

Report On
A Study on The Financial Soundness of Bangladesh Cement Industry Using Altman Z-Score on Selected Listed Companies

By

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An internship report submitted to the BRAC Business School in partial fulfillment of the requirements for the degree of Bachelor of Business Administration

BRAC Business School
Brac University
June 2020

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Declaration

It is hereby declared that

1. The internship report submitted is my own original work while completing degree at BRAC University.
2. The report does not contain material previously published or written by a third party, except where this is appropriately cited through full and accurate referencing.
3. The report does not contain material which has been accepted, or submitted, for any other degree or diploma at a university or other institution.
4. I have acknowledged all main sources of help.

Student's Full Name & Signature:

Sadia Tasnim Siddika
16304047

Supervisor's Full Name & Signature:

DR. M. Mujibul Haque
Professor & Associate Dean, BRAC Business School
BRAC University

Letter of Transmittal

DR. M. Mujibul Haque
Professor & Associate Dean,
BRAC Business School
BRAC University
66 Mohakhali, Dhaka-1212

Subject: Letter of Transmittal for Submission of Internship Report

Dear Sir,

With due respect, I hereby submit my internship report titled as “A Study on The Financial Soundness of Bangladesh Cement Industry Using Altman Z-Score on Selected Listed Companies” for your perusal. As per the requirement, for the completion of undergraduate studies at BRAC Business School, submission of this report marks my completion of the credit course BUS-400 (internship).

This report reflects upon the financial soundness of the cement industry based on the analysis of Altman Z-score with selected companies listed in Dhaka Stock Exchange. In cooperation from the assigned internship supervisor Andalib Azfar Chowdhury (Business Analyst, Finance & Planning, Siam City Cement Bangladesh) along with your instructions and feedback I prepared this report.

I truly look forward to your suggestions on the report and request your approval and acceptance thereby.

Much obliged,

Sadia Tasnim Siddika

16304047

BRAC Business School

BRAC University

Date: 20th June, 2020

Non-Disclosure Agreement

This agreement is made and entered into by and between Siam City Cement (Bangladesh) Limited and the undersigned student at BRAC University named Sadia Tasnim Siddika as a commitment of not disclosing any information which is confidential.

Acknowledgement

This report aims to analyze the financial soundness of the cement industry based on the analysis of Altman Z-score with selected companies listed in Dhaka Stock Exchange. For the successful completion of this report, support and cooperation from both BRAC Business School and Siam City Cement Bangladesh was much appreciated. I am very grateful to the company and my supervisor for cooperating with me for the information required. For the completion of the report, my faculty advisor at BRAC Business School, DR. M. Mujibul Haque has provided a lot of support even during the Covid-19 pandemic lockdown. He has given me guidelines and patiently instructed on many points to make the content richer and better. I am truly grateful for all his contributions. Also, I am grateful to the almighty that during this pandemic I could successfully complete my report in good health.

Executive Summary

This internship report titled as “A Study on The Financial Soundness of Bangladesh Cement Industry Using Altman Z-Score on Selected Listed Companies” is submitted for the purpose of completion of my undergraduate studies at BRAC Business School and it is based on the internship period of three months (1st January, 2020 to 31st March, 2020) under Finance & Planning Department at Siam City Cement (Bangladesh) Limited.

Firstly, this report includes my internship experience about the various tasks I was assigned with, the things I learned and how I contributed to the company as well as the difficulties faced during the internship. Also, a few recommendations such as intern’s access to database, providing challenging work etc. to make the organization’s internship program better.

Secondly, this report provides an overall analysis of the organization. Management practices include a brief description of their employment practice, performance evaluation, people excellence policies etc. Marketing practices include information of their products & services, price, promotional activities etc. Financial & Accounting practices include various ratio analysis to understand their financial condition and a brief description about their accounting practices. Operations Management & Information System Practices include brief descriptions about their procurement & production, multimodal logistics service, information system etc. Also, for strategic audit analysis porter’s five forces industry analysis and SWOT analysis were conducted to understand the various issues of the organization along with a brief description of Covid-19 pandemic impact on the organization. Recommendations such as alternative logistics method, re-evaluation of cost analysis etc. were made for the organization.

