INTERNATIONAL JOURNAL OF RESEARCH IN COMMERCE, IT & MANAGEMENT

IJRCM

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STATEMENT OF THE PROBLEM

OBJECTIVES

HYPOTHESES

RESEARCH METHODOLOGY

RESULTS & DISCUSSION

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- Hunker, H.L. and A.J. Wright (1963), "Factors of Industrial Location in Ohio" Ohio State University, Nigeria.

CONTRIBUTIONS TO BOOKS

- Sharma T., Kwatra, G. (2008) Effectiveness of Social Advertising: A Study of Selected Campaigns, Corporate Social Responsibility, Edited by David Crowther & Nicholas Capaldi, Ashgate Research Companion to Corporate Social Responsibility, Chapter 15, pp 287-303.

JOURNAL AND OTHER ARTICLES

- Schemenner, R.W., Huber, J.C. and Cook, R.L. (1987), "Geographic Differences and the Location of New Manufacturing Facilities," Journal of Urban Economics, Vol. 21, No. 1, pp. 83-104.

CONFERENCE PAPERS

- Garg, Sambhav (2011): "Business Ethics" Paper presented at the Annual International Conference for the All India Management Association, New Delhi, India, 19–22 June.

UNPUBLISHED DISSERTATIONS AND THESES

- Kumar S. (2011): "Customer Value: A Comparative Study of Rural and Urban Customers," Thesis, Kurukshetra University, Kurukshetra.

ONLINE RESOURCES

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WEBSITES

- Garg, Bhavet (2011): Towards a New Natural Gas Policy, Political Weekly, Viewed on January 01, 2012 http://epw.in/user/viewabstract.jsp

A STUDY ON FINANCIAL HEALTH OF TEXTILE INDUSTRY IN INDIA: Z – SCORE APPROACH

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ABSTRACT

Corporate failures are impacting at larger extent to various stakeholders such as investor, government, economy of the country and many more. So this paper examines the financial health of textile industry in India through Z – score model which better predicts the corporate failures (Edward I. Altman 1968). The objectives of the study are to examine the financial health of textile industry through Z – score model and also Analysis of Variance (ANOVA) is used to compare the mean value of Z score for the studied groups. In case of violence of the assumption of ANOVA, none parametric test: Kruskal Wallis statistics used. Moreover, the study period is of 5 years ranging from 2007-08 to 2011-12 because researcher is interested in measuring the performance after global financial crisis. The research result shows that Page Industries Ltd and Zodiac Clothing Co. Ltd are performing much batter in whole textile industry. On the contrary, all other textile and synthetic producing companies' financial performance is weak.

JEL CODE
G 33

KEYWORDS
Analysis of Variance, Discriminant Analysis, Financial Health, Z – Score Model.

INTRODUCTION

The importance of financial management practices have excelled in every area of business. The success of any business is largely depends on its effective financial management practices which starts with procurement of funds and ends with effective utilization of funds. However, financial statements like balance sheet and profit & loss account are the sources for financial information, based on which the financial planning and decision making is done. But absolute figures reported in the financial statements do not serve the purpose of measuring the financial health of the companies. Hence, the financial analyst has to analyze the financial data in order to ascertain the strengths and weaknesses of the companies. Business failure may leads to corporate distress which includes legal process of bankruptcy and liquidation. The business failure received much exposure in last decades, more during the recession years of 2007 to 2010, heightened attention during the explosion of defaults and large firm bankruptcies in the year 2006-07.

