

Analysis of Financial Strength of select firms from Indian Textiles Industry using Altman’s “Z” Score Analysis

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Abstract

Measuring the financial health of a firm has been an extremely important need for both managers as well as investors. In cases of manufacturing firms, continuous monitoring of the financial health is still more important, given the higher proportion of funds tied up in real assets. Even more significant would be the ability to predict the future financial health of a manufacturing firm so that corrective steps can be initiated, if and when one gets an indication that the financial health is weakening.

The financial health of a firm is reflected through the various financial statistics or parameters which are interrelated to each other. Generally speaking, a firm’s financial health is determined by key factors which are directly or indirectly linked to the extent of operating leverage, financial leverage and composite leverage.

The differences in these leverages are obviously reflected in the financial statements of any firm. The key metrics by which the financial health of a firm can be captured pertain to the areas of liquidity, profitability, sustainability and feasibility. In fact, most of these ratios have been designed and developed for the direct purposes of keeping a tab on the financial health of a firm. As far as ratios are concerned, there are forty plus different types of ratios, which are available to measure/analyze and predict the financial strength of a firm.

Edward I. Altman’s discriminant analysis, which employs a combination of various ratios to form an index of liquidity, profitability, sustainability and feasibility, has been highly accurate in analyzing the present state of financial health of a firm as well as to enable one to predict the future, particularly in terms of probability of bankruptcy.

This paper has made a sincere attempt to analyze and predict the financial health/strength/soundness of the firm by adopting Altman’s Z – Score in the select firms from the Indian textile industry.

Keywords: Textile Industry, Altman’s Z- Score, financial health, operating leverage, financial leverage, composite leverage.

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1. Introduction

The Textile Industry plays major role of Indian economy. Cotton is one of the major crops of India to fulfill the cloth demand of the country. Cotton textile industry is prone to high degrees of volatility in terms of its revenue and cost structure and hence is susceptible to fluctuating fortunes. When the industry is caught in a vicious down cycle- which happens more often than is the case with other industries - the industry's operations are rendered unviable and it faces threats to their viability and feasibility. It is against this backdrop that the present study has been taken up to establish the extent and nature of the financial health related problems faced by firms operating in this industry. The present study covers bankruptcy prediction model as applicable to today's economic scenarios. Edward I. Altman's model discussed in detail and describes the changes occurring to the equation so as to reach a perfect prediction for financial condition of the select textile industry.

2. Review of Literature

Rekha Pai dealt with the prediction of industrial sickness using multiple discriminant analysis. The data set constitutes 21 financial ratios of 34 Indian sick companies in 2000-01 and 38 contemporary non sick companies, both selected irrespective of size and industry category 3 years prior to sickness. The multiple discriminant analysis showed greater accuracy in predicting industrial sickness up to three years in advance.

Ramaksrihna in his paper described two well known financial distress model namely multiple discriminate analysis and logistic regression analysis by using a sample of 298 firms. The study found that cash flow and working capital are important predictive variables, irrespective of when compared to any other models. The selected models were also found to be capable of predicting with minimum errors, one year in advance, which is vital for the bankers, restructuring agencies and the management to initiate reveals process before process the company actually gets into financial distress.

Wayne in his study took the case of CLECS, telecom department in the US companies. The high rate of bankruptcy was attributed to the combined effect of fierce competition in the market places and heavy debt burdens carried by companies. The study revealed that 176 publicly held US companies filed for bankruptcy which has further increased to 279.

Praveen Kataria in his study attempted to predict corporate sickness of the companies. Financial information about all the sick companies was collected for five years sickness. Healthy companies were matched with the sick companies on the basis of industry composition size. 54 financial ratios and macro economic variables were to study their effect along with financial ratios. Two group linear discriminate analyses were applied in two parts. In the first part, only financial ratio was taken in

discriminate analysis and secondly microeconomic variable was included along with the financial ratios. The result showed that macroeconomic variable had very little impact on discriminant function.

3. **Objectives:** Set against the overarching theme of measuring, predicting and preserving the financial health of the firms operating in the Indian textile industry, the study has set out a couple of specific objectives which are as presented below:

- To analyze the financial health and variability of the firms in textile industry;
- To establish the ability of the Altman's model to predict the probable bankruptcies; and,
- To suggest new avenues for similar research studies.

4. Methodology of the study

This paper is based on secondary data culled from various financial portals like money-control, Google-finance, rediff.moneywiz and other websites. The study is analytical in nature and basing its workings on the data collected from the published financial statements of a select set of firms, worked out the set of ratios, within the framework of Altman's model.