Finally, the project part includes the research of financial soundness of the cement industry based on the analysis of Altman Z-score with the five selected companies listed in Dhaka Stock Exchange. It was conducted using profitability, leverage, liquidity, solvency, and activity parameter ratios to predict financial health. Net working capital to total assets analysis showed the firm’s ability to cover its short-term obligations. Retained earnings to total assets which showed how the firm funds their operations. Earnings before interest and tax to total assets showed the capacity to earn profit and covering immediate debt obligations. Market value of equity to total liabilities describes the firm’s value compared to its liabilities in the market. Sales to total assets showed the firm’s efficiency in using its resources. And all these parameters were used to calculate the final Z-Score which indicated that the financial soundness of the industry is in a precarious situation. Impact of this analysis on my internship organization was also mentioned. Recommendations such as sales & industry management, utilization of assets, re-evaluation of cost management, utilization of export opportunities were made for the companies of the cement industry so that they can perform better and overcome the financial crisis.

To conclude, this internship experience has provided me with an opportunity to apply what I have learned during my undergraduate studies as well as gaining professional work knowledge.

Keywords: Financial Soundness; Increasing cost trend; Industry Average; Bankruptcy.

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Chapter 1

Overview of Internship

1.1 Student Information:

Student Name: Sadia Tasnim Siddika

Student ID: 16304047

Program & Specialization: Bachelor of Business Administration in Finance

1.2 Internship Information:

1.2.1. Company Information:

Internship Period: 01.01.2020 to 03.31.2020 (3 Months)

Company Name: Siam City Cement (Bangladesh) Limited

Department/Division: Finance & Planning

Address: House-52 (7th Floor), Road# 11, Block# C, Banani Model Town, Dhaka-1213

1.2.2. Supervisor's Information:

Name: Andalib Azfar Chowdhury

Position: Business Analyst

1.2.3. Job Scope:

During my internship period I was assigned with various tasks. My main work was to assist in different types of analysis for my supervisor. Some of my tasks were –

Price & Rebate Analysis:

The company divided their customers in four regional parts like South, East, West, North Bengals. I had to sort through different sets of sales & account receivables data of the last year in quarter and run the analysis to help in setting up price data and rebate formation that will maximize the sales in the four regions.

Sorting out the collection of Account Receivables:

I had to check the collection of account receivables submitted by sales department with the quarterly account receivables outstanding and sort them in categories by month and areas.

B2B & B2C Prioritization Matrix:

I had to analyze the collected sales data to find out the profit points in both the business to business (B2B) and business to Customers (B2C) markets to know where in future the company should focus more on.

Preparing presentation materials:

Sometimes I had to sort different information and different analysis data to create presentation materials for the weekly meetings.

Growth Factor Analysis:

I had to find out the growth opportunities in different areas with potential profit opportunities by analyzing industry data and market share information.

Cost Trend Analysis:

Performing various types of cost trend analysis was also one of my tasks. I had to conduct analysis on different costs and expenses of the last year to find out the trend of costs in various operations to help in cutting down costs and utilization of resources.

Other Activities:

Sometimes I had to perform simple data entries for invoices. I also did tasks such as arranging and editing information on the reports, helping my supervisor to prepare materials for meetings, creating summary on the weekly planning updates etc.

1.3. Internship Outcomes:

1.3.1 Contribution to The Company:

During my three-month internship period I tried my best to assist my supervisor in his tasks. While doing analysis on price data and account receivables I found problems with the sales data and after contacting with the sales team I could resolve the problem which helped in completing the analysis properly for the monthly meeting and next quarter financial projection. Also, I was able to sort through the redundant data in the files and edit them. Other than these I was able to complete my tasks within the timeline which helped the department in their efficiency of working time.

1.3.2 Benefits to the individual:

There were many things I learned during my internship period such as-

Knowledge Regarding Cement Industry:

After working here, I got to know so many facts about this industry and gained many practical insights regarding the industry situation and practices which evoked my interest to conduct a study of this industry.

Corporate Culture:

During this internship period I had a first-hand understanding of some corporate cultures such as code of conduct, workplace attitude, professionalism, chain of command etc. This environment helped me to shape my mindset about my personal conduct in workplace.

Professional Networking:

I got to know many people who are working here and communicating with them for three months helped me to expand my professional network.

Increased Work Efficiency:

After working in a professional environment with a timeline to complete the tasks I was able to increase my work efficiency a lot more than before.