Looking to this global financial crisis, the present study examines the financial health of textile industry in India. The Indian Textiles Industry has an overwhelming presence in the economic life of the country. Apart from providing one of the basic necessities of life, the textiles industry also plays a pivotal role in its contribution to industrial output, employment generation, and the export earnings of the country. Currently, it contributes about 14% to industrial production, 4% to the GDP, and 17% to the country's export earnings (Source: Ministry of textiles report 2012). However, in last few years textile industry reported downward contribution to growth i.e. 14.5% in 2009, 3.8 in 2010 and -3.9 in 2011 (Source: MOSPI). So researcher tries to examine the financial health of textile industry after global financial crisis periods. Despite the financial analyst had many tools, ratio analysis is most powerful tool to ascertain the financial health of the companies. Alone, a single ratio does not serve the purpose. Therefore, it is necessary to combine the different ratios into a single measure to assess the distress level. However, Discriminant analysis is useful tool in such situations. "The use of MDA helps to consolidate the effect of all ratios". The analysis was carried out by Edward I. Altman in the year 1968 and created formula based model called Z – Score model. The model used to predict the probability that the firm will go into bankruptcy within two years and also used to predict corporate defaults and control measure for the financial distress status of the companies. The model was created with an initial dataset of 66 US manufacturing companies (33 non-bankrupt firms and 33 bankrupt firms) using**Multiple Discriminant Analysis (MDA)**.

This statistical method distinguishes two or more classes of objects (in this case bankrupt and non-bankrupt organizations) by making a linear combination of attributes of each class. The input for the model requires only publicly available data from annual reports. The main equation to predict bankruptcy is

Z = 1.2X1 + 1.4X2 + 3.3X3 + 0.6X4 + 1.0X5 **(1)**

Where,

Z	= Z score (Zone of Discrimination)
X1	= Working Capital/Total Assets
X2	= Retained Earnings/Total Assets
X3	= EBIT/Total Assets
X4	= Market Value of Equity/Book Value of Total Liabilities
X5	= Sales/Total Assets

Moreover, the overall Z score discriminates between firms that are likely to go bankrupt. Those firms can b identified by using a cutoff score for overall Z score index.

Z< 1.81	High probability of bankruptcy for the firm ("**Distress Zone**")
1.81 <**Z**< 2.99	Gray area – uncertain ("**Gray Zone**")
2.99 <**Z**	Low probability of bankruptcy for the firm ("**Safe Zone**")

REVIEW OF LITERATURE

The detection of companies operating and financial difficulties is the subject which has been particularly amenable to analysis with financial ratios. Though at one extreme, many learned academicians question the validity of financial distress prediction models using financial ratios. However, there is continuing interest in refining and testing financial distress prediction models. Few of studies conducted in line of this research as under.

Beaver(1967, 1968) initiated the interest of academic world to financial distress prediction models using univariate analysis methodology for classifying bankruptcy and non-bankruptcy firms. The importance of the subject attracted the interest of several authors from countries. **Edward I. Altman (September 1968)** published a paper and introduced the world to Altman's Z score, a technique designed to predict bankruptcy. However, The Discriminant ratio model proved to be extremely accurate in predicting bankruptcy correctly in 94% of the initial sample with 95% of all firms in the bankrupt and non-bankrupt groups assigned to their actual group classification.

Edward I. Altman, Haldeman and Narayanan (1997) came out with ZETA model for assessing bankruptcy risk of corporations demonstrates improved accuracy over existing failure classification model (Z-Score) and, perhaps more importantly, is based on data more relevant to current conditions and to a larger number of industrial firms. Further Z score model has been tested by other researcher in their countries. **Nikolaos Gerantonis, Konstantinos Vergos, (October 2009),** have analyzed whether Altman Z-score models, can predict correctly company failures. They have also concluded that Altman model performs well in predicting failures. **Bright Kpodoh (2009)** has adopted qualitative as well as quantitative approach to measure the financial performance, and relationship between corporate governance and corporate failure. The research findings confirmed the strength and ability of the Z score model in predicting eminent business failure as it predicted accurately the distress positions of the case companies. **Dr. D. Maheswara Reddy and Dr. C. R. Reddy (2011),** the attempt is made to predict the financial health of two selected sample pharmacy companies using modified Altman's model. The research findings of the study are that the overall financial health of both companies was good. Further a case study by **Dr. M. Selvam W, S. Vanitha and M. Babu** to predict financial health of Indian cements ltd using Z score. Most of the cement producing companies in India has been caught in a vicious down cycle facing a threat to their viability.