The specific firms included in the present study are: Gangotri Textiles Ltd, SNS Textiles Ltd, Surat Textiles Ltd, United Textiles Ltd and Vardhaman Textiles Ltd. The secondary data were also collected from journals, published reports, and annual reports sourced from the internet.

4.1. The tools used for the analysis

The researchers used the Altman's 'Z' Score for the purpose of analysis and comparison of the financial health/soundness/strength of the selected firms from the textile industry. In order to analyze the stability and consistency of the different ratios employed, the researchers have used the statistical techniques such as the mean and coefficient of variation etc.

Time-line of the study

Researchers restricted the survey for the financial years from 2002-03 to 2011-12. The reason for confining the study of this period was the availability of the necessary published audited data.

Altman's Z-Score Model

The Altman Z-Score is an analytical representation created by Edward Altman in the 1960s which involves a combination of five distinctive financial ratios used for determining the odds of bankruptcy amongst companies. Most commonly, a lower score reflects higher odds of bankruptcy. The study has used the Z-score estimates for manufacturing firms for evaluation of financial health of companies over the study period.

Structure of Z-score estimate for manufacturer firms & emerging market credits

The table-1 shown below describes the structure of the ratios employed in calculating the Altman’s Z-score.

Table - 1

T ₁	$= \frac{\text{Working Capital}}{\text{Total Assets}}$	It is the ratio of working capital to total assets. It is used to measure the net liquid assets of the concern on total capitalization.
T ₂	$= \frac{\text{Retained Earnings}}{\text{Total Assets}}$	It is the ratio of retained earnings to total assets. It indicates the efficiency of the management in all the segments of manufacturing, sales, administration and other activities.
T ₃	$= \frac{\text{E B I T}}{\text{Total Assets}}$	It is the ratio of EBIT to total assets. It measures the productivity of assets employed in a firm. In fact the existence of a firm is based on the profitability.
T ₄	$= \frac{\text{Book value of Equity}}{\text{Total Liabilities}}$	It is the ratio of the book value of equity on total liabilities. It is reciprocal of the familiar debt equity ratio. The measure shows how much the firm’s assets can decline in value (measured by market value of equity plus debt) before the liabilities exceed the assets and the firm becomes insolvent.
T ₅	$= \frac{\text{Sales}}{\text{Total Assets}}$	It is the standard financial ratio measures the sales generating ability of the firm’s assets and management capacity in dealing with competitive conditions.

Table – 2 provides the values of the coefficients which were developed based on empirical analysis carried out over a substantial period. The coefficients are constants.

Table - 2

Financial ratio	Altman’s coefficient of the ratios
T ₁ = Net working capital to Total assets	1.2
T ₂ = Retained Earnings to Total assets	1.4
T ₃ = E B I T to Total assets	3.3
T ₄ = Book value of Equity to Total liabilities	0.6
T ₅ = Sales to Total Assets	0.999

Thus, the formal statement of the model is:

Z-Score bankruptcy model: $Z = 1.2T_1 + 1.4T_2 + 3.3T_3 + 0.6T_4 + 0.999T_5$

Z scores and their interpretation: Table 3 below represents the suggested rules for interpretation of the financial health of the firms, based on their Z scores.

Table - 3

'Z' Score	Reading
Z above 2.99	The firms are financially safe and shows healthier
Z between 1.81 and 2.99	The company is on alert to work out the caution. (Gray Zone)
Z less than 1.81	At this stage of range firms may chance going into bankruptcy in the next two years. (Distress Zone)

Table – 4 to 8, shows the financial statement of selected firm's and few financial data used as it required for construction of Z Score analysis.

Table - 4

Gangotri Textiles.

Particulars	2012	2011	2010	2009	2008	2007	2006	2005	2004	2003
Current Assets	30.33	63.49	51.53	33.08	85.06	59.48	52.94	56.01	58.39	44.92
Current Liabilities	22.69	28.45	18.47	15.82	30.21	38.71	21.28	18.2	20.55	16.62
Total Assets	342.61	422.07	437.7	451.64	486.62	412.42	169.7	137.83	120.07	105.1
Retained earnings	-75.67	-29.8	-13.98	19.15	69.22	72.67	23.27	27.05	25.65	20.9
EBIT	-17.12	13.2	-8.09	-31.93	6.04	12.67	11.07	10.2	14.37	12.21
Book Value of Equity	-18.2	-4.14	0.71	10.87	26.22	27.28	17.12	66.36	63.43	53.55
Total Liabilities	342.64	422.07	437.71	451.66	486.62	412.42	169.59	137.35	119.12	104.03
Sales	151.7	222.94	145.57	95.42	159.63	170.34	153.73	184.86	176.76	145.02

Source: Annual report extracted from money control.com

Table - 5

SNS Textiles.

