who have no previous experience in tea cultivation and interest in plantation business) and the management's excessive reliance on bank-debts with negligible fresh equity infusion (Economic Survey, Assam, 2011-12). In some of the gardens, the neglect has been due to ownership disputes and diversion of funds from tea gardens to other activities and in many cases strained relationship between management and garden workers have added fuel to the fire [Indian Credit Rating Agency Study( 2007)].The rising competition at domestic as well as international front has deepened the crisis of tea industry of India. The changing world order of last decade has left its own impact on the industry. The first, second and the third world are moving towards free globalized economy, where free trade and free flow of investment funds are the order of the day. Consumers in the developed world are moving towards healthier products and quality assurance which put pressure on the export of tea from India[Sarkar, Bidyut(1984)].Shift in the composition of demand for tea in the importing countries has had unfavourable effects on export earnings from tea in India. The international market price of tea has declined from US \$ 2.09 to US \$ 2.03 per kg in between 2005 and 2006, although countries like Sri Lanka, Kenya and Indonesia are growing fast in their export and higher price realization, during the same period. Export of tea from India to some of the major importing countries like Russia, UK, and USA are showing a sharp decline.

Despite India's historical success with the tea industry, in recent years, the industry has faced serious competition in the international and national market which has led to the present crisis. Many factors have been cited as causing the crisis in the Indian tea sector—since the late 1990's [Kakali Hazarika (2011)]. Analysts agree that the dramatic fall in prices is one of the most significant causes of the crisis. The worst affected are plantation workers and small growers; many estates failed to withstand the downward slide of price and hence moved out of business leading to the closure of tea estates that employ thousands of workers and of factories (BLF) to which small growers might sell their products. Tea prices in India are being driven down by many factors that include: a) Decline in demand for Indian tea in the global market, b) Defects in auction system, c) Poor price realization, d) Defective market structure and e) Increase in cost of production (Goddard, Samanth, 2005). It can be evidently recognized that tea being one of the important cash crops at the national level, inspite of higher export potential, the continuous increase in stiff competition has resulted in a continuous decline in the export of tea. Besides, the domestic demand for tea is steadily rising. At the growers' level, a majority of the holdings are small with less than 10 hectares. This has resulted in the uneconomic cost on the one hand and poor agricultural practices. Also, as discussed above, the uneconomic size of landholdings results in poor quality of tea produce and eventually a poor bargaining power for market price in the market.

Given these situations, the present research makes a humble effort to study the financial health vis a vis to analyze whether there exists any economic distress in tea industry in India considering a period commencing from 1991-92 to 2009-10. 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.

## **2. Methodology:**

### *2.1. Sources of Data:*

In testing the corporate financial distress as well as financial health and soundness of India's tea 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 tea industry consisting of several firms.

### *2.2. 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.

### 2.3. 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.

Eidlemann (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 firm's 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 management's 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 maintaining 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.

### 3. Analysis of results:

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

In Tea industry, the content of working capital in the total assets( $X_1$ ) has increased in first decadal segment,1991-92 to 1999-2000 (from 35.30%in 1991-92 to 40.84%in 1999-2000) excepting some ups and downs in certain years and more emphatically it gradually is showing decreasing trend since 2000-01 of second decadal period,2000-2001 to 2009-10 (from 38.74%in 2000-01, 23.74%in 2003-04 to 19.05%in 2009-10)with fluctuations but moreover in a nut shell, it also reveals the decreasing use of working capital over the last decadal years. The decreasing usage of working capital is disadvantageous for efficient running of the companies and it is detrimental for the sound financial health of the companies. Low level of working capital may create a dearth of liquidity. Lesser the working capital, greater the risk but may be higher the profitability of the firm. A decreasing working capital ratio over a longer time period would definitely be a red alert for lesser availability of working capital.The decreasing usage of working capital in the industry may have several indications. Decreasing usage of working capital may cause shortage of liquid funds which may be the lesser amount of funds for necessary purchasing and chances of stock out is gradually enhanced. On the other hand, it implies lesser number of debtors which may cause least incidences of bad debts which may result into overall efficiency in the organizations.