IMPORTANCE OF THE STUDY

Measuring financial strength of the corporate is very crucial for everyone in general and for investor in particular. Increasing globalization and liberalization led every country to an integrated market whereby every country's trade relation has increased drastically. However, in India, textile industry was unorganized sector prior to 1990s. After economic liberalization, it led to stupendous growth. Thus investor who seeks for healthy return out of textile industry, they need to study the fundamentals of the textiles companies. However, this research is also examined financial health of the textile companies through Z score model which predicts the corporate failure in near future.

STATEMENT OF PROBLEM

Looking to the last 3 years performance of the textile industry, the growth rate was 6.8 in the year 2009 which was drastically reduced to -2.7 in the year 2011 (Source: economic survey report 2011-12). So the problem is which company is outperforming in this meltdown in textile industry? And further which companies' financial performance is distressed?

OBJECTIVES

1. To measure the financial health and predict the bankruptcy of textile industry in India.
2. To analyze whether the average financial performance is significantly differing across the studied groups

HYPOTHESES

Hypothesis - 1: Whether data follows normal distributions
Hypothesis- 2: Whether there exists significant difference among the mean value of Z score of all Textile Companies

RESEARCH METHODOLOGY

Z score model and ANOVA was used to predict the bankruptcy and financial health of textile industry in India and also to check mean differences of various Z score and Z score components among the groups. The study examines the financial health of 8 textile products (Alok Industries Ltd., Arvind ltd., Bombay Rayon, Himatsingka Seide Ltd., Page Industries Ltd., Raymond Ltd., S. Kumar Ltd., Zodiac Clothing Ltd.) and 5 textile synthetics (Bombay dyeing Ltd., Century Enka Ltd., Garden Silk Mills Ltd., Indo Rama Synthetics Ltd., SRF Ltd.) companies through Z score model which predicts the bankruptcy or corporate failures in next two years. The necessary secondary data have been sourced from annual reports of the firm, journals, books and websites from 2007-08 to 2011-12 (After Global Financial Crisis) for five years. The sample companies are drawn from S&P CNX Nifty500 index. All those data are subjected to find out Z score value to discriminate all studied companies as safe zone, gray zone and distress zone. Moreover, Analysis of Variance (ANOVA) was used to compare the mean differences among the groups.

RESULTS AND DISCUSSION

The study examines the financial health of textile companies using Multiple Discriminant Analysis Z score model and also test mean differences among the group using ANOVA (in case of violation of Assumptions, Kruskal Wallis is used). The calculations of Z score for each textile companies are discussed in detail as follows.

TABLE1: Z SCORE CALCULATIONS FOR ALOKTEXT, ARVIND AND BRFL

	Alok Industries Ltd.					
Year	**X1**	**X2**	**X3**	**X4**	**X5**	**Z Score**
2011-12	0.3480	0.0046	0.1606	0.1097	0.6772	1.6971
2010-11	0.3212	0.0238	0.1418	0.1368	0.5276	1.4965
2009-10	0.3430	0.0123	0.1161	0.1558	0.4005	1.3060
2008-09	0.2251	0.0146	0.0934	0.0300	0.3748	0.9916
2007-08	0.3735	0.0229	0.0722	0.1474	0.3258	1.1328
	Arvind Ltd.					
Year	**X1**	**X2**	**X3**	**X4**	**X5**	**Z Score**
2011-12	0.2313	0.1127	0.1383	0.5790	0.9692	2.2085
2010-11	0.3200	0.0374	0.1065	0.4879	0.7388	1.8193
2009-10	0.3116	0.0156	0.0940	0.2379	0.7046	1.5534
2008-09	0.3057	-0.0154	0.0800	0.0912	0.7295	1.3934
2007-08	0.3219	0.0074	0.0685	0.2470	0.6628	1.4337
	Bombay Rayon Fashions Ltd.					
Year	**X1**	**X2**	**X3**	**X4**	**X5**	**Z Score**
2011-12	0.3653	0.0332	0.1178	0.5402	0.4404	1.6380
2010-11	0.3566	0.0357	0.0933	0.5694	0.3891	1.5167
2009-10	0.3379	0.0361	0.0882	0.5489	0.3662	1.4426
2008-09	0.3441	0.0463	0.1147	0.3528	0.4621	1.5299
2007-08	0.4410	0.0847	0.1604	1.3852	0.7029	2.7111