Particulars	2012	2011	2010	2009	2008	2007	2006	2005	2004	2003
Current Assets	3.05	2.98	2.89	2.39	2.25	1.46	1.66	4.18	4.6	8.33
Current Liabilities	0.49	0.67	0.61	0.65	0.83	0.72	1.1	6.43	2.56	4.72
Total Assets	14.65	15.46	16.07	17.63	17.9	17.9	18.4	28.37	35.47	43.79
Retained earnings	-17.12	-16.32	-15.71	-14.69	-14.74	-14.79	-14.79	-14.27	-27.43	-22.45
EBIT	-0.22	-0.44	0.1	0	-0.13	-0.09	-0.14	13.15	-4.78	-0.84
Book Value of Equity	-1.49	-0.96	-0.56	0.11	0.07	0.04	0.04	0.35	-8.28	-5.02
Total Liabilities	14.66	15.46	16.07	17.64	17.9	17.91	18.42	28.37	35.44	43.8
Sales	1.2	1.19	1.24	1.85	2.01	1.09	6.43	14.36	18.88	33.8

Source: Annual report extracted from money control.com

Table - 6

Surat Textile Mills.

Particulars	2012	2011	2010	2009	2008	2007	2006	2005	2004	2003
Current Assets	45.82	50.43	36.64	23.56	37.2	32.4	27.93	44.63	28.08	35.65
Current Liabilities	14.06	18.97	34	11.48	23.85	21.92	21.19	39.46	19.96	30.37
Total Assets	70.12	78.58	60.7	53.49	47.29	47.49	45.62	45.27	136.19	141.96
Retained earnings	47.15	27.37	9.49	2.28	-3.93	-105.51	-105.04	-105.44	-18.45	-11.94
EBIT	30.36	14.67	12.67	7.1	102.98	1.34	1.94	-0.57	-6.03	-8.79
Book Value of Equity	3.12	2.23	1.43	1.1	0.82	-5.74	-5.67	-5.73	7.25	8.22
Total Liabilities	70.12	78.58	60.7	53.49	47.28	47.49	45.61	45.28	136.18	141.96
Sales	188.83	270.73	241.42	164.56	89.24	99.27	207.54	95.3	171.89	178.89

Source: Annual report extracted from money control.com

Table - 7

United Textiles.

Particulars	2012	2011	2010	2009	2008	2007	2006	2005	2004	2003
Current Assets	2.43	2.06	2.58	2.55	2.2	2.45	2.89	2.88	2.96	3.33
Current Liabilities	0.29	0.23	0.45	0.96	0.54	0.47	0.58	1.71	1.62	2.46
Total Assets	3.18	3.09	4.74	4.84	5.02	5.56	5.91	6.05	5.96	6.5
Retained earnings	-0.66	-0.68	0.64	0.62	0.59	0.49	0.05	-0.42	-0.69	-0.24
EBIT	0.1	0.14	0.14	0.18	0.35	0.76	0.63	0.49	-0.12	-0.45
Book Value of Equity	7.8	7.73	12.13	12.06	11.97	11.64	10.17	8.6	7.7	9.21
Total Liabilities	3.17	3.1	4.73	4.84	5.02	5.56	5.91	6.05	5.96	6.5
Sales	7.29	5.51	6.46	8.96	7.7	7.34	7.72	8.87	9.05	9.87

Source: Annual report extracted from money control.com

Table - 8

Vardhaman Textiles.

Particulars	2012	2011	2010	2009	2008	2007	2006	2005	2004	2003
Current Assets	1,910.18	2,110.23	1,533.48	934.25	1,164.64	979.31	825.39	756.45	549.05	426.2
Current Liabilities	712.83	439.66	444.67	418.89	386.52	374.95	255.72	221.08	125.47	168.66
Total Assets	4,434.60	4,750.27	4,076.65	3,766.06	3,563.37	2,816.31	2,063.89	1,549.92	1,017.94	920.6
Retained earnings	1,932.37	1,854.61	1,398.08	1,214.98	1,114.37	1,034.26	903.9	761.81	474.79	427.7
EBIT	316.01	719.01	403.77	328.2	227.31	260.57	286.56	217.88	121.17	97.58
Book Value of Equity	313.58	301.37	252.01	220.32	202.9	189.03	166.47	305.85	194.39	176.1
Total Liabilities	4,434.59	4,750.27	4,076.65	3,766.07	3,563.38	2,816.30	2,063.90	1,549.90	1,017.94	920.62
Sales	3918.00	3606.53	2743.35	2456.71	2294.64	2095.64	1895.12	1852.86	1080.17	844.22

Source: Annual report extracted from money control.com

Data showing the computed Z score values. Based on the relevant data taken from the published annual reports which are shown in the table 4-8, the Z scores were computed. The table -9 below presents a summary of these values.