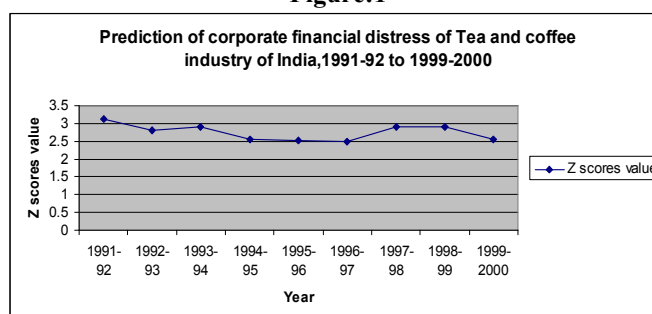
**Table-1: Tea Industry: Analysis of Results by using Altman's Model: 1991-92 to 1999-2000**

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)	765.3	1102.8	1320	1488.9	1673	1623.6	1788.5	1962.1	2137.1
Total assets(Rs crores)	2167.9	2706.7	3369.8	4161.5	4887	3509.5	3837.3	4218.3	5232.5
<b>X1</b>	35.30%	40.74%	39.17%	35.78%	34.23%	46.26%	46.61%	46.51%	40.84%
Retained earning (Rs crores)	729.7	947.2	1223	1467.3	1759.2	1341.2	1635.9	1952.8	2527.8
Total assets(Rs crores)	2167.9	2706.7	3369.8	4161.5	4887	3509.5	3837.3	4218.3	5232.5
<b>X2</b>	33.66%	34.99%	36.29%	35.26%	36%	38.22%	42.63%	46.29%	48.31%
Earning before interest &tax(Rs crores)	502.2	484.4	621	581.5	612.7	433.7	769.4	790.6	646.7
Total assets(Rs crores)	2167.9	2706.7	3369.8	4161.5	4887	3509.5	3837.3	4218.3	5232.5
<b>X3</b>	23.17%	17.90%	18.43%	13.97%	12.54%	12.36%	20.05%	18.74%	12.36%
Market value of equity (Rs crores)	245.1	293.3	362.4	412.9	541	398.5	376.2	373	409.1
Book value of total liability(Rs crores)	566.9	733.9	897.3	1390.1	1509.1	1121.3	1083.1	1094.2	1369
<b>X4</b>	43.24%	39.96%	40.39%	29.70%	35.85%	35.54%	34.73%	34.09%	29.88%
Sales(Rs crores)	2577.8	2660.7	3611.1	4091.9	4827.6	2693.8	3393.8	3665.2	4183.3
Total assets(Rs crores)	2167.9	2706.7	3369.8	4161.5	4887	3509.5	3837.3	4218.3	5232.5
<b>X5</b>	118.91%	98.3%	107.16%	98.33%	98.78%	76.76%	88.44%	86.89%	79.95%
0.012*X1	0.4236	0.4889	0.4700	0.4294	0.4108	0.5551	0.5593	0.5581	0.4900
0.014*X2	0.4712	0.4899	0.5081	0.4936	0.504	0.5351	0.5968	0.6481	0.6763
0.033*X3	0.7646	0.5907	0.6082	0.4610	0.4138	0.4079	0.6617	0.6184	0.4079
0.006*X4	0.2594	0.2398	0.2423	0.1782	0.2151	0.2132	0.2084	0.2045	0.1793
0.010*X5	1.1891	0.983	1.0716	0.9833	0.9878	0.7676	0.8844	0.8689	0.7995
Z scores	3.108	2.792	2.900	2.546	2.532	2.479	2.911	2.898	2.553