Source: Calculated from Annual Reports of Respective Companies

The above table number 1 clearly represents the Z score and Z score components calculated values for Alok Industries, Arvind Ltd and BRFL. As such, all above companies' average Z score value is 1.3248, 1.6817 and 1.7677 respectively. That means if we discriminate these three companies using cut off for overall index, we can say that all three companies found to be in distress zone. Moreover, these companies' financial health is not healthier and has high probability of getting bankrupt in future.

TABLE 2: Z SCORE CALCULATIONS FOR HIMATSEIDE, PAGEIND AND RAYMOND

	Himatsingka Seide Ltd.					
Year	**X1**	**X2**	**X3**	**X4**	**X5**	**Z Score**
2011-12	0.1247	0.0168	0.1072	0.3329	0.7274	1.4542
2010-11	0.2336	-0.0412	0.0214	0.3268	0.5001	0.9892
2009-10	0.2617	0.0053	0.0492	0.3654	0.4232	1.1261
2008-09	0.2409	-0.0329	0.0778	0.2278	0.4098	1.0461
2007-08	0.2937	-0.0263	0.0252	0.5979	0.2524	1.0100
	Page Industries Ltd.					
Year	**X1**	**X2**	**X3**	**X4**	**X5**	**Z Score**
2011-12	0.4525	0.2119	0.6277	13.0911	3.2534	14.0191
2010-11	0.5668	0.1237	0.4204	7.6028	2.1527	8.9552
2009-10	0.4442	0.1053	0.4496	5.8461	2.2794	7.9513
2008-09	0.4404	0.0984	0.4216	3.1624	2.0389	5.9940
2007-08	0.3575	0.1106	0.3333	4.0889	1.7398	5.8770
	Raymond Ltd.					
Year	**X1**	**X2**	**X3**	**X4**	**X5**	**Z Score**
2011-12	0.1609	0.0195	0.1148	1.2385	0.8953	2.2377
2010-11	0.2682	-0.0478	0.0933	0.8418	0.6468	1.7146
2009-10	0.2284	0.0109	0.0531	0.6057	0.5610	1.3888
2008-09	0.2179	-0.1085	0.0479	0.1871	0.5673	0.9472
2007-08	0.2280	0.0220	0.0397	0.7852	0.5864	1.4929

Source: Calculated from Annual Reports of Respective Companies

The table number 2 shows the Z score values and its components for Himatsingka, Page Industries and Raymond Ltd. However, all companies' average Z score value is 1.1251, 8.5593 and 1.5562 respectively. Here, two companies are found to be in distress zone viz. Himatsingka and Raymond Ltd., their Z score value is below 1.80. So we can say that these companies' financial health is not good and has high probability of getting bankrupt in future. Meanwhile, Page Industries Ltd having average Z score of 8.5593 which is beyond 2.99 that means this company's financial position is healthier and are in safe zone. In other words we can say that there is very low probability of getting bankrupt in future for Page Industries Ltd.

