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Current Scenario of Financial Soundness of Textile, Pharmaceutical and Chemical Industry of Bangladesh: An Emphasize on Altman's Z-Score for Publicly Traded Manufacturing Companies

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Abstract:
This study analyzes the financial soundness of the textile, pharmaceutical and chemical industry of Bangladesh using Altman's Z-score. Textile, pharmaceutical and chemical industries are contributing to the overall economy of Bangladesh in a gargantuan way. That's why it is important to analyze the financial health of these sectors to understand the current scenario so that organizations that are facing difficulties in terms of solvency or profitability may get proper attention from the authority. The key findings of this study include 66 %organizations under the Pharmaceutical and Chemical industry are in the "Safe zone", whereas 45% of organizations under the Textile industry are in the "Safe Zone". 28%organizations under Pharmaceutical and Chemical industry are in the "Distress zone" whereas 30% of organizations under the Textile industry are in the "Distress zone". 25% of the organizations under the Textile industry are in the "Grey zone" whereas only 9% of the organizations under the Pharmaceutical and Chemical industry are in the "Grey zone". This study also finds that overall, textile and pharmaceuticals and chemical industries are in safe zone where their scores are 4.43 and 4.50 respectively.

Keywords: Financial soundness, Altman's Z-score, Bangladesh.

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Introduction

For any business organization financial health is a prime concern. Financial health is measured through financial information. Usually, financial information is provided by the organizations through profit and loss account and balance sheet, where a profit and loss account provides information on operating activities and a balance sheet provides information about liabilities and assets at a particular point of time. The information that an organization provides in its financial statements is used by various internal and external users of that information. For internal users (Shareholders/ investors) information on financial soundness is useful to take the decision on purchase or sale of shares while external users (Creditors/suppliers/banks) information on financial soundness is useful to make lending decisions (Mohammed, 2016). To measure the financial health, Altman's Z score, provided by Altman (1968), is one of the best methods among all the measures. This method is mainly used to measure the probability of bankruptcy of manufacturing-based firms. Begley et al. (1996) found that this method can predict the possibility of bankruptcy at 76.9% accuracy. Usually, Altman's Z score uses accounting ratios to measure the financial health and there is a claim by Chan and Shemerda (1981) that accounting ratios can measure financial health at 90% accuracy. According to Kassar and Soileau (2014), "Accounting information plays an important role in individual and corporate decision making. In particular, a fundamental use of accounting information is to help different parties make an effective decision concerning their investment portfolios" (p. 148).

The objectives of this study include assessing the overall financial performance of the textile, pharmaceutical and chemical industry of Bangladesh, knowing the efficiency of the textile, pharmaceutical and chemical industry of Bangladesh and predicting the financial health and viability of textile, pharmaceutical and chemical industry of Bangladesh. The importance of textile, pharmaceutical and chemical industry on the overall growth of Bangladesh is gargantuan. The pharmaceutical and chemical sector is highly developed in Bangladesh and contributes significantly to the country's economy. After the promulgation of Drug Control Ordinance-1982, the development of the sector was accelerated. Professional knowledge and innovative conceptual skills played a vital role in the development of the sector as a whole. The substantial development in this sector enabled Bangladesh to export the branded generics in the international marketing domain. The local pharmaceutical and chemical manufacturers cater to 97 % of the country's demand and are expanding their business in the global market. In 2018, the country's domestic pharmaceutical market size stood at Tk20,511.8 crore with a 15.6% compound annual growth rate (CAGR) for the last five years. Once largely dependent on imports and multinational companies to meet the local demand, the Bangladeshi pharmaceutical industry is growing very fast meeting 98% of domestic demand and posting a 27% growth in export earnings. On top of that, the sector is expected to grow at 15% year-on-year to reach $5.11 billion by 2023, propelled by the high investment by local companies as they seek to grab a bigger share of the global market. But even after that, this promising sector is not free from challenges. Among the many difficulties the country is poised to face in the post-LDC period, particularly in the trade arena, is the termination of benefits meant for the LDCs. While the main bite will take the form of non-availability of preferential treatment under various schemes including that of the Generalized System of Preferences (GSP) for exports, there are others that Bangladesh as an LDC is still entitled to. In the case of pharmaceutical production, Bangladesh, like most other LDCs, can enjoy a comfortably long transitional timeframe to manufacture generic drugs until 2033. But the country is not going to sit that long with the LDC baggage to avail the benefit. If things move

as predicted, Bangladesh will leave the LDC group by 2024. So, once the prevailing facility is withdrawn, the country's pharma industry will face a tough challenge in that it will have to obtain licenses from the patent-holding drug manufacturers which will considerably raise their production cost. Like the Pharmaceutical and Chemical industry, the Textile industry also has contributed to the overall economy. Bangladesh is the second-largest exporter of RMG products after China. Industrialization is a major reason for the economic development of Bangladesh. It plays a significant role in transforming the monetary structure of developing nations. The textile industry of Bangladesh is more than 500 years old. It is one of the oldest and most successful industries with its rich history. Moreover, in recent years, there has been a substantial development in yarn and fabric production. There is a significant effect of globalization on international textile and apparel trade. Today, the developed countries are hugely dependent on the developing nations for textile and garment manufacturing. At present, Bangladesh ranks second in the world as the largest apparel producer with a $20 billion business in which 80% is earned by exporting goods. It is a known fact that Bangladesh has a great future in textile and garment sector. In fact, a major chunk of national income is earned from the foreign currency received from textile and readymade garment exports. The textile and garment sector contributes to 81.43% of the total exports of Bangladesh. In this situation, it is easy to understand what will happen if there is any exhaustion or problem in this sector. That's why it is important to identify the financial soundness of textile, pharmaceutical and chemical industry of Bangladesh to find out how the sectors are doing individually and also how good the individual institutions are doing within their respective sectors.

Literature review

According to Coats and Franklin (1993), bankruptcy, defaults, and financial distress are inter-related because bankruptcy and defaults are the outcome of financial distress. As it is mentioned earlier that one way of identifying financial distress is to use accounting ratios. Waqas and Rus (2018) stated that "……..the key financial ratios including the profitability ratios, leverage ratios, solvency ratios, and cash flow ratios are used to predict the financial distress and these ratios frequently reported by firms in auditor's report and in internal financial reports. Financial ratios are considered as the primary source of information to evaluate the firm performance as going concern. In the early 1940's credit rating agencies used financial ratios to access the financial health of the firms while extending loans to clients. To provide the true picture and avoid the tempering of financial ratios, securities exchange commissions or other government regulating institutions appoint independent auditors to monitor the quality of these statements" (p. 390). Deakin (1972) also stated that financial ratios are important to identify financial health and financial distress which ultimately indicates whether an organization is financially sound or not. Many prominent researchers (Altman, 1968; Beaver, 1966; Ohlson, 1980; Shumway, 2001; Xu et al., 2014) agreed that profitability ratios are important in identifying financial soundness. Apart from profitability ratios, liquidity ratios are also important in identifying financial soundness (Brealey et al., 2011; Campbell et al., 2008; Chiaramonte & Casu, 2016; Manab et al., 2015). Another important ratio is the leverage ratio. Waqas and Rus (2018) stated that "Firms must trade-off between benefits and cost of capital by deciding the optimal level of the leverage ratio in the capital structure. The firm can increase the debt to minimize its cost of capital while the borrowing beyond some points increases the risk of bankruptcy as firms with high debt ratios are more prone to financial distress" (P. 391). Previous researchers (Shumway, 2001; Xu et al., 2014; Bandyopadhyay, 2013) also stated that the leverage ratio is one of the