Table – 9

Table – 9 shows the results of selected firm’s under the Z score analysis, also the mean Standard deviation and Co-efficient of variation.

Evaluation of Z-Score factor

Years	Gangotri Textiles	SNS Textiles	Surat Textiles	United Textiles	Vardhaman Textiles
2012	-0.0369	-1.4551	5.6307	4.3873	2.0943
2011	0.6258	-1.3529	5.0430	3.8296	2.2646
2010	0.3181	-1.1217	4.9473	3.7259	1.8368
2009	0.0974	-0.9395	3.8544	4.0407	1.5902
2008	0.7354	-0.9671	9.3042	3.7544	1.5879
2007	0.8608	-1.0616	-0.7368	3.5767	1.8606
2006	1.5967	-0.7635	1.5643	3.1701	2.3683
2005	2.4779	1.2433	-1.1382	2.7197	2.8792
2004	2.8624	-1.0668	1.0286	2.3334	2.7198
2003	2.6722	0.0202	1.0141	2.2476	2.3668
Average WC	34.423	1.501	12.708	1.702	764.073
Mean	1.2210	-0.7465	3.0512	3.3785	2.1568
S D	1.0079	0.7665	3.1432	0.6394	0.4439
CV	82.5480	-102.6863	103.0177	18.9245	20.5818

Source: Computed from Annual report

5. Results and Discussion

Table - 4 to 8 show the financial information about selected Textiles Companies. Table 9 shows the financial analysis of the all selected firms. The analysis based on the computed data presented in table 4 leads to the interpretations that:

- Firstly, the average working capital of Vardhaman textiles, Gangotri textiles and Surat Textiles are relatively stronger; on the other hand, the financial health of United textiles and SNS textiles indicate a need to take caution about the operating efficiency and short term financial healthiness to avoid falling into a state of negative working capital.
- Secondly, as per the Altman's 'Z' Score analyses, the Surat Textiles, United Textiles and Vardhaman Textiles are financially in the safe zone and depict sound financial health. The Gangotri Textiles and SNS Textiles are financially in the alert zone (i.e., in the Distress zone). The SNS textile is in the stage of distress implying that bankruptcy is highly probable. This is quite obvious from a reading of the mean Z score values.
- Thirdly, as per financial consistency is concerned, the Vardhaman Textiles is more standard/consistent and it is followed by United textiles. Other companies' financial position indicates relatively more unstable (i.e lacking in consistency); this is clearly seen by the reading of the values of the coefficient of variation.
- Finally, all the ratios computed here indicate strong financial position in cases of Vardhaman Textiles and United Textiles. Thus, it can be concluded that these two companies are financial healthier/sound. As the it clear from the computed data Surat Textiles doing good from last five years. But in the light of computed data analysis, it is quite clear that Gongotri Textiles need to take more precaution against the eroding financial position and efficiency is a serious concern as they are in the alert zone. The SNS Textiles is in the bankruptcy stage as indicated by the data.

6. Major Findings

- Shortage of working capital forces the companies to go for more debt funding which in turn causes high earning for share and it is favorable for profitability of the company. However, the increased leverage leads to higher chances of bankruptcy, if the higher debt cannot be efficiently serviced.
- Operating efficiency of the is good for United Textiles and Vardhaman Textiles.
- The retained earnings ratio of the sample companies is quite satisfactory (except SNS textiles), which strengthens the viability over a period of time.
- On an aggregate basis, among all the selected sample units, United Textiles and Vardhaman Textiles are financially healthy during the study period.

7. Conclusion:

Assessment of financial position and health of the firm is a very crucial point for share holders. All the decision of a firms is taken on the basis of financial soundness of a firm. Under this background Altman's Z score dominates for deciding the financial bankruptcy of a firm and there by a firm can easily judge its financial condition. The present study was conducted with the parameters of liquidity, profitability, sustainability, feasibility and compare the financial performance of select firm's of textile industry. During the study period investigator finds that Vardhaman Textiles, Surat Textiles and United Textiles are financially sound but not Gangotri Textiles and SNS Textiles.

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