Source: Own estimate from CMIE database

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: Tea 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)	2122.5	1772.3	1809.7	2082	2197	1343	1447	1818	2373	2613
Total assets(Rs crores)	5477.9	5242.1	5564.2	8771	10176	10874	11477	13138	13377	13720
<b>X1</b>	38.74%	33.81%	32.52%	23.74%	21.59%	12.35%	12.61%	13.84%	17.74%	19.05%
Retained earning (Rs crores)	2588.7	2294.5	2199.9	3744	4060	3575	3309	3855	4192	4953
Total assets(Rs crores)	5477.9	5242.1	5564.2	8771	10176	10874	11477	13138	13377	13720
<b>X2</b>	47.26%	43.77%	39.54%	42.69%	39.90%	32.88%	28.83%	29.34%	31.34%	36.10%
Earning before interest & tax(Rs crores)	404.4	220.3	230.2	88	182	86	539	243	896	1653
Total assets(Rs crores)	5477.9	5242.1	5564.2	8771	10176	10874	11477	13138	13377	13720
<b>X3</b>	7.38%	4.20%	4.14%	1.003%	1.79%	0.79%	4.70%	1.85%	6.70%	12.05%
Market value of equity (Rs crores)	436.5	429.1	427.4	475	552	574	551	564	580	557
Book value of total liability(Rs crores)	1545.1	1512.9	1813.4	2688	3145	3821	4603	4830	4628	4109
<b>X4</b>	28.25%	28.36%	23.57%	17.67%	17.55%	15.02%	11.97%	11.68%	12.53%	13.56%
Sales(Rs crores)	4011.8	3438.7	3526.8	3855	4491	4913	5172	5370	6719	7684
Total assets(Rs crores)	5477.9	5242.1	5564.2	8771	10176	10874	11477	13138	13377	13720
<b>X5</b>	73.23%	65.60%	63.38%	43.95%	44.13%	45.18%	45.06%	40.87%	50.23%	56%
0.012*X1	0.4649	0.4057	0.3902	0.2849	0.2591	0.1482	0.1513	0.1661	0.2129	0.2286
0.014*X2	0.6616	0.6128	0.5536	0.5977	0.5586	0.4603	0.4036	0.4108	0.4388	0.5054
0.033*X3	0.2435	0.1386	0.1366	0.0331	0.0591	0.0261	0.1551	0.0611	0.2211	0.3976
0.006*X4	0.1695	0.1702	0.1414	0.1060	0.1053	0.0901	0.0718	0.07	0.3014	0.336
0.010*X5	0.7323	0.6560	0.6338	0.4395	0.4413	0.4518	0.4506	0.4087	0.5023	0.5600
Z scores	2.2718	1.8556	1.8556	1.4612	1.4234	1.1765	1.2324	1.1167	1.6765	2.0276

**Source: Own estimate from CMIE database**

In tea industry, the content of retained earning to total assets was recorded as 33.66% in 1991-92 and during the next couple of years, the ratio gradually improves 36% in 1995-96, -42.63% in 1997-98 and increased to 48.31% in 1999-2000). The characteristics of this ratio during the first decade of our study, 1991-92 to 1999-2000 is that the ratio is almost increasing in most of the years signifying sound accumulated reserve position of the industry. But oddness of this ratio is that it rapidly decreases gradually and sharply from the beginning of second decadal period as compared to first decadal period which means that companies within the industry are becoming able to generate adequate reserve for future prospect of the business. This means that firms within tea industry may have been enabled to 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 23.17% to 12.36% (between 1991-92 to 1999-2000) is a warning signal for the companies within the said tea industry as it decreases sharply but it increases gradually amidst various ups and downs from 7.38% to 12.05% (between 2000-01 to 2009-10) which shows optimistic profitable 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 tea 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 43.24% in 1991-92, gradually decreased to 29.88% in 1999-2000. It gradually is declining from 28.25% in 2000-01 to 13.56% in 2009-10 during second decade of our study period, 2000-01 to 2009-10. It means that book value of debenture ranges from 71.75% in 2000-2001 to 86.44% 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.

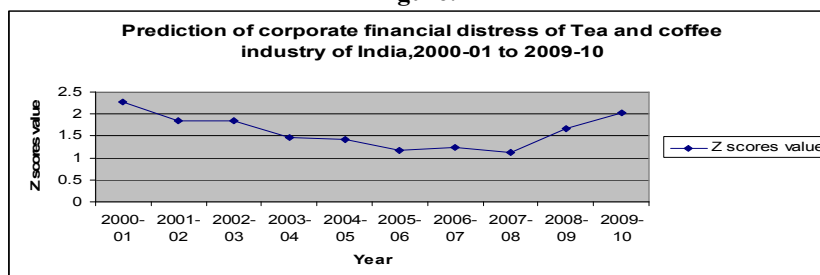
Net sales to total assets ratio ( $X_5$ ) indicates the effectiveness with which a firm's management uses its assets to generate sales. A relatively high ratio tends to reflect intensive use of assets. It is a measure of how

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.

The result indicates that in tea industry, net sales to total assets ratio( $X_5$ ) decreases during first decadal period, 1991-92 to 1999-2000, from 118.91% in 1991-92 to 79.95% in 1999-2000, but in no way, it touches the ideal ratio 2:1 which is an indicative of the fact that companies within tea industry failed to fully utilize its total assets to generate sales revenue necessary for smooth operation of the firms within industry.

