Analysis of Credit-Strength of Cement Industry in Bangladesh

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ABSTRACT:

In this study it has been initiated to find out the credit strength and financial performance of cement industries in Bangladesh through investigating the financial report for the period from 2007 to 2011. Financial ratios are employed to measure the Liquidity (Working capital to Total Assets), Profitability (Retained Earnings to Total Assets), Efficiency (Earnings before Interest and Taxes to Total Assets), Volatility (Market Value of Equity to Book Value of Total Liabilities) and Total Asset Turnover analysis (Sales to Total Assets). For analyzing, the credit strength of the cement industry in Bangladesh, a renowned model of predicting credit strength named "Altman Z Score Model" has been used. The collected data are also analyzed by using statistical tool. The study finds that the cement companies in Bangladesh are mostly on financial Distress Position because the sample industry held about 48% over the last 5 years where about 32% of the companies are in the Grey Zone and only 20% of the companies are in Safe Position. So, the credit strength of cement industry in Bangladesh is far behind of its landmark.

Keywords: *Credit strength, Financial performance, Cement industry, Ratios*

INTRODUCTION

Cement as a great creation of modern science which is the most essential ingredient in any kind of construction activity. It is indeed, cement industry plays a crucial role in the infrastructural development of the country. Due to the vast geographical size and immense population of the country, various construction activities undertaken by the local governments, public sector and other organizations, including private sector which generate enormous demand for cement. In addition, market demand of cement for private consumption is increasing constantly day by day due to increase standard of living of the inhabitants.

Cement industry in Bangladesh is not very old industry. Producing cement and establishment of cement factory started from 1992. There are 70 cement factories currently operating in Bangladesh. Over the years, the amount of construction projects have followed an increasing trend as the urban growth rate has boosted all across the country in places like Chittagong, Bogra, Mongla and others in addition to the expanding capital city of Dhaka. Currently, domestic production is unable to meet the complete demand for cement. Approximately 60% of the demand is met by the local cement industry while the rest is imported. Per capita consumption of cement in the country (38 kg) is fairly low compared to India (89 kg), Indonesia (127kg), Malaysia (582 kg) and Thailand (642 kg) (Banglapedia). Cement has not traditionally

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been a major product for the country due to low availability of required natural resources to produce it. In addition to that, in less developed regions cement is not a required raw material for construction of buildings. With the increasing trends of consumption per person in Bangladesh, the cement industry has also been augmented over the last decade, as well as their performance is quite unstable. So, the performance of this sector is required to measure to provide information to the stakeholders.

Credit strength analysis is the process of identifying the financial strengths and weaknesses of the firm by properly establishing the relationship between the items of the balance sheet and profit and loss account. It also helps in short-term and long term forecasting of investment and credit decisions by the investors and creditors. Similarly the growth can be identified with the help of credit strength analysis. The analysis of financial statement is a process of evaluating the relationship between the component parts of financial statement to obtain a better understanding of the firm's position and performance. This analysis can be undertaken by management of the firm or by parties outside the namely, owners, creditors and investors.

Literature Review

Financial analysis may be defined as the process of identification of financial strength and weakness of the company by establishing the relationship between different components of position statement and performance statement (Pandey, 1979). Financial statements analysis is very much essential to lenders, security analysts, managers and others (Prasanna, 1995).

(Goel, 1978) found the growth rate of capital was severely low during the study period. The profitability shifted to declining trends. During the study period the external sources of finance leads significant dominance in reducing the internal sources.

In a research in it was experienced that the financial strength was deteriorated in terms of ratios measured by liquidity, profitability and financial structure. In modernizing the plants and machineries and the rehabilitation of kilns were sometimes faces difficulties for crunch supply of capital. Moreover, the pitfalls in supply of inputs such as raw materials and power supply and

non-profitable prices diminished the cent-percent use of capacity, profits as well as cash flows. Therefore, the profitability and liquidity Position of different segments are adversely affected due to insufficient supply of raw materials, railway wagons and utility (Kaura, 1979).

(Nagarajrao, 1980) has examined the financial efficiency of cement industry between the period 1970-71 and 1977-78. The research has identified a negative trends in profitability of the selected cement companies from 1970-71 to 1974-75 due to inflationary behave of economy, constant increase in the production cost of cement, repeated collapse in the utilization of capacity resulted by insufficient supply of coal, oil wagons or power outage.

In another study (Kumar, 1987) has analyzed the financial efficiency of the cement companies. The study has viewed that net fixed assets as a percentage of total assets declined by 9.46% in the period between 1970-71 and 1977-78 from 53.5 percent to 44.04 percent respectively. The functional strength of the companies has decreased as the liquidity ratio dropped during the study period. Similarly, the Debt Asset ratio has declined over the period. Whereas, the Debt Equity ratio has increased a bit while net worth operating capital ratio has declined over the period.

(Canagavally, 2000) has measured the performance as a relationship of size, growth and profitability and risk of the companies before and after the consolidation. The researcher has examined the impact of merger on the market prices of the selected companies.