TABLE 3: Z SCORE CALCULATIONS FOR SKUMARSYNF, ZODIACLOTH AND BOMDYEING

	S. Kumars Nationwide Ltd.					
Year	**X1**	**X2**	**X3**	**X4**	**X5**	**Z Score**
2011-12	0.5903	0.0375	0.1941	0.2464	0.8825	2.4317
2010-11	0.5760	0.0330	0.1432	0.3690	0.6545	2.0859
2009-10	0.5234	0.0308	0.1286	0.4111	0.6258	1.9681
2008-09	0.5431	0.0211	0.0952	0.1779	0.5439	1.6460
2007-08	0.5713	0.0869	0.1693	0.9069	0.7838	2.6939
	Zodiac Clothing Co. Ltd.					
Year	**X1**	**X2**	**X3**	**X4**	**X5**	**Z Score**
2011-12	0.5179	0.0246	0.0663	1.8340	1.4942	3.4693
2010-11	0.5001	0.0864	0.1102	2.5142	1.4927	4.0861
2009-10	0.5784	0.0883	0.1750	2.0472	1.6107	4.2343
2008-09	0.5498	0.0672	0.2551	0.9937	1.9245	4.1164
2007-08	0.4826	0.1053	0.1956	2.7489	1.7044	4.7258
	Bombay Dyeing & Manufacturing Co. Ltd.					
Year	**X1**	**X2**	**X3**	**X4**	**X5**	**Z Score**
2011-12	0.5832	0.0148	0.1031	0.9146	0.9000	2.5094
2010-11	0.5083	0.0030	0.0960	0.0626	0.8537	1.8223
2009-10	0.3852	0.0044	0.1412	1.0678	0.8602	2.4353
2008-09	0.3939	-0.0954	0.0305	0.3154	0.6671	1.2960
2007-08	0.2487	0.0017	0.0361	1.3150	0.5264	1.7354

Source: Calculated from Annual Reports of Respective Companies

The table number 3 indicates the Z score values and its components for SKUMARSYNF, ZODIACLOTH AND BOMDYEING. However, all companies' average Z score value is 2.1651, 4.1264 and 1.9597 respectively. Here, two companies are found to be in gray zone viz. SKUMARSYNF and BOMDYING, their Z score value is in between 1.81 to 2.99. So we can say that these companies' financial health is not good and also not bad. However, their cash flows are uncertain hence we can't say about probability of getting bankrupt in future. Moreover, ZODIACLOTH having average Z score found beyond 2.99 that means this company's financial position is healthier and are in safe zone. In other words we can say that there is very low probability of getting bankrupt in future for Zodiac Clothing Co. Ltd.

TABLE 4: Z SCORE CALCULATIONS FOR CENTENKA, GARDENSILK, INDORAMA AND SRF

	Century Enka Ltd.					
Year	**X1**	**X2**	**X3**	**X4**	**X5**	**Z Score**
2011-12	0.2527	-0.0022	0.0835	0.2468	1.8674	2.5911
2010-11	0.2916	0.0616	0.1626	0.3739	1.4069	2.6039
2009-10	0.2162	0.1112	0.2867	0.7333	1.7005	3.5018
2008-09	0.1097	0.0087	0.1525	0.1789	1.6750	2.4294
2007-08	0.1970	0.0038	0.1209	0.2414	1.4638	2.2491
	Garden Silk Mills Ltd.					
Year	**X1**	**X2**	**X3**	**X4**	**X5**	**Z Score**
2011-12	0.1967	-0.0450	0.0575	0.1272	2.1462	2.5853
2010-11	0.2584	0.0433	0.1599	0.1962	1.9630	2.9791
2009-10	0.1969	0.0371	0.1548	0.1718	1.7536	2.6558
2008-09	0.2229	0.0327	0.1158	0.1144	1.0341	1.7982
2007-08	0.2741	0.0287	0.1431	0.1648	1.5266	2.4667
	Indo Rama Synthetics Ltd.					
Year	**X1**	**X2**	**X3**	**X4**	**X5**	**Z Score**
2011-12	-0.2268	0.0156	0.0903	0.3312	2.9516	3.1979
2010-11	-0.1043	0.0886	0.3093	0.7836	2.4405	3.9299
2009-10	-0.0782	0.0052	0.1519	0.3963	1.9324	2.5849
2008-09	-0.1024	-0.0641	0.1638	0.2039	1.6909	2.1412
2007-08	-0.0329	-0.0070	0.0872	0.3011	1.5891	2.0080
	SRF Ltd.					
Year	**X1**	**X2**	**X3**	**X4**	**X5**	**Z Score**
2011-12	0.0694	0.1125	0.3029	0.5228	1.3923	2.9465
2010-11	0.1227	0.1626	0.3297	0.7860	1.3365	3.2710
2009-10	0.0652	0.1018	0.2694	0.5415	1.0658	2.5003
2008-09	0.0361	0.0541	0.2519	0.2403	1.0566	2.1512
2007-08	0.0592	0.0713	0.2393	0.4664	1.2206	2.4608