major ratios to determine the financial health of an organization. Following the suggestion of Altman (1968), this study conducted Multiple Discriminant Analysis (MDA) to find the financial soundness of the textile, pharmaceutical and chemical industry of Bangladesh. It is found by Altman (1968) that MDA can predict financial soundness with an average accuracy ratio of 94%. This is not the first study that identified the financial soundness of institutions using Altman's Z-score in Bangladesh. The following table deals with the empirical findings of prior research in both the Bangladeshi context and foreign context.

Table 1: Empirical Evidence of Prior research

Authors	Sample	Time periods of research	Research method	Major findings
Parvin, Rahman & Nitu (2016)	6 state-owned banks and 6 private banks of Bangladesh	2010-2014	Altman's Z score	Having better financial performance of the state-owned banks than the private banks over the observed period
Panchal (2017)	Hindustan Unilever Ltd. ,Colgate Palmolive, Nestle, ITC & P&G	2013-2017	Altman's Z score	Suggesting most of the firms are possessing high risk of being bankrupt in the near future
Hamid, Akter & Rab (2016)	15 publicly traded Non-Bank Financial Institutions(NBFI) of Bangladesh	2011-2015	Altman's Z score	Most firms are experiencing financial threats of being bankrupt though few performed outstanding and earned acclamation
Ali, Rahman & Mahmod (2016)	Randomly selected 18 firms of textile industry of Bangladesh	2013	Altman's Z score	Most firms are identified with poor financial health though the averaging result shows moderate performance.
Takahachi, Taques & Basso (2018)	622 private companies that went bankrupt around the world	1985-2018	Altman's Z score	Altman's Z score is not uniformly efficacious in predicting bankruptcy possibility of private firms across the countries as well as to the firms that don't belong to industrial sector.
Sajjan(2016)	3 manufacturing firms and 3 non-manufacturing firms	2011-2015	Altman's Z score	None of the firms are safe except for few years and majority are encountering sheer financial distress that might lead to bankruptcy
Awais & Tismal(2016)	97 KSE listed textile firms of Pakistan	Crisis period (2007-2009) Recovery period (2010-2012)	Altman's Z score	The whole textile industry is facing distress over the period. Yet the recovery period had posed a better impression than the crisis period.
Mijan, Amin & Rahman (2011)	6 leading listed pharmaceutical firms of Bangladesh	2000-2009	Altman's Z score	Two- third of the firms are found to be financially vulnerable. It was revealed that, for the most firms, market equity value carries no representative significance of the firm's fundamentals.
Mijan & Hossain	Listed firms of cement industry in	2006-2010	Altman's Z score	Two firms were found to be safe where others were threatened with the possibility

(2014)	Bangladesh			of financial collapse
Abdullah (2015)	29 banks of Bangladesh	2009-2014	Altman's Z score	It is found that Islamic Sariah based banks and state-owned banks are comparatively better in performance than other private banks
Bracegirdle (2019)	19 oil companies listed on London Stock exchange	2008-2012	Altman's Z score	The larger companies (received a heavier score than the smaller companies. Besides, the precision of predictability of Altman Z score has been highly questioned and compromised as to oil industry.

3. Methodology

In this study, all 56 textile companies and all 32 pharmaceutical and chemical companies listed in the Dhaka Stock Exchange (DSE) are selected for the time period of 2018-2019. A list of companies are given in the following tables.

Table 2: List of Companies under Pharmaceuticals and chemical Industries

Name of the companies	Market Category	Industry	Research Time Period
1. ACI	A	Pharmaceuticals and chemical	2018-2019
2. ACIFORMULA	A	Pharmaceuticals and chemical	2018-2019
3. ACMELAB	B	Pharmaceuticals and chemical	2018-2019
4. ACTIVEFINE	B	Pharmaceuticals and chemical	2018-2019
5. ADVENT	A	Pharmaceuticals and chemical	2018-2019
6. AFCAGRO	A	Pharmaceuticals and chemical	2018-2019
7. AMBEEPHA	B	Pharmaceuticals and chemical	2018-2019
8. BEACONPHAR	A	Pharmaceuticals and chemical	2018-2019
9. BXPHARMA	Z	Pharmaceuticals and chemical	2018-2019
10. BXSYNTH	B	Pharmaceuticals and chemical	2018-2019
11. CENTRALPHL	A	Pharmaceuticals and chemical	2018-2019
12. FARCHEM	A	Pharmaceuticals and chemical	2018-2019
13. GHCL	B	Pharmaceuticals and chemical	2018-2019
14. GLAXOSMITH	A	Pharmaceuticals and chemical	2018-2019
15. IBNSINA	A	Pharmaceuticals and chemical	2018-2019
16. IBP	A	Pharmaceuticals and chemical	2018-2019
17. IMAMBUTTON	Z	Pharmaceuticals and chemical	2018-2019
18. JMISMDL	A	Pharmaceuticals and chemical	2018-2019
19. KEYACOSMET	Z	Pharmaceuticals and chemical	2018-2019
20. KOHINOOR	A	Pharmaceuticals and chemical	2018-2019

21. LIBRAINFU	Z	Pharmaceuticals and chemical	2018-2019
22. MARICO	A	Pharmaceuticals and chemical	2018-2019
23. ORIONINFU	A	Pharmaceuticals and chemical	2018-2019
24. ORIONPHARM	A	Pharmaceuticals and chemical	2018-2019
25. PHARMAID	A	Pharmaceuticals and chemical	2018-2019
26. RECKITTBEN	A	Pharmaceuticals and chemical	2018-2019
27. RENATA	A	Pharmaceuticals and chemical	2018-2019
28. SALVOCHEM	Z	Pharmaceuticals and chemical	2018-2019
29. SILCOPHL	A	Pharmaceuticals and chemical	2018-2019
30. SILVAPHL	A	Pharmaceuticals and chemical	2018-2019
31. SQURPHARMA	A	Pharmaceuticals and chemical	2018-2019
32. WATACHEM	A	Pharmaceuticals and chemical	2018-2019