(Surjit, 2002) has verified the M & A activity over a period of time after the independence of India. The researcher provides argument that some specific financial ratios are influential for predicting the corporate ownership in India.

(Manandhar, 2002) has argued that the quality of internal service, operating efficiency and the profitability are the key indicators of measuring the performance.

(Muslumov, 2005) has viewed an association with the privatization and declining value added and profitability of cement industries in Turkey. A decrease in the return on assets have an impact on the decreasing the value as well as the profitability of the stockholders of the company. Thus declining return on assets also affects productivity of assets negatively. However, the

findings of this study are inconsistent with prior cross-sectional studies done in various countries regarding privatization.

(Shah, 2006) demonstrates for supporting the increasing consumptions of cement, Indian cement industries adopt the advanced technology, use the efficient manpower leads to a maximum utilization of their capacity. Moreover, the growth rate is expected to be prevailing from seven to eight percent in figures in the upcoming years. However, the foreign cement companies can pay a heed to satisfy this growing demands of cement.

(Hirway, 2006) has viewed the industrial policy of India pose the major restrictions of the market and therefore it needs state interventions. In spite of having the role of market the private ownership as well as the managerial efficacy of the macro economy leads in promoting the economic development, besides the state has the dominant influence for the development.

Kulansizoglu (2007) has stated the cement industry is being more competitive in the recent years as the time parameter indicates a negative result results in the supply equation and though there is a very small absolute value, the results are statistically significant. The competition authority dummy shifted to be statistically in-significant although they assume that it might have a logged effect. Thus, the results are reverse to a priority expectation and show that the introduction of competition policy has no influence in cement industry to be more competitive though there are a close investigations and monetary penalties.

(Samluther, 2007) has examined that risk management is the significant part for all kinds of business concern, therefore to globalization and liberalization affects the risk tremendously. The study shows the way of achieving the liquidity adequacy, minimizing the risk and maximizing the profit.

(Portela, 2007) has found three aspects of analyzing the performance; optimum use of alternative transaction channels, achieving the efficiency boost the sales customers and increasing the profits. In order to gaining these efficiency the researcher has identified an association between operational and profit efficiencies as well as transactional and operational efficiencies. Therefore, the comparison makes it helps to identify the

stronger or the weaker branches of the concern. The researcher has also observed a positive relationship between operational and profit efficiency and similarly also between transactional and operational efficiency. Besides, these the quality of service also has an influence on operational and profit efficiency.

Zubairi (2007) has observed influential negative correlation between size and the use of specific methods on the basis of the study carried on practices of capital budgeting.

A study has conducted (Giokas, 2008), the efficiency of 44 branches in three aspects. First, managing the efficiency in maintaining economy in recording of branches, efficiency for maintaining the customer relationship and finally, efficiency of producing the profits. All the models demonstrate that there is an opportunity to improve the efficiency and it also identified the same results for the weaker departments.

(Gaganis, 2009) has analyzed and identified the risk factor and the Total Factor Productivity is mainly responsible for the profit efficiency. In the study, it is also analyzed the influence on efficiency of different factors e.g. personnel, income per capita, loans to total assets ratio, loans to deposit ratio, return on assets.

Mathuva (2009) has analyzed the effect of working capital management for measuring the profitability based on the samples of 30 firms listed in Nairobi Stock Exchange (NSE) for a period between 1993and 2008. In conducting the study data are analyzed based on Pearson and Spearman's correlations, the pooled ordinary least square (OLS), and the fixed effects regression models. The study has found i) a significant relation between time taken from the customers by the company with its profitability ii) a significant positive correlation between the length of time taken to generate cash from sales of inventory and the profitability of the company and iii) a highly significant positive correlation between the time needed to pay creditors with the profitability.

(Mazhar, 2010) attempts to examine the capital structure decisions of different firms listed in Islamabad Stock Exchange. Therefore, the study reveals that the tangibility, rate of growth, size, provisions for tax and profitability has a significant influence on leverage. The study also demonstrates that both the public and

private companies of Pakistan use different sort of financing, however the state owned companies undertook a higher level of debt rather than those of private companies.

(Chandrakumarmangalam, 2010) has analyzed the association of different type of leverage with the earning per share (EPS), side by side the research has studied the relationship of debt equity ratio with the earning per share (EPS), the effectiveness of using the debt financing the study results that there is a significant association between leverage and profitability and growth, therefore leverage has the dominant affect on the profitability of the firm.

Chakraborty (2010) investigates two aspects of performance measurement, first, the ratio of profit before interest, tax and depreciation to total assets, second, ratio of cash flows to total assets. The study also covers the measurement of two leverages that are the ratio of total borrowing to assets and ratio of liability and equity. A negative correlation is found in the performance measurement.

(Mistry, 2011) has viewed significant association between liquidity and profitability of Indian Cement Industry with respect to the Total Assets, Inventory Turnover Ratio, Debt-Equity Ratio and Operating Expenses Ratio.