But, in second decadal period, 2000-01 to 2009-10, the ratio also gradually and sharply is decreasing from 73.23% in 2000-01 to 56% in 2009-10, it being slightly below the ideal ratio showing adverse effect on firms' operational performance. Therefore, second decadal period indicates a pessimistic picture for the operational efficiency of the firms within said tea industry.

**Figure:2**



The comparison of two decade wide period( 1991-92 to 1999-2000 and 2000-01 to 2009-10) shows that during the first decadal period under our study, the companies under the industry begin to lie and pass through the path of either safe zone or intermediate zone because in all those years , Z score values fall within the intermediate zone ( $2.99 > Z > 1.81$ ) or safe zone ( $Z > 2.99$ ) [Fig-27 and 28 above]. Prevalence of the industry in intermediate zone indicates that there is high possibility of the companies within the industry going into bankruptcy within two or three years unless regulatory measures are taken immediately because the companies within the industry enters into intermediate zone. But, during the beginning of second decadal period , the companies under the tea industry is entering into distress zone because almost all Z scores value is less than 1.81. It indicates that there is no sign of revival of tea companies rather conditions is becoming worst during the end of last decade.

**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	
1.Tea industry	↑	↓	↑	↓	↓	↑	↓	↓	↓	↓	Safe zone or Grey zone

**SWOT Analysis:**

Before considering SWOT analysis, we need to understand basic feature of tea industry. The production of this industry is dependent on agro-climatic condition. Same plant and same agro practices give variations in quality in different region. Apart from this, product life is limited and labour intensive production system is associated with high cost due to high input cost. There is low investment in development programme and no priority for scientific cost management. Tea industry in India is at crossroad not knowing how to reverse the adverse trends in global markets that have directly affected its fortunes. There is fierce competition abroad, India's uncompetitiveness on account of high cost and poor quality, and changing consumer demand. The home markets are slowly but steadily opening to imports which can well compete on both cost and quality parameters. Indian Institute of Foreign Trade, Ministry of Agriculture, Govt. of India has done the following SWOT analysis.

*Strength:*

- (i) Demand for tea has been growing at some 2% p.a and should accelerate further.
- (ii) Due to huge population base in India, technical and manpower skill is available in abundance.

(iii) Good research support by the tea growers will help the industry grow further.

*Weakness:*

(i) The second generation labourer are reluctant to join this labour intensive industry, consequently, it could pose a problem of skilled labour in the near future.

(ii) No effective cost management system is adopted by companies and other regulatory bodies.

(iii) Supply from more efficient players like Kenya, China, and Srilanka.

(iv) Declining export of India over years is matter of concern. The Indian exports of tea have been sharply declining in most of the key markets. While many individual firms seem to be doing well having created niche markets for their products. Over the years tea export has remained flat due to increasing competition from Kenya and Sri Lanka which are able to sell the tea at cheaper price with the same quality level.

*Opportunities:*

(i) Export potential is high if India can increase its production capacity.

(ii) To make tea more acceptable and fashionable like coffee.

(iii) To come up with new flavour/ formulation of the tea, tea house etc to popularize the concept of tea in India.

(iv) Large and untapped rural market for branded tea companies like HUL and Tata Tea.

*Threats:*

(i) India faces accute global competition in CTC tea and in that the competition is with Kenya. Kenyan tea coming from relatively younger bushes has quality that is better suited for tea bags. Their labour costs are comparatively lower. Therefore, the tea industry in Kenya is more competitive than the Indian tea industry as is reflected by India's diminishing leadership in key markets.

(ii) Low cost of production in some countries like China, Srilanka and Kenya.

(iii) Import of tea from other countries.

(iv) Cost escalation on account of increase in the cost of production. India has the highest cost of production among major tea producing countries in the world. The cost of sales is above the auction realization. Despite rising tea prices in India, the profitability position of the tea processing companies has remained slated on account of higher labour charges along with high power & fuel cost. Labour cost accounts for around half of the unit's cost of production and approximately 55-75% percent of that labour cost is due to plucking. Field and factory workers' productivity is also considered low in India. Apart from this, due to intense competition, tea growers are unable to pass the rising cost to the market thereby increasing pressure on the margins.

**Porter's 5 Forces analysis:**

*Industry rivalry (High):*

(i) There are exactly 700 tea companies in India; consequently, there is intense rivalry among them.

(ii) Market is dominated by large number of organized players.