Table 3: List of companies under Textile Industry

Name of the companies	Market Category	Industry	Research Time period
1. AL-HAJTEX	Z	Textile	2018-2019
2. ALLTEX	Z	Textile	2018-2019
3. ACFL	A	Textile	2018-2019
4. AIL	A	Textile	2018-2019
5. ALIF	A	Textile	2018-2019
6. ANLIMAYARN	B	Textile	2018-2019
7. APEXSPINN	A	Textile	2018-2019
8. ARGONDENIM	A	Textile	2018-2019
9. CNATEX	Z	Textile	2018-2019
10. DACCADYE	Z	Textile	2018-2019
11. DELTASPINN	Z	Textile	2018-2019
12. DSHGARME	A	Textile	2018-2019
13. DSSL	A	Textile	2018-2019
14. DULAMIACOT	Z	Textile	2018-2019
15. ENVOYTEX	A	Textile	2018-2019
16. ESQUIRENIT	A	Textile	2018-2019
17. ETL	A	Textile	2018-2019
18. FAMILYTEX	Z	Textile	2018-2019
19. FEKDIL	A	Textile	2018-2019
20. GENNEXT	Z	Textile	2018-2019
21. HFL	A	Textile	2018-2019
22. HRTEX	A	Textile	2018-2019
23. HWAWELLTEX	A	Textile	2018-2019
24. KTL	A	Textile	2018-2019
25. MAKSONSPIN	B	Textile	2018-2019

26. MALEKSPIN	A	Textile	2018-2019
27. MATINSPINN	A	Textile	2018-2019
28. METROSPIN	B	Textile	2018-2019
29. MHSML	B	Textile	2018-2019
30. MITHUNKNIT	Z	Textile	2018-2019
31. MLDYEING	A	Textile	2018-2019
32. NEWLINE	A	Textile	2018-2019
33. NURANI	A	Textile	2018-2019
34. PDL	A	Textile	2018-2019
35. PRIMETEX	B	Textile	2018-2019
36. PTL	A	Textile	2018-2019
37. QUEENSOUTH	A	Textile	2018-2019
38. RAHIMTEXT	B	Textile	2018-2019
39. REGENTTEX	A	Textile	2018-2019
40. RINGSHINE	Z	Textile	2018-2019
41. RNSPIN	Z	Textile	2018-2019
42. SAFKOSPINN	A	Textile	2018-2019
43. SAIHAMCOT	A	Textile	2018-2019
44. SAIHAMTEX	A	Textile	2018-2019
45. SHASHADNIM	A	Textile	2018-2019
46. SHEPHERD	A	Textile	2018-2019
47. SIMTEX	A	Textile	2018-2019
48. SONARGAON	B	Textile	2018-2019
49. SQUARETEXT	A	Textile	2018-2019
50. STYLECRAFT	A	Textile	2018-2019
51. TALLUSPIN	Z	Textile	2018-2019
52. TOSRIFA	B	Textile	2018-2019
53. TUNGHAI	Z	Textile	2018-2019
54. VFSTDL	A	Textile	2018-2019
55. ZAHEENSPIN	B	Textile	2018-2019
56. ZAHINTEX	Z	Textile	2018-2019

3.1. Z- score Analysis

In this study, Altman's Z-Score for publicly traded manufacturing companies has been used. The value of the following model is the general measure of corporate financial health. The model is given below:

$Z=1.2* T_1 + 1.4*T_2+ 3.3* T_3+ 0.6* T_4+ 0.999* T_5$

T_1 = Working Capital/Total Assets
T_2 = Retained Earnings/Total Assets
T_3 = Earnings Before Interest and Taxes/Total Assets
T_4 = Market Value of Equity/Book Value of Total Liabilities
T_5 = Sales/ Total Assets

3.2. Meaning of Ratios under Z-Score

Working Capital/Total Assets = Working capital is the difference between current assets and current liabilities and the Total assets are the total of current assets and fixed assets. Generally, this ratio measures the ability of an organization to meet its short term obligation. If this ratio is high, it means companies are realizing sales revenue quicker which ultimately helps them to pay for the day to day activities and also they can pay accounts payable on time.

Retained Earnings/Total Assets = This ratio measures how much money is reinvested in the company, the extent of earnings and losses which ultimately reflects the organization's extents of leverage. This ratio reflects how effective an organization is in terms of managing its retention of profit. The age of a firm is implicitly acknowledged to determine the retention over the period. If this ratio is high, it means that organizations are using their retained earnings to finance for their assets and are not dependent on debt to do so. It also measures how well an organization is doing in managing its internally generated funds in contrast to using borrowing funds.

Earnings Before Interest and Taxes/Total Assets = This ratio basically measures operating efficiency (all profits before taking into account interest payments and income taxes). It assumes operating earnings as one of the most important parameters for long-term viability of the firm. In other words, this ratio measures the productivity of a firm's assets and is independent of any tax liability as well as leverage factors. Many investors and analysts look at this ratio as the one reflecting a firm's earning power from its assets. This ratio is also useful in determining how organizations are dealing with credit risk.

Market Value of Equity/Book Value of Total Liabilities = This ratio measures long term solvency of a firm i.e. how much the firm's market value would decline before liabilities exceed assets if it happens. Book Value of Total Liabilities is the sum of all current and long-term liabilities of a firm's balance sheet. Whereas, Market Value of Equity is the total current market value of all common and preferred shares. Since the market value of equity takes into account the value of the future performance of a firm and its intangible assets, this ratio is the only forward-looking ratio in the Z-score calculation. This is an inverse of well-known Debt to Equity Ratio (or Total Debt to Total Market Value of Equity or Total Liabilities to Market Capitalization).

Sales/ Total Assets = This ratio measures the ability of organizations to generate sales by utilizing assets. This ratio also measures organization's capacity to deal with competitive conditions.

Table 4: Z-Score and Survivability Indicators

Z-Score Cutoff	Indicator	Remarks
Less than 1.81	Possibility of bankruptcy in near future	Danger zone, bankruptcy is very much likely to occur.
1.81 to 2.99	Healthy (Zone of Ignorance)	Grey area, bankruptcy cannot easily be predicted.
More than 2.99	Stable	Bankruptcy is unlikely to occur.