(Hajihassani, 2012) demonstrates the financial performance of cement companies in Iran comparing the performance for the period 2006 to 2009 using various financial ratios and measures. The study concludes a difference in the financial performance based on profitability rather than on the basis of liquidity ratio and financial leverage.

(Sheikh, 1979) has employed the financial ratios to demonstrate the financial Position as well as the strength of Bangladesh Shilpa Bank (Currently known as BDBL). The researchers are viewed that the financial analysis techniques can be employed as a measure of evaluating the financial Position and performance of financial institution, moreover, it can similarly be used for analyzing the performance of non-financial institutions even Development Financial Institutions (DFI).

(Jahur, 1995) measures the operational efficiency of the limited company. In the study the researcher approaches to use profitability, liquidity, activity and capital structure for measuring the operational efficiency of the concern.

A study has conducted (Altman, 1968) the ratios to estimate the risk of corporate bankruptcy. The study viewed the bankruptcy model possess a 93% of accuracy therefore can be used to predict successfully the failed and non failed companies. In the bankruptcy model, Edward Altman used Multiple Discriminate Analysis (MDA). The study has been covered 33 selected publicly traded manufacturing bankrupt companies between 1946 and 1965, the data related to the firms gathered on random sampling basis for stratified sample. The results in the study presents through an equation named Z-Score model showed that correctly classified 94% of the bankrupt companies and 97% of the non-bankrupt companies one year before the bankruptcy.

(Jahur, 1996) applied the Altman's MDA model in the analysis of financial Position of Chittagong Steel Mills Ltd. and found that the company bankruptcy due to unrealistic goals, strict govt. regulations and interventions.

Ohlson (1980) has used the financial ratios for determining the firm's financial crisis. The study concludes four major factors; firm's scale, financial structure, performance and liquidity are responsible for firm's financial vulnerability.

In a study, Salauddin (2001) investigates the profitability of pharmaceutical companies operating in Bangladesh. The study has been used ratio analysis, mean, standard deviation and co-efficient of variation and observed a satisfactory profitability of pharmaceutical companies of Bangladesh on the basis of standard return on investment.

A study (Hye, 1997) investigates to ascertain the financial performance of the selected private general insurance companies of Bangladesh. The study demonstrates a positive progress of the selected companies. The study also concludes that the insurance companies make their surplus funds deposit with different financial banks due to lack of investment alternatives.

By reviewing the above past studies the researchers intend to identify the research gap that is studied in this study. In this study it attempts to use different financial ratios as well as Altman's Z-Score Model relying on the Multivariate Data Analysis (MDA) for measuring the financial strength and also give

the suggestion for diagnosing the selected cement industries in Bangladesh.

Objectives of the Study

Cement industry is a blooming sector in Bangladesh. This report on cement industry has following objectives:

✓ To evaluate performance of cement industry in Bangladesh
✓ To analyze the comparative position of selected cement companies in Bangladesh
✓ To find out the problems that hinders the performance of this sector
✓ To recommend some suggestions against the detected problems

RESEARCH METHOD

The present study has been carried out to evaluate the performance of selected leading cement companies in Bangladesh. The sample Companies are MI Cement (Crown Cement), Lafarge Surma Cement, Heidelberg Cement, Premier Cement, Holcim Cement, Aramit Cement. So out of the 70 cement companies, the study has covered 6 cement companies purposively and the sample represents 11.67% of total population.

This study is mainly based on data from secondary sources. The relevant data and information have been collected from Dhaka Stock Exchange as a source of data, annual reports of the concern cement company have been selected because, annual reports are published and communicated by the cement company compulsorily in every year. Web sites of the respective companies also have been used for study purpose. In addition, different published articles, books, newspaper, and websites have also been reviewed and consulted. For analyzing purposes, statistical measures; descriptive statistics only mean has been used. In addition, to analyze the credit strength of the cement industry in Bangladesh, a renowned model of predicting bankruptcy or credit strength named "Altman Z Score Model" has been used where Altman used the following ratios:

Z -Score Bankruptcy Model

$Z = 1.2X_1 + 1.4X_2 + 3.3X_3 + 0.6X_4 + 0.999X_5$.
X_1 = Working Capital / Total Assets. Measures liquid assets in relation to the size of the company.
X_2 = Retained Earnings / Total Assets. Measures profitability that reflects the company's age and earning power.
X_3 = Earnings Before Interest and Taxes / Total Assets. Measures operating efficiency apart from tax and leveraging factors. It recognizes operating earnings as being important to long-term viability.
X_4 = Market Value of Equity / Book Value of Total Liabilities. Adds market dimension that can show up security price fluctuation as a possible red flag.
X_5 = Sales/ Total Assets. Standard measure for total asset turnover (varies greatly from industry to industry).

Altman found that the ratio profile for the bankrupt group fell at -0.25 averages, and for the non-bankrupt group at +4.48 averages.