Understanding Practical Application of My Learning:

I got to understand how the things I have learned in my courses are applied in practical situations to make business decision and solve problems.

1.3.3 Difficulties During the Internship:

As the internship period was only three months, it was hard to explore all aspects of operation of the company. Since the Covid-19 Pandemic has hit Bangladesh the workplace environment lost stability and opportunities to learn became less and less. It was hard to keep in contact with the department in the last month of my internship and I worked from home for about a week. Also, due to the confidentiality of the company interns do not have access to the company system database so it was time consuming to collect information from alternate sources to complete my tasks.

1.3.4 Recommendations:

I would like to suggest some points that the company could focus on regarding the internship-

Interns access to the system database:

The company should give access to the system database at least for basic data files so that they can complete their tasks quickly and do not have to waste time collecting information. This will also help interns to understand their tasks by looking at previous reports.

Other benefits:

As the internship remuneration is not high so the company could arrange lunch and transportation for the interns to make them feel motivated.

Providing Challenging Work Assignments

The company could assign some works that are a bit challenging so the interns could learn and improve themselves resulting in higher productivity. Challenging tasks can help interns to develop their potential and also motivate them to put their best effort in completing the task.

Chapter 2

Organization Part: Overview, Operations & A Strategic Audit



2.1 Introduction:

Objective:

The objective of the organization part is to provide an overview of Siam City Cement (Bangladesh) Ltd with its functional areas and performing strategic audit.

Methodology:

As this part is an evaluation assessment so both qualitative & quantitative methods will be used utilizing primary and secondary data resources.

- **Primary Data:** Information collected by interviewing employees to find out about operations and functions.
- **Secondary Data:** From the official website and annual report but as a consolidated version since Siam City Cement (Bangladesh) Ltd is a subsidiary of the main company in Thailand.

Scope:

In order to conduct the overall analysis, I would focus on their products & services, functions and operational activities, financial performance etc. To evaluate the financial data of 2016-2019 will be used from the annual report. And lastly to understand the overall position both external and internal a SWOT (Strength, Weakness, Opportunities, Threats) will be conducted along with porter's five forces for industry analysis. Appropriate recommendations will be given based on the findings.

Limitation:

The biggest limitation in this part is the fact that the company is a subsidiary of the main company in Thailand and as the company in Bangladesh directly works with the main company there is no separate annual report published in Bangladesh. So, the annual reports used in the financial evaluation is a consolidated multinational version. The company is publicly listed in Thailand but not in Bangladesh so there is also confidentiality regarding information about the organization's functions and departments. Also, interns do not have access in the system database so the information is very limited regarding the Bangladesh subsidiary. Lastly, because of Covid-19 pandemic it was difficult to get in touch with employees to collect more information,

Significance:

From this part, the overall assessment of the organization can be evaluated. Hopefully the strategic audit analysis and recommendations could help this subsidiary successfully expand its operations in Bangladesh Cement Market and gain more market share.

2.2 Overview of the organization:

In 1969, Siam City Cement was first established with an injection of registered capital; 100 million baht. The cement plant was established in 1972 and started the production of cement. Currently as a regional leader in building materials the company mainly operates in South East Asian countries. After the acquisition from CEMEX Cement (Bangladesh) Limited in May 2016, it has completely become a venture of Siam City Cement Public Company Limited Thailand following the same name as the parent company 'Siam City Cement Limited (Bangladesh)'.

2.2.1. Vision, Mission & Commitments:

Vision:

The organization wants to establish a legacy with the united efforts of employees, business partners and stakeholders by striving towards future development and maintaining relationship with business partners, people and community with integrity. They want to create value and sustainable development for the stakeholders.

Mission:

They aim to supply quality construction materials and services to the Asian region that are vital to the economic growth of Asia. To fulfill the commitments of the stakeholders and to achieve sustainable future development they are open to adopting creative ideas for management and operation. Sincere customer service coupled with quality product act as the indicators of trustworthy performance and reputation. Their compliance with the environmental standard; respect for people and communities where they operate have set the standards for the future industry.

Commitments:

- **Working as a team**

The company believes in sharing a unified vision and working in an united manner to satisfy their business partners and maintaining a harmonious relationship.

- **Doing what is right**

The company believes in maintaining integrity and discipline in the operations of the company and fulfilling their responsibilities appropriately.