4. Analysis and Results

4.1. Scenario of Financial Soundness of Pharmaceutical and Chemical Industry

Table 5: Scenario of financial soundness of Pharmaceutical and Chemical Industry

Name of Companies	Working Capital / Total Assets	Retained earnings/ Total Assets	EBIT/ Total Assets	Market Value of equity/Total liabilities	Sales/Total assets	Result of Z score	Remarks
1. ACI	0.09	0.24	0.04	0.52	0.51	1.39	Distress
2. ACIFORMULA	0.13	0.15	0.03	0.70	0.68	1.54	Distress
3. ACMELAB	0.03	0.15	0.06	1.18	0.45	1.60	Distress
4. ACTIVEFINE	0.19	2.30	0.10	2.58	0.33	5.66	Safe
5. ADVENT	0.25	0.19	0.09	6.30	0.39	5.04	Safe
6. AFCAGRO	0.16	0.27	0.16	6.89	0.54	5.79	Safe
7. AMBEEPHA	-0.09	0.07	0.02	0.16	0.79	0.96	Distress
8. BEACONPHAR	0.26	0.10	0.03	2.71	0.92	3.09	Safe
9. BXPHARMA	0.02	0.36	0.08	1.63	0.44	2.21	Grey
10. BXSYNTH	0.42	-0.20	-0.08	0.85	0.37	0.84	Distress
11. CENTRALPHL	0.40	0.06	0.34	3.14	0.13	3.70	Safe
12. FARCHEM	0.39	0.34	0.09	55.82	0.48	35.22	Safe
13. GHCL	0.10	0.13	0.02	6.77	0.12	4.58	Safe
14. GLAXOSMITH	0.22	0.26	0.30	0.40	1.11	2.96	Grey
15. IBNSINA	-0.08	0.38	0.23	1.01	1.91	3.71	Safe
16. IBP	0.37	0.25	0.12	5.64	0.54	5.12	Safe
17. IMAMBUTTON	-0.18	-0.41	-0.04	1.05	0.55	0.25	Distress
18. JMISMDL	5.39	0.10	0.04	0.39	0.51	7.47	Safe
19. KEYACOSMET	0.55	0.00	0.04	0.78	0.33	1.61	Distress
20. KOHINOOR	0.83	0.28	0.11	0.60	1.89	4.00	Safe
21. LIBRAINFU	0.21	0.27	0.17	3.17	1.38	4.46	Safe
22. MARICO	0.14	0.21	0.50	0.50	1.75	4.17	Safe
23. ORIONINFU	-0.07	-0.12	0.06	0.55	1.05	1.32	Distress
24. ORIONPHARM	0.33	0.14	0.41	1.52	0.91	3.76	Safe
25. PHARMAID	0.41	0.59	0.24	2.71	0.91	4.65	Safe
26. RECKITTBEN	0.03	0.19	0.29	0.27	2.15	3.56	Safe
27. RENATA	0.02	0.65	-0.05	4.20	0.51	3.81	Safe
28. SALVOCHEM	-0.06	0.09	0.05	1.10	0.22	1.08	Distress
29. SILCOPHL	0.32	0.51	0.08	4.30	0.04	3.97	Safe
30. SILVAPHL	0.41	0.35	0.07	5.87	0.34	5.09	Safe
31. SQURPHARMA	0.41	0.69	0.20	7.00	0.65	6.97	Safe
32. WATACHEM	-0.45	0.19	0.08	6.25	0.58	4.31	Safe
Average	0.35	0.27	0.12	4.27	0.73	4.50	Safe

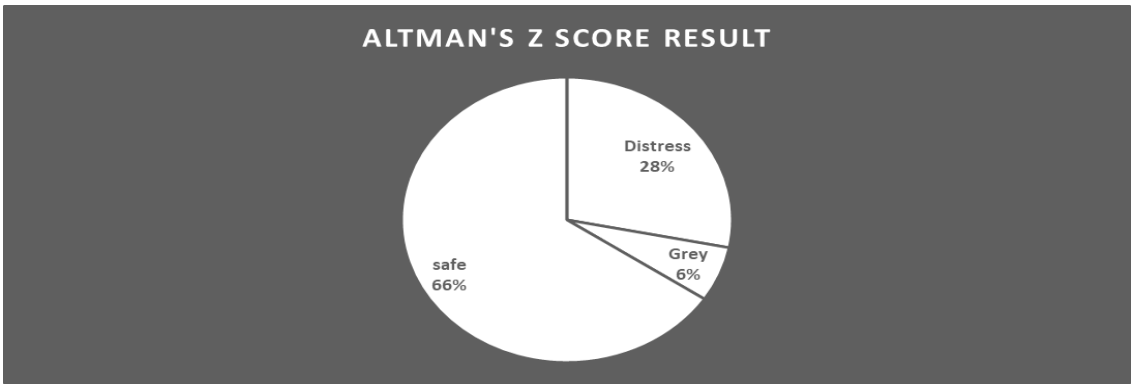

Figure 1: Graphical representation of Scenario of Financial Soundness of Pharmaceutical and Chemical Industry in 2018-2019

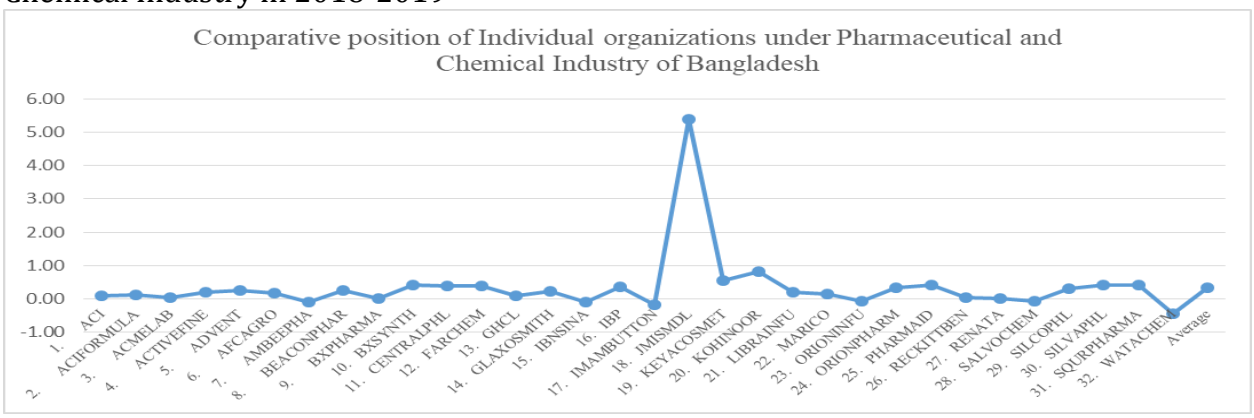

Figure 2: Comparative Position of Individual organizations in terms of Z-Score (Y-Axis represents Z-score value for 2018-2019)