Source: Calculated from Annual Reports of Respective Companies

The table number 4 represents the Z score values and its components for CENTENKA, GARDENSILK, INDORAMA and SRF. However, all companies' average Z score value is 2.6751, 2.4970, 2.7724 and 2.6660 respectively. Here, all companies are found to be in gray zone, their Z score value is in between 1.81 to 2.99. So we can say that these companies' financial health is not good and also not bad. However, their cash flows are uncertain hence we can't say about probability of getting bankrupt in future.

ANOVA (ANALYSIS OF VARIANCE)

When one wish to compare the means of more than two groups or levels of independent variables, a one way analysis of variance is appropriate. Before performing the statistical analysis, however, we should review the assumptions required to such type of statistical test. We will able to formally test the normality and the homogeneity of variance assumptions. With large samples, homogeneity of variance is more critical than normality, but one should test the both. We can examine the normality assumptions by the use of a formal statistical test. Before conducting the ANOVA the necessary assumptions must be met. There are numerous assumptions for ANOVA, most important are as under.

- **Population Normality:** population from which the samples are drawn must be normally distributed. To check such normality assumption, one can use normality statistics such as the Kolmogorov-Smirnov test and Shapiro Wilk.
- **Homogeneity of Variance:** the data in each group should have homogeneous variances. Thus through Levene's test one can check whether variances are equal or not.

TEST OF NORMALITY

It assesses whether there is a significant departure from normality in the population distribution for each of the eight textile companies' Z score. However the null hypothesis stated as follow.

Ho (Null hypothesis) = the population sample is normally distributed.
H1 (Alternate hypothesis) = the population sample distribution is not normal.
Significance Level = 0.05

TABLE 5: TESTS OF NORMALITY

	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Z Score	.248	65	.000	.655	65	.000

Source: SPSS Output.

Looking to the above test statistics, we have the Kolmogorov-Smirnov and Shapiro-Wilk. But we see the result of Shapiro-Wilk because it more appropriate when the sample size is less than one hundred. Thus from the tested significance of two variables, significance value for Z score is 0.000 which is lower than 0.05. Thus, we have to reject the null hypothesis and interpret that these data do violate the normality assumption. Which means the sample population is not normally distributed.

So further we need not to check for homogeneity of variance because first normality assumption is not met. Here we are well advised to use the **nonparametric** methods when our sample data do not meet one of the basic assumptions of normality.

NONPARAMETRIC TESTS

Sometimes we do not assume normality, and sometimes the data we have do not lend themselves to computing a mean. The various techniques featured in nonparametric tests are Mann-Whitney, Wilcoxon Signed Ranks and Kruskal Wallis and are applicable in just such circumstances. In particular, we will primarily use them when we cannot assume that our sample is drawn from a normal population. One of them used in this study is Kruskal Wallis is as under.

KRUSKAL WALLIS

The Kruskal Wallis H test is the nonparametric version of the one factor independent measures of ANOVA. We use this test if we have more than two independent samples. The Kruskal Wallis test ranks all the observed scores. If a difference among the group exits, then the scores from the various samples will be systematically clustered in the entire rank order. Alternatively, if there are no differences between the groups, the scores will be intermixed within the entire rank order. The null hypothesis stated as follow.