- **Challenging conventions**

The company encourages innovative ideas of employees and to overcome difficulties they are always motivated to find new solutions. They believe this approach can lead them to unexpected gains.

- **Caring about future**

The company always strives for a positive development for the future by caring for people, environment, community and the nation.

2.2.2. Bangladesh Manufacturing Plant Overview:

Adopting the modern European FLS technology the plant was built in 2000 by CEMEX Bangladesh in Mahmudnagar, Bandar, Naryanganj. This plant has the production capacity of 550,000 MT. It is Certified with ISO 9001 Quality Management System (QMS) and ISO 14001 Environment Management System (EMS). To maintain global quality and environmental standards the plant strictly abides by the policies. To ensure the firmness and quality of the product the plant is completely devoted in maintaining a smooth and efficient production

process. The plant is now manufacturing two products; INSEE branded Portland Composite Cement (PCC) & Ordinary Portland Cement (OPC).

2.3 Management Practices:

Some of their management practices include:

Employment Practice:

Their recruitment considers of screening, interview and a trial or contract work period before becoming permanent employees. The Bangladesh subsidiary company has only a few female employees compared to male employees so they are trying to increase the number of female employees to ensure equality.

Performance Evaluation:

To evaluate the performance of the employees the company uses Key Performance Indicator (KPI) system. A software is used where employees keeps a record of their task entries and managers in their system account and the respective managers give their feedback and points after checking the task performance. These performance points would be calculated at the end of the year to give year end reward or bonuses or to arrange specific training programs based on the area the employees might lack. It helps to keep track of the employees work record and based on the remarks they can improve their work efficiency.

People Excellence Policy:

The Company considers people the most important resources. People development plans emphasized on increasing leadership efficiency, functional capabilities experience building via training and employee exchange programs. There is a training book and point system to reward employees based on their completion of training.

Corporate Social Responsibility (CSR) Practices:

The company respects and complies with national laws and the company policy on environment, health & safety, and committing to zero harm to people and environment. They conduct CSR activities such as free medical camps and medicines for the community and facilitating the supply of drinking water.

2.4 Marketing Practices:

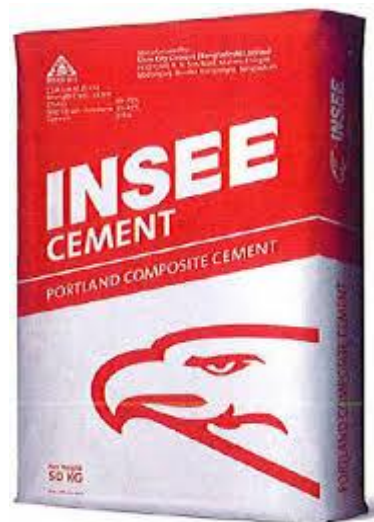
The four elements of marketing mix are product, price, place & promotion. Analyzing these four Ps of marketing gives us a clear idea of their marketing practices.

2.4.1 Product & Services:

The current products of Siam City Cement Bangladesh Limited includes INSEE branded Portland Composite Cement (PCC) & Ordinary Portland Cement (OPC).

INSEE Portland Composite Cement (PCC):

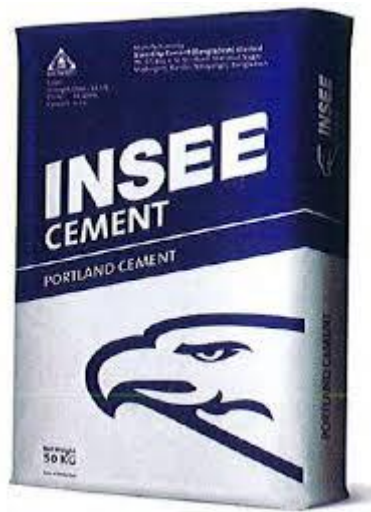
This product is a best seller in the company especially after the quality has improved with less bleeding and water partition, finer consistency in composition, reinforced workability, more adhesive effect. This improved quality assures smooth operation in concrete demanding and casting process with finer concrete product surface. To add supplementary effects to the concrete in application INSEE PCC specially abides by quality standard of BDS EN 197-1:2003. Rapid strength and permanence with long lasting effect is ensured with modern hydraulic material. All of these features have established INSEE PCC as the builder's choice to make reliable structures that can last from generation to generation. It comprises about 95 percent of Bangladesh Subsidiary's annual sales.