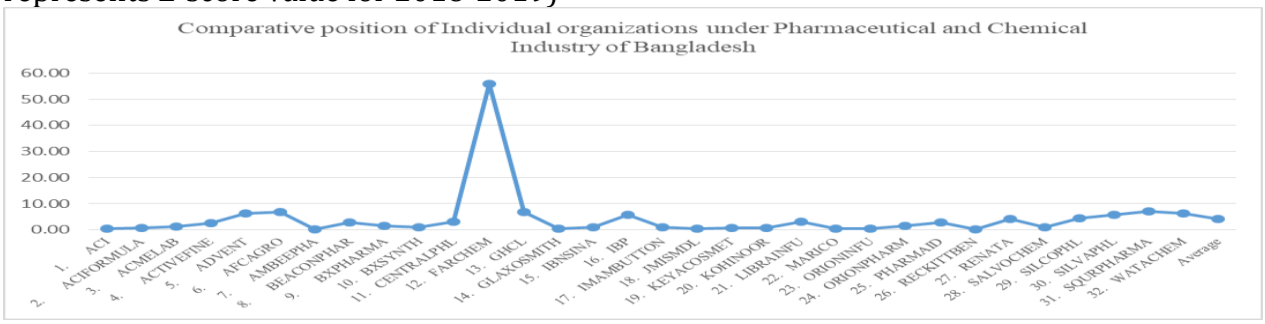

Figure 3: Comparative Position of Individual organizations in terms of the ability to repay short-term obligations (Y-Axis represents Working Capital/Total Assets value for 2018-2019)

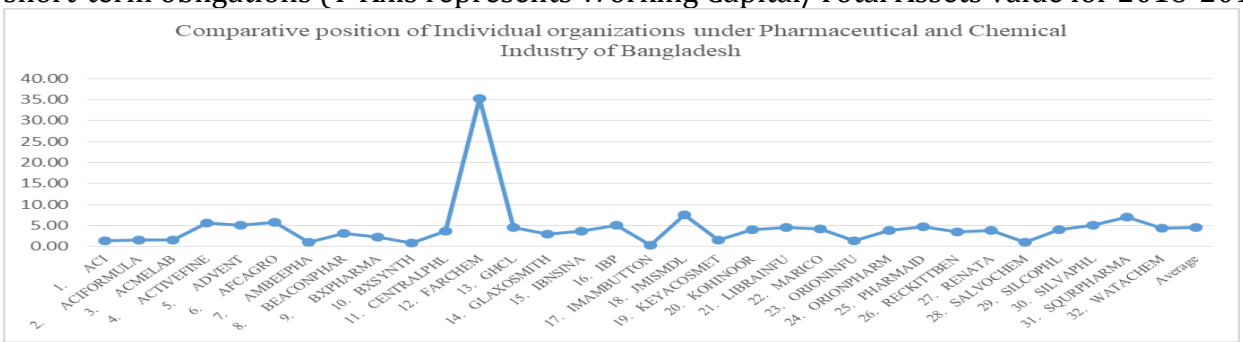

Figure 4: Comparative Position of Individual organizations in terms of the ability to generate retained earnings relative to total assets (Y-Axis represents Retained Earnings/Total Assets value for 2018-2019)

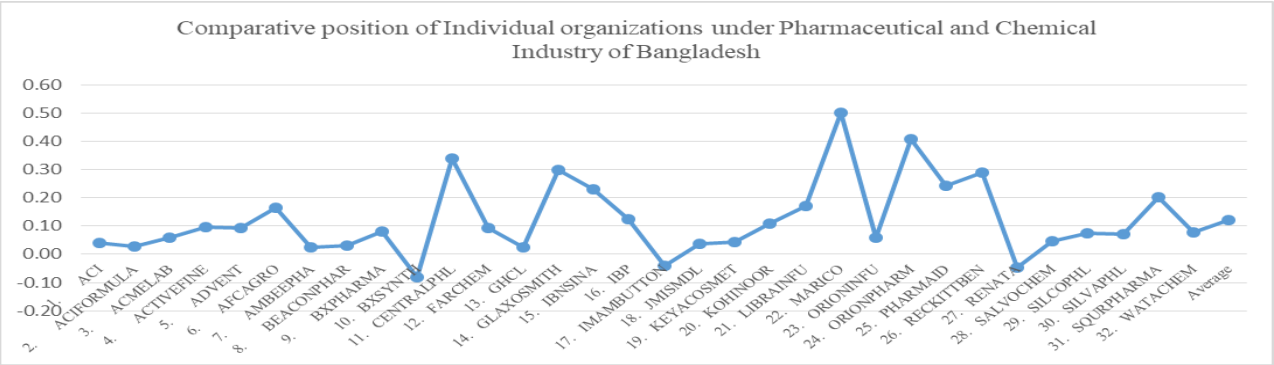

Figure 5: Comparative Position of Individual organizations in terms of the earnings power of the assets (Y-Axis represents Earnings Before Interest and Taxes/Total Assets value for 2018-2019)

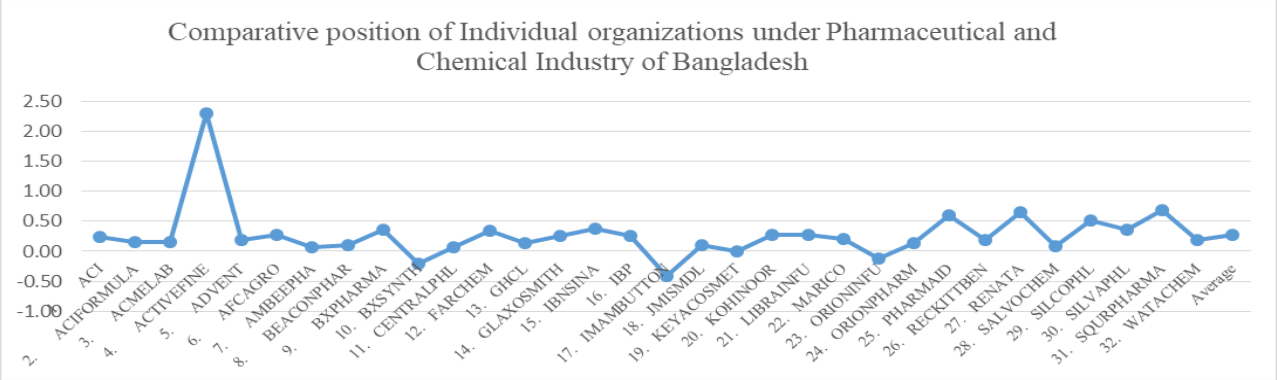

Figure 6: Comparative Position of Individual organizations in terms of volatility (Y-Axis represents Market Value of Equity/Book Value of Total Liabilities value for 2018-2019)