Ho (Null hypothesis) = there is no significance differences among the mean rank value of Z score of all textile companies
H1 (Alternate hypothesis) = there is significance differences among the mean rank value of Z score of all textile companies

Significance Level = 0.05

TABLE 6: MEAN RANKS FOR Z SCORE

Ranks			
Variable	**Company Name**	**N**	**Mean Rank**
Z Score	Alok Industries Ltd.	5	11.40
	Arvind Ltd.	5	20.20
	Bombay Rayon Fashions Ltd.	5	23.40
	Himatsingka Seide Ltd.	5	6.20
	Page Industries Ltd.	5	63.00
	Raymond Ltd.	5	16.60
	S. Kumars Nationwide Ltd.	5	32.80
	Zodiac Clothing Co. Ltd.	5	57.60
	Bombay D & M Co. Ltd.	5	27.80
	Century Enka Ltd.	5	43.40
	Garden Silk Mills Ltd.	5	41.40
	Indo Rama Synthetics Ltd.	5	42.20
	SRF Ltd.	5	43.00
	Total	65	

Source: SPSS Output.

TABLE 7: TEST STATISTICS FOR Z SCORE

	Z Score
Chi-Square	50.425
Df	12
Asymp. Sig.	.000

Source: SPSS Output.

INTERPRETATIONS

Interpreting table number 9 test statistics for Z score, significance value is 0.000 which is less than 0.05. Thus we can reject the null hypothesis and accept the alternate hypothesis that means there is some significance difference among the mean rank value of Z score for all studied textile companies. Further we can interpret from the table number 8 mean rank for Z score, how all those textile companies' financial performance is different to each other. Moreover, Z score defines the financial health of a company which differing significantly among studied groups. The highest mean rank for Z score is for Page Industries (63) and Zodiac (57.60) respectively. Meanwhile, Alok Industries (15.12) has the lowest Z score mean rank.

FINDINGS

TABLE 8: AVERAGE Z SCORE AND ZONE OF DISCRIMINATION

Company Name	Z score Value	Zone of Discrimination
Alok Industries Ltd.	1.3248	**Distress Zone**
Arvind Ltd.	1.6817	**Distress Zone**
Bombay Rayon Fashions Ltd.	1.7677	**Distress Zone**
Himatsingka Seide Ltd.	1.1251	**Distress Zone**
Page Industries Ltd.	8.5593	**Safe Zone**
Raymond Ltd.	1.5562	**Distress Zone**
S. Kumars Nationwide Ltd.	2.1651	**Gray Zone**
Zodiac Clothing Co. Ltd.	4.1264	**Safe Zone**
Bombay Dyeing & Manufacturing Co. Ltd.	1.9597	**Gray Zone**
Century Enka Ltd.	2.6751	**Gray Zone**
Garden Silk Mills Ltd.	2.4970	**Gray Zone**
Indo Rama Synthetics Ltd.	2.7724	**Gray Zone**
SRF Ltd.	2.6660	**Gray Zone**

Source: Computed Value

We can clear observe the zone of each studied companies' financial position from the above table number 8. As such, two companies' average Z score value was found beyond 2.99 (Safe Zone) viz. Page Industries and Zodiac Clothing. Moreover, six companies' average Z score value found in between 1.81 to 2.99 (Gray Zone) i.e. S.Kumar, BDMCL, Century Enka, Garden Silk Mills, Indo Rama and SRF Ltd. Further, five companies' Z score value found below 1.80 (Distress Zone), they are Alok Industries, Arvind Ltd., BRFL, Himatsingka and Raymond Ltd.

Moreover from the Kruskal Wallis statistical test which is non parametric version of ANOVA; it was found that all companies were differing in Z score value. So we can say that all companies' financial position is differing under study periods. The highest mean rank was found for Page Industries Ltd. i.e. 63.00 followed by Zodiac i.e. 57.60.