Zones of Discrimination:
Z > 2.99 -"Safe" Zones
1.81 < Z < 2.99 -"Grey" Zones
Z < 1.81 -"Distress" Zones

Findings
Liquidity Analysis

Liquidity ratio, expresses a company's ability to repay short-term creditors out of its total cash. The liquidity ratio is the result of dividing the total cash by short-term borrowings. It shows the number of times short-term liabilities are covered by cash. If the value is greater than 1.00, it means fully covered.

The five year average ratio and yearly average ratio shows that the six cement companies' liquidity ratio is not enough to meet the short term liabilities by their cash. Because we know liquidity ratio standard is 1:1. If the value is greater than 1.00, it means that the company has the ability to pay short term creditor. In table 1, the highest liquidity ratio obtained by Heidelberg Cement Company that is 0.39, it means company has liquid asset 0.39 Tk. out of Total asset Tk. 1 and the other cement companies like MI Cements, Holcim Cement, Premier Cement companies' liquidity position are very lower than Heidelberg Cement Company. The negative liquidity position is faced by Lafarge Surma cement and Aramit cement companies. Currently these companies are suffered by excessive debt than their current assets.

Table 1: Working capital to total assets

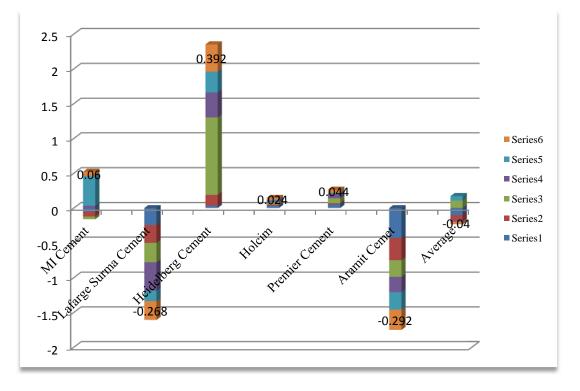| Name of Cement Company	Year 2007	Year 2008	Year 2009	Year 2010	Year 2011	Five years Average
MI Cement	-0.05	-0.07	-0.04	0.03	0.43	0.06
Lafarge Surma Cement	-0.24	-0.26	-0.28	-0.41	-0.15	-0.27
Heidelberg Cement	0.03	0.16	1.11	0.36	0.30	0.39
Holcim Cement	0.03	0.02	0.03	0.03	0.01	0.02
Premier Cement	0.05	0.02	0.07	0.07	0.01	0.04
Aramit Cement	-0.43	-0.32	-0.24	-0.22	-0.25	-0.29
Yearly Average	-0.10	-0.07	0.11	-0.02	0.06	-0.04

Figure 1: Average liquidity ratios

In figure 1, it is seen that only Heidelberg cement industries liquidity ratio is high than the others. It means these six cement company is not conscious about their liquidity. We can say that Bangladesh has 70 cement industries currently operating but they cannot operate efficiently well.

Profitability Analysis

A class of financial metrics is used to assess a business's ability to generate earnings as compared to its expenses and other relevant costs incurred during a specific period of time. For most of these ratios, having a higher value relative to a competitor's ratio or the same ratio from a previous period is indicative that the company is doing well.

Profitability ratios measure a company's ability to generate earnings relative to sales, assets and equities. These ratios assess the ability of a company to generate earnings, profits and cash flows relative to some metric, often the amount of money invested. They highlight how effectively the profitability of a company is being managed.

Common examples of profitability ratios include return on sales, return on investment, return on equity, return on capital employed (ROCE), cash return on capital invested (CROCI),

gross profit margin and net profit margin. All of these ratios indicate how well a company is performing at generating profits or revenues relative to a certain metric.

From table 2, it has found that Heidelberg cement industries profitability ratio is highest in five years average that is 0.622. It means they are able to meet expenses and other relevant costs incurred during a specific period of time and the Heidelberg Cement company is being managed effectively. It has also found that the lowest profitability ratio is obtained by Premier Cement Company; it means they can compare expenses and other relevant costs very effectively. Holcim Cement and Aramit Cement have no retained earnings so they cannot operate the business efficiently. And others like MI Cement, Lafarge Surma Cement continue their business effectively because they have enough retained earnings as compared to their expenses and other relevant costs.

From figure 2, it is observed that Heidelberg Cement Company's profitability ratio is higher than that of the other cement companies. Heidelberg Cement Company is able to assess the profitability ratio to generate earnings, profits and cash flows relative to relative to some metric, often the amount of money invested.