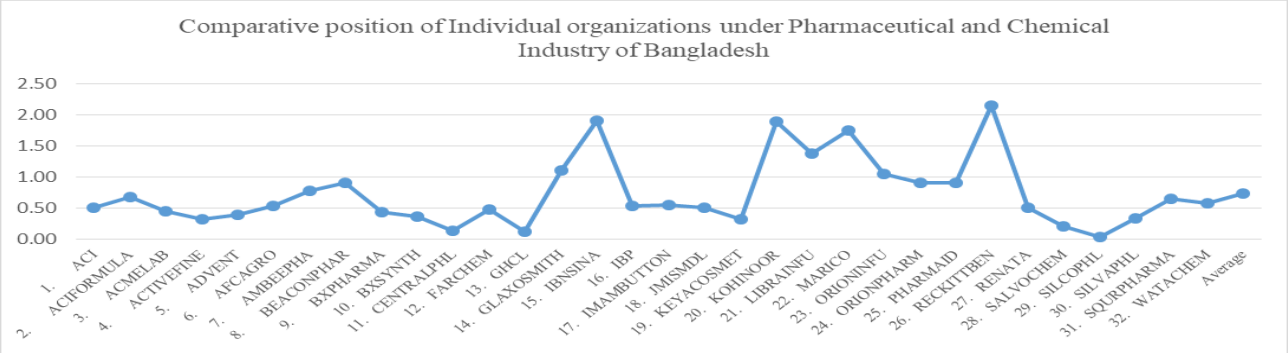

Figure 7: Comparative Position of Individual organizations in terms of sales generating ability through utilizing assets (Y-Axis represents Sales/ Total Assets value for 2018-2019)

Inferences:

The industry average value of the Z-score is 4.50 which lies in the safe zone. 66% of companies are in "Safe Zone", whereas 28% of companies are in "Distress zone" and the rest 6% are in "Grey zone". In terms of the value of the Z score, FARCHEM holds the best position as its Z-score is well over the industry average. Apart from the overall Z score, comparing the individual items of Z-score gives a clearer picture of the industry. In terms of the ability to repay short-term obligations, JMISMDL holds the best position. The industry average score in this category is 0.35. In terms of the ability to generate retained earnings relative to total

assets, ACTIVEFINE holds the best position. The industry average score of this category is 0.27. In terms of the earnings power of the assets many organizations are well above the industry average but MARICO is ahead in the competition. The industry average score of this category is 0.12. In terms of volatility, CENTRALPHL holds the best position. The industry average of this category is 4.27. Again, in terms of sales-generating ability by utilizing assets, many companies are doing well. But among them, PHARMAID holds the best position. The industry average of this category 0.73. Overall it can be opined that the Pharmaceutical and Chemical Industry of Bangladesh is doing well. But the government should look into the operation of those organizations who lie in the distress zone especially ACI, ACIFORMULA and ACMELAB should be given priority as their Z-scores are quite below the average and take proper steps before it is too late.

4.2. Scenario of Financial Soundness of Textile Industry

Table 6: Scenario of financial soundness of Textile Industry

Name of Companies	Working Capital/ Total Assets	Retained earnings /Total Assets	EBIT/ Total Assets	Market Value of equity/Total liabilities	Sales/Total assets	Result of Z-Score	Remarks
1. AL-HAJTEX	-17.08	0.04	0.02	0.76	4.48	-15.43	Distress
2. ALLTEX	-0.31	0.14	0.14	0.38	0.11	0.62	Distress
3. ACFL	0.09	0.28	0.24	4.04	1.47	5.20	Safe
4. AIL	0.08	0.02	0.26	3.81	0.54	3.81	Safe
5. ALIF	-0.01	0.01	0.01	1.62	0.16	1.19	Distress
6. ANLIMAYARN	-0.12	0.02	0.03	0.86	0.43	0.93	Distress
7. APEXSPINN	0.07	0.23	0.04	0.46	24.86	25.66	Safe
8. ARGONDENIM	0.35	0.20	0.09	1.78	6.79	8.84	Safe
9. CNATEX	0.02	0.01	0.08	0.97	34.84	35.71	Safe
10. DACCADYE	0.31	0.34	0.13	0.91	0.83	2.66	Grey
11. DELTASPINN	-0.02	0.23	0.80	1.33	1.29	5.03	Safe
12. DSHGARME	0.07	0.02	0.09	0.50	1.43	2.13	Grey
13. DSSL	0.04	0.08	0.12	1.68	0.67	2.23	Grey
14. DULAMIACOT	0.06	0.05	0.38	0.91	1.43	3.38	Safe
15. ENVOYTEX	-0.06	0.08	0.02	0.56	0.43	0.88	Distress
16. ESQUIRENIT	0.10	0.14	0.67	1.78	13.91	17.49	Safe
17. ETL	0.18	0.16	0.11	1.49	0.62	2.30	Grey
18. FAMILYTEX	0.60	0.18	0.00	19.73	0.25	13.06	Safe
19. FEKDIL	0.10	0.12	0.37	1.02	0.83	2.95	Grey
20. GENNEXT	0.20	0.08	0.85	8.95	6.38	14.90	Safe
21. HFL	0.03	0.04	0.23	1.13	1.21	2.72	Grey
22. HRTEX	-0.10	0.06	0.04	0.31	1.25	1.53	Distress

23. HWAWELLTEX	0.04	0.07	0.54	0.96	0.82	3.33	Safe
24. KTL	0.03	0.16	0.90	2.10	1.24	5.74	Safe
25. MAKSONSPIN	0.18	0.36	0.03	3.20	0.79	3.53	Safe
26. MALEKSPIN	0.15	0.18	0.01	0.79	0.70	1.65	Distress
27. MATINSPINN	0.08	0.22	0.69	1.18	1.97	5.37	Safe
28. METROSPIN	0.11	0.16	0.01	0.82	0.42	1.29	Distress
29. MHSML	0.34	0.24	0.03	3.61	0.32	3.31	Safe
30. MITHUNKNIT	0.10	0.14	0.68	1.33	1.86	5.19	Safe
31. MLDYEING	-0.01	0.25	1.22	1.31	2.53	7.69	Safe
32. NEWLINE	0.14	0.25	0.27	1.11	0.67	2.74	Grey
33. NURANI	0.09	0.09	0.35	1.25	0.89	3.03	Safe
34. PDL	0.02	0.17	1.14	1.22	2.17	6.91	Safe
35. PRIMETEX	0.00	0.03	0.01	0.92	0.45	1.08	Distress
36. PTL	0.03	0.09	0.04	0.57	0.56	1.22	Distress
37. QUEENSOUTH	0.03	0.26	0.73	1.13	2.97	6.45	Safe
38. RAHIMTEXT	0.57	0.10	0.04	0.25	0.63	1.73	Distress
39. REGENTTEX	0.11	0.06	0.22	1.04	0.84	2.40	Grey
40. RINGSHINE	0.09	0.09	0.46	1.03	3.04	5.41	Safe
41. RNSPIN	0.21	0.32	0.03	6.95	0.29	5.26	Safe
42. SAFKOSPINN	-0.04	-0.04	0.01	0.85	0.51	0.96	Distress
43. SAIHAMCOT	0.20	0.06	1.31	0.93	3.72	8.92	Safe
44. SAIHAMTEX	0.15	0.09	0.03	0.97	0.44	1.42	Distress
45. SHASHADNIM	0.15	0.09	0.06	0.57	0.65	1.52	Distress
46. SHEPHERD	0.18	0.11	0.05	0.68	0.80	1.75	Distress
47. SIMTEX	0.09	0.10	0.10	0.83	0.99	2.08	Grey
48. SONARGAON	0.35	0.01	0.01	0.80	0.47	1.41	Distress
49. SQUARETEXT	0.06	0.36	0.04	1.33	0.68	2.17	Grey
50. STYLECRAFT	-0.03	0.27	0.08	0.58	0.97	1.91	Grey
51. TALLUSPIN	0.02	0.12	0.23	0.69	1.67	3.05	Safe
52. TOSRIFA	0.02	0.10	0.10	0.36	0.68	1.40	Distress
53. TUNGHAI	0.04	0.27	0.13	0.71	0.76	2.04	Grey
54. VFSTDL	0.06	0.08	0.21	0.75	1.38	2.71	Grey
55. ZAHEENSPIN	-0.04	0.33	0.19	0.57	0.68	2.07	Grey
56. ZAHINTEX	0.08	0.19	0.19	0.94	1.87	3.41	Safe
Average	-0.21	0.14	0.27	1.74	2.57	4.43	Safe