INSEE Portland Composite Cement

INSEE Ordinary Portland Cement (OPC):

The company maintains BDS EN 197-1: 2003 & ASTM C 150 Type I and the British Standard B.S. 12 (for Ordinary Portland cement) in their production process of INSEE OPC to ensure very strong durability and firmness to the structure. INSEE cement's integrated plant in Thailand provides with quality clinker so that the manufactured products can ensure absolute quality. INSEE OPC assures rapid hardness like no other and strong durability and that is why for super structure and sub structure it has been established as a stable partner. This product is mainly supplied for government infrastructure projects with limited sales to private projects. Currently it has started to be supplied to eastern part of our neighboring country, India.



INSEE Ordinary Portland Cement

2.4.2 Price:

The price of their INSEE Portland Composite Cement (PCC) cement is 390 Taka and INSEE Ordinary Portland Cement (OPC) cement is 400 Taka per bag. The discount on the two products are set according to geographical segmentation of North, East, West, South Bengal. The discount amount ranges from 5 to 20 Tk based on the changes in specific area market conditions.

2.4.3 Place:

The products are placed according to the geographical segmentation of North, East, West and South Bengal. The products are available in all districts' major dealer and retailer shops except

Chittagong. There are seventeen area sales manager and four general managers of north, south, east, west Bengal who monitor and control the sales and distribution in all areas.

2.4.4 Promotion:

In 2019, this subsidiary company reached new heights in sales volume and establishing INSEE as a premium brand following activities such as:

Reconstruction of Sales Mix:

After ensuring optimum capacity utilization with higher sales they were able to reconstruct their sales mix of four regions in Bangladesh under different area sales managers and four general sales managers in charge of the area sales manager with specific geographical segmentation sales mix plans to improve profitability.

Market Specific Loyalty Program:

They adopted a loyalty program for the retailers who showed satisfactory performance in the markets they were responsible for to motivate them in putting more efforts. This program includes special gifts at year end and various benefits to motivate in increasing sales volume of all area markets.

Influencer Events:

The company arranged various events with brand promoters such as masons, construction agencies. So, through their word of mouth the company was able to trigger more sales and get many new prospective customers. This also helped in increasing customers goodwill.

2.5 Financial Performance & Accounting Practices:

As mentioned before, as a fully owned venture the Bangladesh subsidiary do not publish their annual report, the financials are published in consolidated form under the Siam City Cement Public Company Ltd. Thailand so, the financial performance evaluation will be based on the consolidated annual reports. Ratio analysis method will be used here to evaluate the financial performance.

2.5.1 Profitability Ratios:

The profitability ratios indicate a company's ability to generate income in compared to its expenses along with other costs during a particular time. Operating profit (EBIT) margin and net profit margin are some of the profitability ratios.

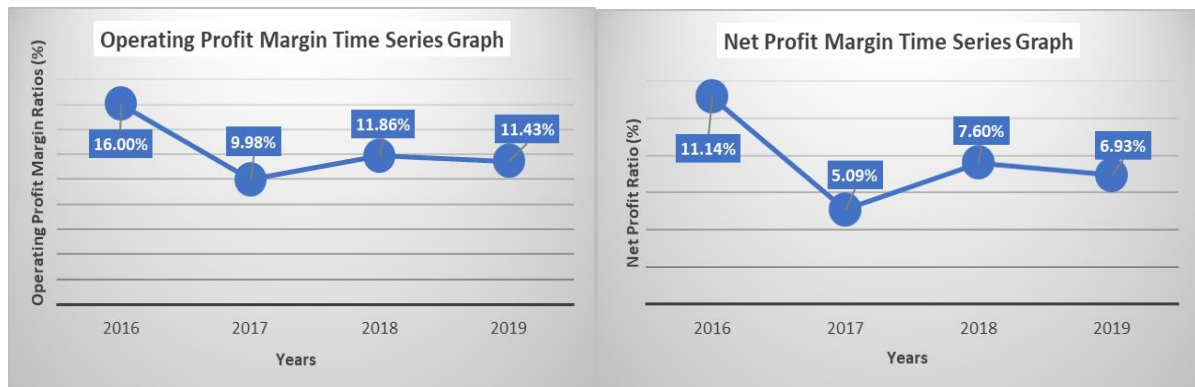


Figure 1: Operating Profit Margin & Net Profit Margin Time Series Analysis

Operating profit margin shows how much of total revenue is the profit after deducting all expenses other than tax, interest, stock dividends and net profit margin shows how much net profit was converted from sales. Here, operating profit margin has decreased over the years from 16% to 11.43% and net profit margin has also decreased over the years from 11.14% to 6.93%. This indicates that the cost in the business is increasing.