Table 2: Retained earnings to total assets

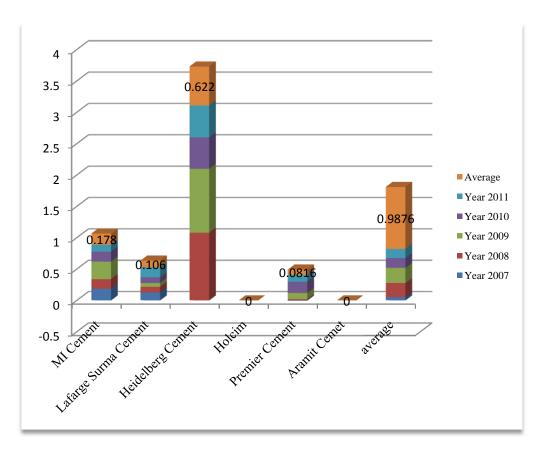| Name of Cement Company	Year 2007	Year 2008	Year 2009	Year 2010	Year 2011	Five years Average
MI Cement	0.19	0.15	0.28	0.16	0.11	0.178
Lafarge Surma Cement	0.13	0.09	0.06	0.09	0.16	0.106
Heidelberg Cement	0.00	1.08	1.02	0.50	0.51	0.622
Premier Cement	-0.002	0.02	0.10	0.18	0.11	0.0816
Yearly Average	0.05	0.22	0.24	0.16	0.15	0.99

Figure 2: The average profitability ratio

Efficiency Analysis

Efficiency Ratios are typically used to analyze how well a company uses its assets and liabilities internally. Efficiency Ratios are used to calculate the turnover of receivables, the repayment of liabilities, the quantity and usage of equity and the general use of inventory and machinery.

Some common ratios are accounts receivable turnover, fixed asset turnover, sales to inventory, sales to net working capital, accounts payable to sales and stock turnover ratio. These ratios are meaningful when compared to peers in the same industry and can identify businesses that are better managed relative to the others. Also, efficiency ratios are important because an improvement in the ratios usually translate to improved profitability.

It is highlighted that the highest Efficiency ratio in five years obtained by Heidelberg

Cement Company that is 0.17 (table 3), it means Heidelberg Cement company effectively used its assets and liabilities and managed relatively better than others. It has also shown the yearly average efficiency ratio when it can be identified that Aramit Cement Company is very well to improve profitability because they try to maintain their efficiency ratio year to year. And the lowest profitability ratio has found in Lafarge Surma Cement because the company could not improve its profitability year by year. However, these ratios are meaningful when compared to peers in the same industry and can identify businesses that are better managed relative to the others.

It is found that the highest efficiency ratio obtained by Heidelberg cement industry in Bangladesh and the lowest efficiency ratio is obtained by Lafarge Surma Cement (figure 3).

Table 3: Earnings before interest and taxes to total assets

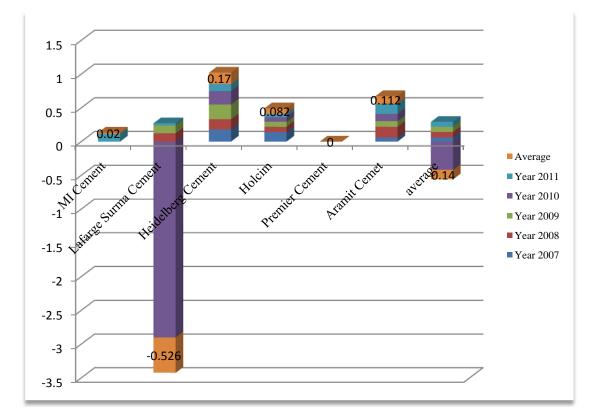| Name of Cement Company	Year 2007	Year 2008	Year 2009	Year 2010	Year 2011	Five years Average
MI Cement	0.00	0.00	0.00	0.00	0.11	0.022
Lafarge Surma Cement	0.00	0.12	0.12	-2.9	0.03	-0.526
Heidelberg Cement	0.18	0.15	0.22	0.20	0.10	0.17
Holcim Cement	0.14	0.08	0.07	0.07	0.05	0.082
Aramit Cement	0.06	0.16	0.08	0.11	0.15	0.112
Yearly Average	0.06	0.08	0.08	-0.42	0.07	-0.14

Figure 3: The average efficiency ratios

Analysis of Volatility Ratio

Volatility refers to the amount of uncertainty or risk about the size of changes in a security's value. A higher volatility means that a security's value can potentially be spread out over a larger range of values. This means that the price of the security may be changed dramatically over a short time period in either direction. A lower volatility means that a security's value does not fluctuate dramatically, but changes in value at a steady pace over a period of time.

One measure of the relative volatility of a particular stock to the market is its beta. A beta approximates the overall volatility of a security's returns against the returns of a relevant benchmark (usually the S&P 500 is used). For example, a stock with a beta value of 1.1 has historically moved 110% for every 100% move in the benchmark, based on price level. Conversely, a stock with a beta of .9 has historically moved 90% for every 100% move in the underlying index.

It is known that Highest Volatility means a security's value can potentially be spread out over a larger range of values. It has found that highest volatility ratio acquire the Lafarge Surma Cement Company that is 1.348; it means the price of the security can change dramatically over a short time period in either direction (table 4). And the lowest Volatility ratio is obtained by Aramit Cement Company in Bangladesh that is 0.11; it means that its security's value does not fluctuate dramatically, but changes in value at a steady pace over a period of time.