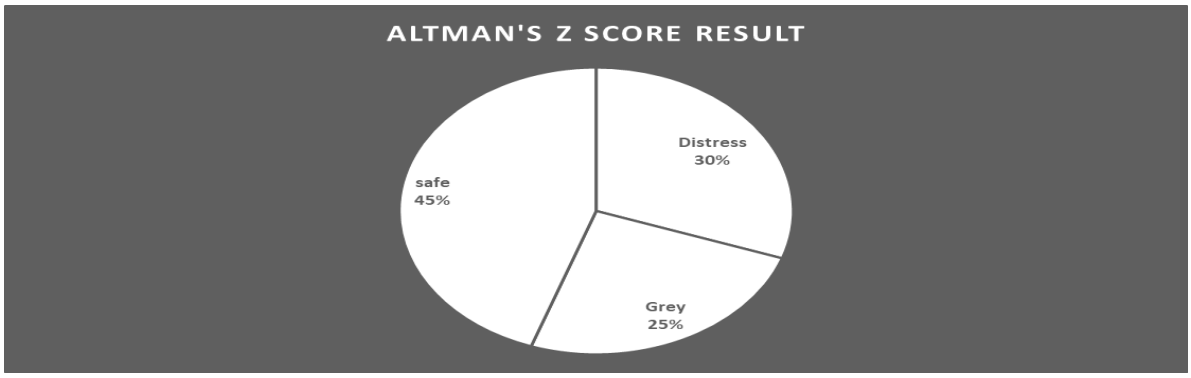

Figure 8: Graphical representation of Scenario of Financial Soundness of Textile Industry in 2018-2019

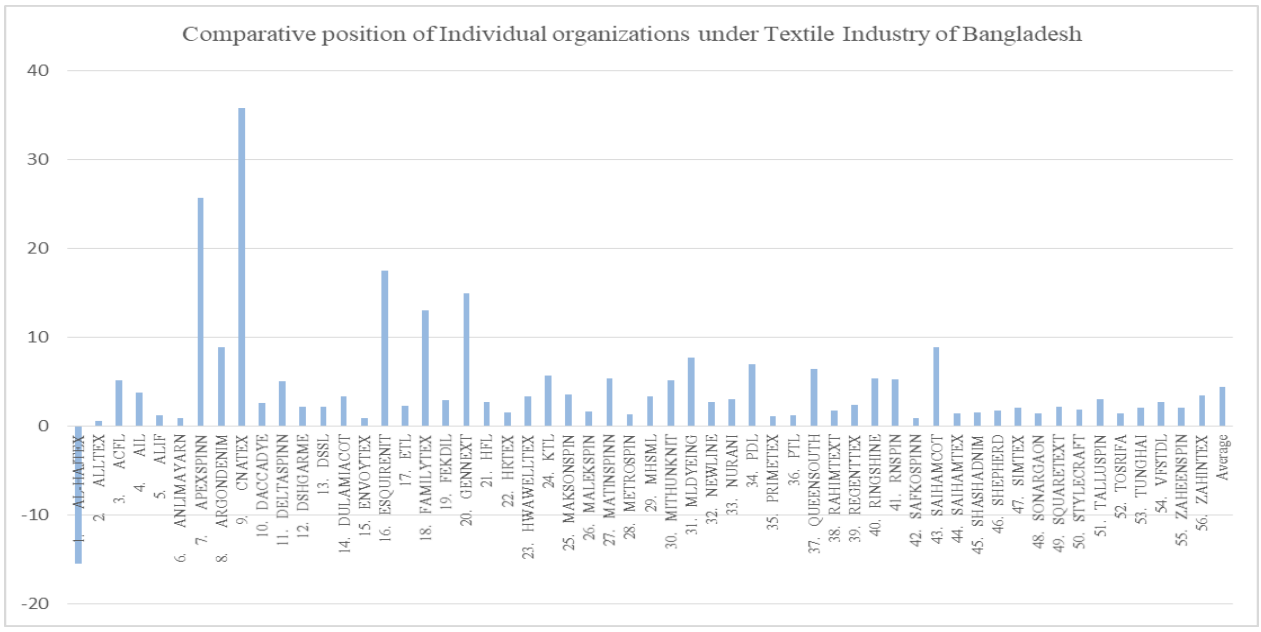

Figure 9: Comparative Position of Individual organizations in terms of Z-Score (Y-Axis represents Z-score value for 2018-2019)

Figure 10: Comparative Position of Individual organizations in terms of the ability to repay short-term obligations (Y-Axis represents Working Capital/Total Assets value for 2018-2019)

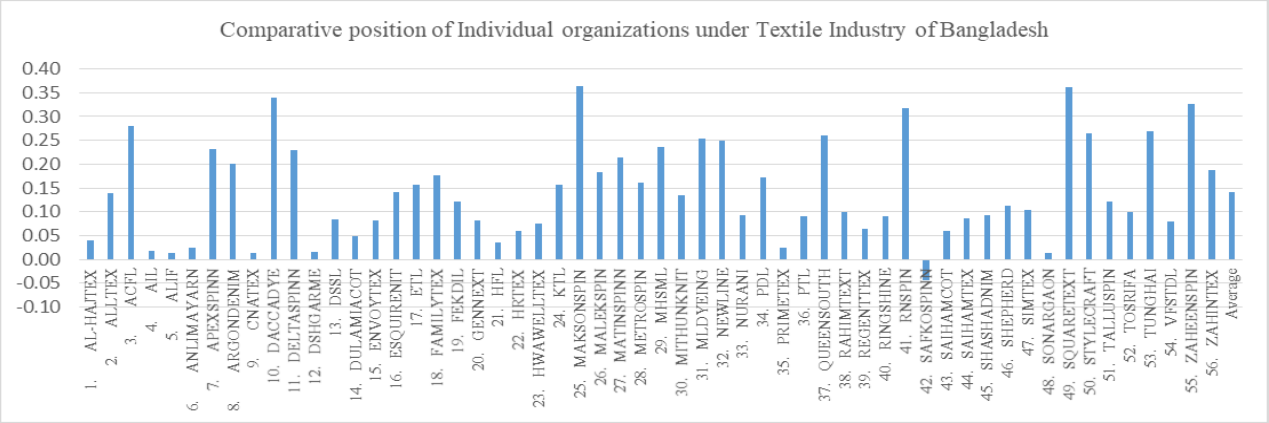

Figure 11: Comparative Position of Individual organizations in terms of the ability to generate retained earnings relative to total assets (Y-Axis represents Retained Earnings/Total Assets value for 2018-2019)