CONCLUSION

In conclusion, we can say that financial health plays significant role in the successful functioning of the organization. Distressed financial health threatens survival in the market and leads to business failure. As such, most of the textile products and synthetic companies in India has been caught in distressed zone and in gray zone which indicates that these companies are facing down cycle in financial performance. However all firms were differing in showing financial performance as their Z score value is statistically significant. Page Industries Ltd and Zodiac Clothing Co. Ltd have the highest mean rank, this shows these companies are financially sound and they are in safe zone. While rests of studied companies are in distress and in gray zone which indicates that their financial position is weak and chances of getting bankrupt is high.

RECOMMENDATIONS

1. Investors are clearly recommended that they can invest in Page Industries Ltd and Zodiac Clothing Co. Ltd because both the companies are in safe zone that means their financial position is very sound.
2. Further bad news for Himatsingka Seide Ltd and Alok Industries because they have very low z score value so the probability of getting bankrupt is very high.

LIMITATIONS

1. Z score alone cannot serve the purpose of predicting bankruptcy; there are other models also available for failure prediction.
2. Model is applied only to the limited companies of Textile and Textile Synthetics industry which are listed on NSE 500.
3. Z score statistics alone cannot predict the bankruptcy; moreover management, promoters, demands supply, industry life cycle also leads to bankruptcy.

SCOPE OF FURTHER RESEARCH

1. Further study can be possible on NSE 50 index companies which are widely traded by investors instead of focusing on a particular sector.
2. Apart from Z score, there are other failure prediction models like ZETA model, Taffler and Tisshaw Model, Argenti Score Board.
3. Further financial performance of textile companies can be possible before global financial crisis and after financial crisis with the help of Z score model.

REFERENCES

1. Altman Edward I. (1968), "Financial Ratios, Discriminant Analysis and the Prediction of Corporate Bankruptcy", The Journal of Finance, Vol. 23, No. 4, pp 589-609
2. Altman Edward I. and Edith Hotchkiss (2006), "Corporate Financial Distress and Bankruptcy" John Wiley and Sons Inc., Chapter 11, pp 239-243
3. Black Ken, (2004), "Business Statistics", Wiley India Pvt. Ltd., New Delhi, pp. 48-50, pp. 76-78.
4. Dr. D. Maheswara Reddy, Dr. C. R. Reddy (2011), "Application Of Z Score Analysis In Evaluating The Financial Health Of Pharmaceutical Companies- A Case Study Approach", International Journal of Research In Commerce & Management, Vol. 2, Issue 5, pp 104-107
5. Kishore Ravi M. (2011), "Strategic Financial Management"2nd Edition, Taxmann Publications Pvt. Ltd., Haryana, p. 881
6. Kpodoh Bright (2009), "Financial Ratios, Discriminant Analysis and the Prediction of Corporate Bankruptcy", Thesis, School of Management, Blekinge Institute of Technology, Ghana.
7. Nikolaos Gerantonis, Konstantinos Vergos, Apostolos G. Christopoulos (Oct. 2009), "Can Altman Z-score Models Predict Business Failures in Greece?", Research Journal of International Studies, Issue 12, pp 21-28
8. Pandey I.M. (2007), "Financial Management" 6th ed., New Delhi, Tata McGraw Hill Publication Company Limited. pp. 593-593
9. Richard I. Levin and David S. Rubin, (7th edition) "Statistics for Management", Pearson Education, pp 719-728.
10. Schindler S Pamela and Cooper R Donald (2006) "Business Research Methods", The McGraw-Hill Companies, New Delhi, pp. 69-78.
11. Sheridan J Coakes, Lyndall Steed and Peta Dzidic (2006), "SPSS analysis without Anguish" 13th Version, New Delhi, Wiley India Pvt. Ltd. pp. 72-76.

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