From figure 4, it is found that the five years average volatility ratio in 5.12 and the highest volatility ratio obtained by Lafarge Surma Cement Company than the others. It means this cement can change price of the security dramatically over a short time period in either direction.

Analysis of Total Asset Turnover

Asset turnover measures a firm's efficiency at using its assets in generating sales or revenue - the higher the number the better. It also indicates pricing strategy: companies with low profit margins tend to have high asset turnover, while those with high profit margins have low asset turnover.

MI Cement, Heidelberg Cement and Premier Cement companies' five years average total asset turnover is higher than that of others (table 5). It means it measures a firm's efficiency at using its assets in generating sales or revenue. In all of the six cement companies, the highest Total assets turnover obtained by Premier Cement Company in Bangladesh. It can be said that this cement company's sales or revenue is higher than the others. The lowest total assets belonged to Lafarge Surma Cement, Holcim Cement and Aramit Cement, it means those companies have high profit margins.

Table: 4: Market value of equity to book value of total liabilities

Name of Cement Company	Year 2007	Year 2008	Year 2009	Year 2010	Year 2011	Five years Average
MI Cement	0.54	0.20	0.26	0.74	0.51	0.45
Lafarge Surma Cement	0.44	0.65	0.93	1.30	3.42	1.348
Heidelberg Cement	1.24	0.46	0.76	1.96	1.92	1.268
Holcim Cement	0.84	0.66	0.81	0.91	0.86	0.816
Premier Cement	1.63	0.81	1.08	1.12	0.99	1.126
Aramit Cement	0.04	0.04	0.10	0.23	0.14	0.11
Yearly Average	0.79	0.47	0.66	1.04	1.31	5.12

Figure 4: The average volatility ratio

Table: 5: Sales to total assets

Name of Cement Company	Year 2007	Year 2008	Year 2009	Year 2010	Year 2011	Five years Average
MI Cement	1.92	1.20	1.51	1.37	0.57	1.314
Lafarge Surma Cement	0.14	0.35	0.44	0.34	0.35	0.324
Heidelberg Cement	1.09	1.08	1.20	1.16	1.06	1.118
Holcim Cement	0.56	0.56	0.43	0.49	0.49	0.506
Premier Cement	2.11	1.53	1.28	0.99	0.83	1.348
Aramit Cement	1.15	1.17	1.16	0.67	0.57	0.944
Yearly Average	1.16	0.98	1.00	0.84	0.65	5.55

From figure 5, it is revealed that the average in total assets turnover ratio is 5.55 and the highest ratio obtained by Premier Cement Company in Bangladesh that is 1.35. We know total assets turnover 1.50 is acceptable for an industry but all other cement industry are below in 1.50. So, this can be mentioned that they are not expanding their facilities which will drive future growth but would hurt on the short-term.

Competitive Credit strength Analysis
Credit Strength Analysis through Z- Score Model

Z score bankruptcy model predicts that whether a company will go into bankruptcy or not within two years. For this assessment Altman proposed the following values for detecting the Zones of Discrimination Z > 2.99 -"Safe" Zones, 1.81 < Z < 2.99 -"Grey" Zones, Z < 1.81 -"Distress" Zones and to find out whether the cement industry in Bangladesh is in financially sound or not, we have initiated the study. The following tables will help to do so.

It is found that MI Cement Company is in the Grey Zone during the year 2007 but in 2008 the result shows that it is in Distress Position again after one year they turn back into Grey Position, it means the company is quite concern about their position to get back financially strength (table 6). In addition, it is observed that the company is staying in the Grey Zone for the last 3 years.

It is shown Lafarge Surma Cement faces Distress Position in four years and the last year they turn back into Grey potion (table 7). It means that Lafarge Surma cement is not quite concern about their Position. They cannot maintain their company properly. According to Altman Z-score model, a score below 1.8 means the company is probably headed for bankruptcy.

Table 6: Credit strength analysis of MI Cement Company

Company	Variables	2007	2008	2009	2010	2011
MI Cement	x1	-0.05392	-0.07282	-0.03959	0.026884	0.432136
	x2	0.193889	0.149182	0.281015	0.159698	0.114694
	x3	0	0	0	0	0.110389
	x4	0.537138	0.189609	0.256069	0.739615	0.506082
	x5	1.924392	1.198957	1.505468	1.370182	0.574244
	Z-Score	2.45	1.43	2.00	2.07	1.92
	Zone	Grey	Distress	Grey	Grey	Grey

Source: Study result

Table 7: Credit strength analysis of Lafarge Surma Cement Company

Company	Variables	2007	2008	2009	2010	2011
Lafarge Surma Cement	x1	-0.2366	-0.25914	-0.2825	-0.41288	-0.14552
	x2	0.132129	0.092462	0.061946	0.094198	0.155545
	x3	0.000253	0.115604	0.117702	-2.9E-05	0.025311
	x4	0.435717	0.647851	0.925613	1.303336	3.42176
	x5	0.139567	0.350915	0.443419	0.341535	0.350052
	Z-Score	0.87	1.56	1.13	0.76	2.53
	Zone	Distress	Distress	Distress	Distress	Grey

Source: Study result

However, it has been identified that Heidelberg Cement Company is in a good position as it continues its Position in Safe Zone in last 4 years. It is mentioned that their financial performance and financial position is so good because they maintain their industry efficiently. Though, in the 2007 their position was in Grey Position (table 8).