Figure 12: Comparative Position of Individual organizations in terms of the earnings power of the assets (Y-Axis represents Earnings Before Interest and Taxes/Total Assets value for 2018-2019)

Figure 13: Comparative Position of Individual organizations in terms of volatility (Y-Axis represents Market Value of Equity/Book Value of Total Liabilities value for 2018-2019)

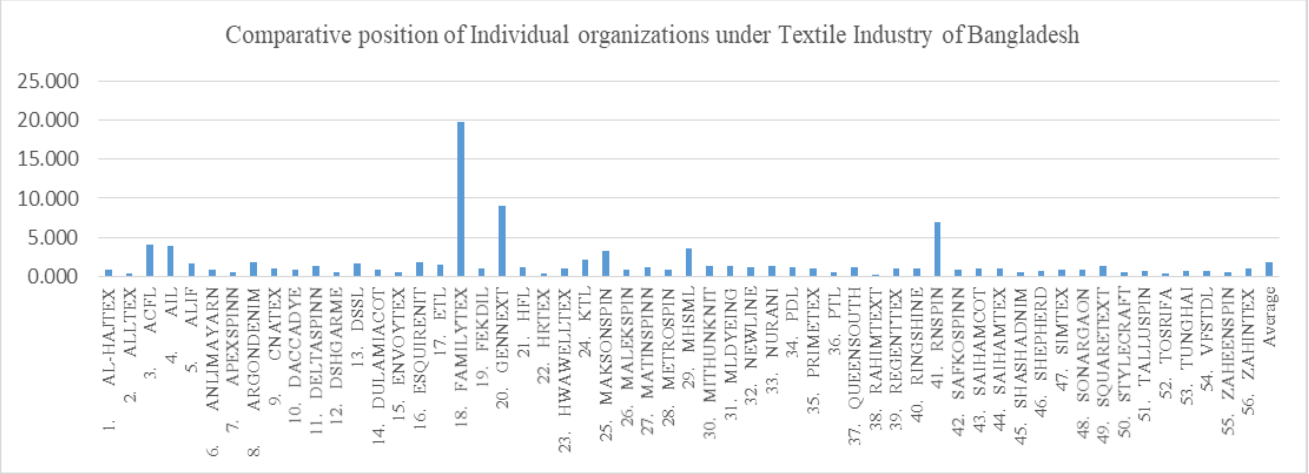

Figure 14: Comparative Position of Individual organizations in terms of sales generating ability through utilizing assets (Y-Axis represents Sales/ Total Assets value for 2018-2019)

Inferences:

The industry average value of the Z-score is 4.43 which lies in the safe zone. 45% of companies are in "Safe Zone", whereas 30% of companies are in "Distress zone" and the rest 25% are in "Grey zone". In terms of the value of the Z score, CNATEX holds the best position as its Z-score is well over the industry average. Apart from the overall Z score, comparing the individual items of Z-score gives a clearer picture of the industry. In terms of the ability to repay short-term obligations FAMILYTEX, RAHIMTEXT and SONARGAON hold the best position. The industry average score in this category is not satisfactory as it is -0.21. In terms of the ability to generate retained earnings relative to total assets DACCADYNE, MAKSONSPIN, QUEENSOUTH, RNSPIN, SQUARETEXT, TUNGHAI, ZAHEENSPIN hold the best position while SAFKOSPINN holds the worst position. The industry average score of this category is 0.14. In terms of the earnings power of the assets many organizations are well above the industry average but FAMILYTEX is ahead in the competition. The industry average score of this category is 0.27. In terms of volatility again FAMILYTEX holds the best position followed by GENNEXT. The industry average of this category is 1.74. Again, in terms of sales-generating ability by utilizing assets, many companies are doing well. But among them, CNATEX and APEXSPINN hold the best position. The industry average of this category 2.57. Overall, it can be opined Textile Industry of Bangladesh is doing well. But the government should look into the operation of those organizations who lie in the distress zone especially AL-HAJTEX, RAHIMTEXT and SHEPHERD should be given priority as their Z-scores are quite below the average and take proper steps before it is too late.

5. Conclusion

The prime concern for every stakeholder is to know the financial health of the organizations where they invest their money. Based on the financial soundness of the organizations they take valuable decisions of investment. The Altman's Z-score is one of the best measures that predict the financial soundness of the organizations and this measurement is shaping the decisions of the stakeholders towards their investment. This study also conducts the analysis of financial soundness using Altman's Z-score. The key findings of this study include, 66 % of organizations under the Pharmaceutical and Chemical industry are in the "Safe Zone", whereas 45% of organizations under the Textile industry are in "Safe Zone". 28% of

organizations under the Pharmaceutical and Chemical industry are in the "Distress zone" whereas 30% of organizations under the Textile industry are in the "Distress zone". 25% of organizations under the Textile industry are in the "Grey zone" whereas only 9% of organizations under the Pharmaceutical and Chemical industry are in the "Grey Zone". This study also finds that overall, textile and pharmaceuticals industry is in a safe zone where their score is 4.43 and 4.50 respectively. For Pharmaceutical industry, the industry average of the ability to repay short-term obligations is 0.35, the industry average of the ability to generate retained earnings relative to total assets is 0.27, the industry average in terms of the earnings power of the assets is 0.12, the industry average in terms of volatility is 4.27, the industry average in terms of sales-generating ability through utilizing assets is 0.73. For the textile industry, the industry average of the ability to repay short-term obligations is -0.21, the industry average of the ability to generate retained earnings relative to total assets is 0.14, the industry average in terms of the earnings power of the assets is 0.27, the industry average in terms of volatility is 1.74, the industry average in terms of sales-generating ability through utilizing assets is 2.57. The financially distressed organizations should manage their costs and expenses effectively and efficiently which may help them to increase their sales and profitability. They also should emphasize on how to increase their market value. There some limitations of this study like, in this study only 2018-2019 the time period is selected. Future research can be done by taking a longitudinal time period to show the trend of financial soundness. Other techniques like Tobin's Q, One way ANOVA can be used to increase the inner validity of this study.

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