(iii) Industry growth is slow.

(iv) There is low switching cost.

*Bargaining power of Buyers:*

(i) There is large number of buyers for purchasing the product.

(ii) The buyers have many options available.

(iii) Low product differentiation in terms of taste.

(iv) Low switching costs.

(v) Buyers purchase a large portion of industry's output.

*Bargaining power of Suppliers:*

(i) There are a large number of producers of tea in India.

(ii) There is close substitute of tea such as coffee available

(iii) Suppliers' product creates low switching cost.

*Threat of substitutes (moderate):*

(i) There are many substitutes like coffee, cold drinks, juice etc. Therefore, it has to compete with other beverages. Relentless growth of cold drinks over hot drinks has put tea on back foot. Apart from the severe competition that the country is facing from other tea producing countries, coffee is emerging as near perfect substitute and is posing greater challenge to the consumption of tea as many coffee outlets have been opened by Barista, Cafe Coffee Day and others. The branded tea players will have to aggressively take on these challenges and their success will hinge on the supply of high quality premium tea as well as organic tea.

(ii) Existing customers are loyal, because tea has much lower variability in consumer prices compared to coffee. For tea, it is 2%, coffee has 30% and coke 39% price variability. A stable price means higher consumer loyalty and that has to be exploited.

(iii) Substitutes' price may be lower. With so many players in the industry, a price war is unavoidable.

(iv) The substitute's product quality and performance may be better.

#### 4. Findings and conclusions:

From the analysis of financial health of tea industry discussed above, the following observations can be obtained:  
**(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 trend in working capital to the total assets ( $X_1$ ) ratio (indicated by  $X_1$  component in Altman's Z score model) has increased during first decadal period, 1991-92 to 1999-2000 of our study in tea firms within the respective industry. The result depicts that the said ratio has decreased in second decadal period of our study, 2000-01 to 2009-10.

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.

On the other hand, 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)** 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 of our study in tea firms within the respective industry.

The result depicts that the said ratio has decreased in second decadal period of our study, 2000-01 to 2009-10 in tea industry. This indicates that companies within the 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)** 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 decreased during first decadal period, 1991-92 to 1999-2000 of our study in tea & coffee firms of the respective industry. 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 second decadal period, 2000-01 to 2009-10 of our study in tea & coffee has witnessed gradual upward trend in the said ratio( $X_3$ ) signifying operational efficiency of the firms within the industry in terms this parameter.

**(iv)** 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 decreased during first decadal period, 1991-92 to 1999-2000 of our study in tea & coffee, firms of 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 tea industry.

**(v)** 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 decreased during first decadal period, 1991-92 to 1999-2000 of our study in tea & coffee firms of the respective industry. The result depicts that the said ratio has also further decreased in second decadal period of our study, 2000-01 to 2009-10 in tea & coffee 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 tea industry under our consideration of study have been showing upward trend in this ratio in first decadal period and downward trend in second decadal period.

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 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 representing earning before interest and tax (EBIT) to total assets, tea industry's  $X_3$  component analysis suggest that has decreased during first decadal period, 1991-92 to 1999-2000 of our study in tea firms of 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 tea industry.

Regarding  $X_4$  component representing earning before interest and tax (EBIT) to total assets and  $X_5$  components representing sales to total equity respectively, tea industry's  $X_4$  and  $X_5$  component 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 downward trend.



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 tea industry is not symmetrically providing identical result when we attempt to analyse and compare trend in individual component of Z score model under our study. The analysis of the result ultimately reveals that excepting a few years in second decadal period, tea industry is in either grey zone or nearly safe zone.

The tea industry's crisis in India has numerous causes, which require a variety of solutions. One of the most significant steps that the government should play should be to initiate a stronger competition law to curtail the misuse of corporate buying power and uphold social objectives at the garden level. New strategies which aimed at adding value and dipping production and marketing costs are also needed. Value addition and diversification for a wide range of tea products need to be developed for balancing the supply demand scenario. Proper investigation is needed to curb the wrong practices in the tea market by introducing new laws to regulate the price movements. For ensuring quality tea from the small tea growers sector, an efficient co-ordination mechanism amongst small tea growers, green leaf transporter and bought leaf factory may be developed. The research concludes with a note of optimism that Tea Fund (SPTF) set up by commerce ministry to implement uprooting and replanting programme would help in improving productivity and yield and thereby reduce cost in years to come.

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