It is found that Holcim Cement Company is in the Distress Zone during the year 2007 to 2011

(table 9). It is mentioned that Holcim Cement Company could not be managed effectively. In the Altman Z-score model, advocate that the company will be bankrupted very soon.

It is found that Premier Cement Company is in Safe Zone in year 2007. In this year their position is in good Position but from the year 2008 to2011, it belongs to Grey Zone (table 10). So, it can be said that their financial performance and their financial Position is quite stable.

Table 8: Credit strength analysis of Heidelberg Cement Company

Company	Variables	2007	2008	2009	2010	2011
Heidelberg Cement	x1	0.032213	0.162549	1.111343	0.36168	0.302294
	x2	0	1.076045	1.022557	0.495943	0.507926
	x3	0.175414	0.145681	0.222231	0.19615	0.584829
	x4	1.244335	0.458241	0.758564	1.960475	1.915548
	x5	1.090946	1.084997	1.195142	1.158586	1.063088
	Z-Score	2.45	3.54	5.15	4.11	3.62
	Zone	Grey	Safe	Safe	Safe	Safe

Source: Study result

Table 9: Credit strength analysis of Holcim Cement Company

Company	Variables	2007	2008	2009	2010	2011
Holcim Cement	x1	0.02794	-0.01706	0.03083	0.029327	0.010786
	x2	0	0	0	0	0
	x3	0.13584	0.08238	0.068508	0.069003	0.052522
	x4	0.835491	0.660348	0.811575	0.912827	0.858453
	x5	0.561117	0.556657	0.42946	0.489234	0.487475
	Z-Score	1.5	1.20	1.18	1.30	1.19
	Zone	Distress	Distress	Distress	Distress	Distress

Source: Study result

Table 10: Credit strength analysis of Premier Cement Company

Company	Variables	2007	2008	2009	2010	2011
	x1	0.05357389	0.01724	0.06540457	0.060875	0.00940181
	x2	-0.0015122	0.02467	0.09578355	0.181077	0.10508344
	x3	-8.28	0.808946	0.1707647	0.156802	0.10222135
	x4	1.63133973	0.808946	1.07708614	1.117678	0.9879568
Premier Cement	x5	2.11065113	1.525813	1.28394337	0.993329	0.82922
	Z-Score	3.15	2.21	2.71	2.51	1.92
	Zone	Safe	Grey	Grey	Grey	Grey

Source: Study result

Table 11: Credit strength analysis of Aramit Cement Company

Company	Variables	2007	2008	2009	2010	2011
	x1	-0.42777	-0.32449	-0.2393	-0.21742	-0.25307
	x2	0	0	0	0	0
	x3	0.058835	0.158108	0.081144	0.107932	0.145105
	x4	0.041248	0.036393	0.102519	0.232392	0.140626
Aramit Cement	x5	1.151949	1.166364	1.161315	0.665561	0.567453
	Z-Score	0.86	1.32	1.20	0.90	0.83
	Zone	Distress	Distress	Distress	Distress	Distress

Source: Study result

It is found that Aramit Cement Company exists in Distress Position; it means that the company failed to improve its situation because the company worked inefficiently (table 11). Even in 2008 the company was in good position which is 1.32 but in the next year its position deteriorated again.

From table 12, it is clear that the cement industry in Bangladesh is mostly on financial Distress Position because the sample industry held about 48% over the last 5 years where about 32% of the companies are in the Grey Zone and only 20% of the companies are in Safe Position. So in overall, it can be said that the credit strength of cement industry in Bangladesh is not satisfactory.

From figure 6, it is clearly found that the total six cement companies exists in the Distress Position in 12 times, Grey Position in 8 times and Safe Position in 5 times. We can say that the companies faced Distress Position several times because their companies were not operated effectively.

Table 12: Comparative analysis of credit strength of cement industry

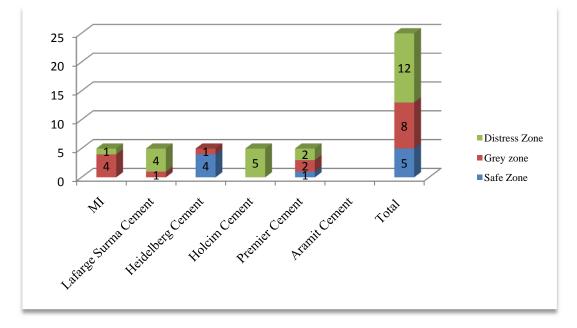| Name of Company	Safe Zone	Grey Zone	Distress Zone
MI	0	4	1
Lafarge Surma Cement		1	4
Heidelberg Cement	4	1	0
Holcim Cement	0	0	5
Premier Cement	1	2	2
Aramit Cement	0	0	0
Total	5	8	12
Percentage	20%	32%	48%

Figure 6: Comparative analysis of credit strength of cement companies

RESULTS AND DISCUSSION

By screening the whole study it is found some points, which is expressed as major findings.

1. Based on the Liquidity ratio analysis, Heidelberg Cement Company is in the highest position than the others that is 0.39; it means it is stable to cover the short term liabilities by cash. Lafareg Surma and Aramit Cement Companies face negative position and these companies are suffering by excessive debt than their current assets. And we find that the overall six cement companies liquidity ratio is negative that is -0.04.

2. Focusing on Profitability ratio, it is again seen that Heidelberg Cement Company is the best among the selected six cement companies in Bangladesh. Because their profitability ratio is the highest than the others. It means they meet expenses and other relevant costs incurred during a specific period of time. The lowest Profitability ratio obtained by premier Cement Company. It is also observed that all others companies are doing well.

3. Based on the Efficiency ratio analysis, Heidelberg Cement Company uses its assets and liabilities and managed relatively better to others because its efficiency ratio is higher than the others. The lowest efficiency ratio obtained by Lafarge Surma cement and they don't know how well company analyze assets and liabilities.

4. Volatility ratio shows that six cement companies performance is satisfactory in general. Lafarge Surma cement has highest volatility ratio than the others i.e. 1.348, it means the price of the security may be changed dramatically over a short time period in either direction. The lowest Volatility ratio obtained by Aramit cement and this company's security's value does not fluctuate dramatically.

5. In the Total assets turnover analysis, the overall six cement companies total asset turnover is quite good. Among this analysis Premier Cement Company has the highest total assets turnover than the others.

6. To analyze competitive credit strength, MI Cement Company faces Grey Zone in 4 times and Distress Zone in 1 therefore it could not attain the Safe Zone.

7. In competitive strength analysis, Lafarge Surma cement faces Distress Position in 4 times and they obtain Grey Zone in 1 time. It also failed to attain the Safe Zone.

8. To find out the competitive credit strength analysis, Heidelberg Cement Company obtained Safe Zone in last 4 years and they faces Grey Zone in one times.

9. Based on the competitive credit strength analysis, Holcim Cement Company faces in Distress Position in all five years. Therefore the company could not turn into Grey or Safe Zone.

10. Analysis of competitive credit strength, in 2007 Premier cement company faces Safe Zone in 1 time then still in Grey Zone in 2 times and then in recent two years they faces Distress Zone in 2 times.

11. To analyze competitive credit strength, Aramit Cement Company faces Distress Position in the last 5 years like Holcim Cement Company. The companies could not move into Grey or Safe Position.

12. And based on the comparative credit strength analysis, 48% of the cement companies faced Distress Position in last five years, 32% are faces Grey Position and 20% of Safe Zone.

However, it is found that without Heidelberg cement industry, all of the other cement company faces Distress Position most of the times as it cover 48%. They could not move into Safe Zone because of their limited liquidity ratio, profitability ratio, efficiency ratio, volatility ratio and total assets turnover.

CONCLUSION

Cement industry is in the new sector of industrial sector of Bangladesh. It has passed only 18 years. The trend of growth and performance of cement industry rapidly increase day by day during the 18 years. The findings and solutions section of the report shows that the production, sale and investment of the cement company increased day by day due to some barriers like increase price of raw material, low price of cement in the world.

The cement industry is likely to maintain its current growth momentum and continue growing at around 20% to 25% in the medium to long term. Government initiatives in the infrastructure sector and the housing sector are likely to be the main growth drivers. Our cement consumption per year was only 96kg in FY2011 whereas, in India its 135 kg and in Pakistan its 130kg. So there is a lot of opportunity to grow in this industry. If the import duty structure of various cement

products, e.g. finished cement, semi-finished cement and basic raw materials for cement (25%, 12% and 7% respectively) continues i.e. import duties is on favor of the local manufacturers and the construction sector remains booming with smooth power supply than nothing to be surprised that cement industry will be the most evolving industry in the next three to five years.

The importance of the housing sector in cement demand can be gauged from the fact that it consumes almost 60%-65% of the country's cement. If housing sector growth wanes, it would impact the growth in consumption of cement, leading to demand supply mismatch.

But the study found that the cement companies in Bangladesh is mostly on financial Distress Position because the sample industry held about 48% over the last 5 years where about 32% of the companies are in the Grey Zone and only 20% of the companies are in Safe Position. So over ally, it can be said that the credit strength of cement industry in Bangladesh is not satisfactory.

RECOMMENDATIONS

It can be suggested by analyzing the study that the sick cement companies should take the intensive care to recover from the distress zone. Moreover the distressed companies should pay a special concentration to increase their profitability. Side by side the companies should manage their costs and expenses efficiently to attain in the safe zone from the distressed zone.

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