2.5.2 Efficiency Ratios:

Efficiency ratios are used to analyze how well a company is managing its resources to generate sales. The four major ratios are described here.

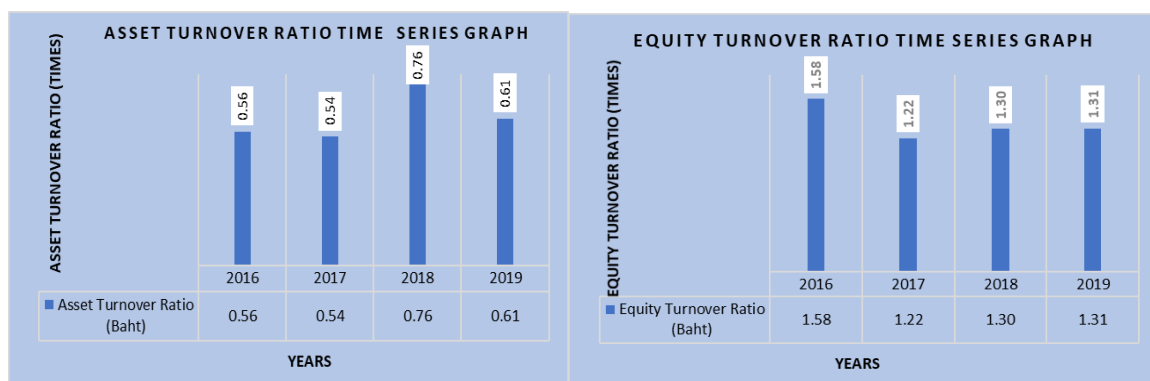


Figure 2: Asset Turnover & Equity Turnover Time Series Analysis

Asset turnover ratio shows us how efficiently total asset has been used to generate sales and equity turnover ratio shows how well the equity fund has been used to generate sales. Here, asset turnover ratio has increased from 0.56 times in 2016 to 0.61 times in 2019 meaning every 1baht worth of assets generated 0.61baht worth of sales in 2019. However, Equity turnover ratio has decreased from 1.58 times in 2016 to 1.31 times in 2019 meaning 1baht worth of equity generated 1.31baht worth of sales in 2019. This shows that though asset has been utilized but equity funds are not efficiently utilized.

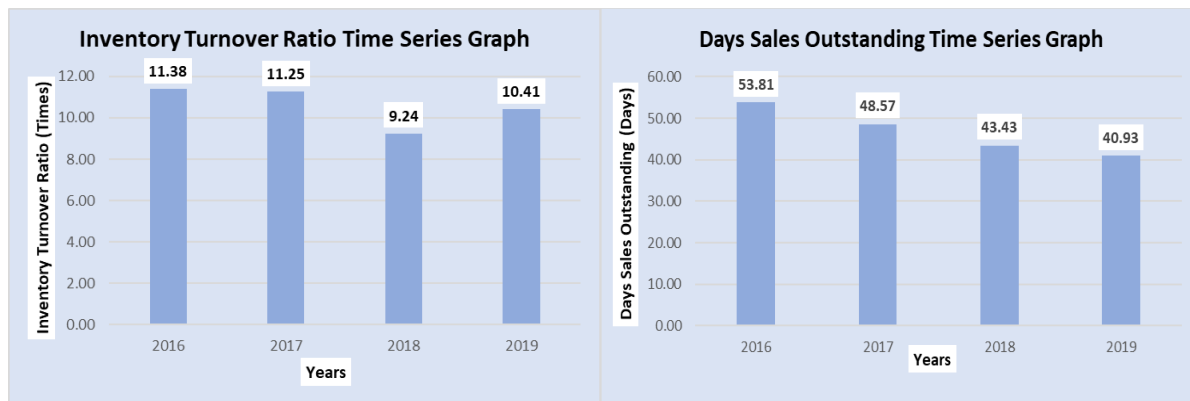


Figure 3: Inventory Turnover & Days Sales Outstanding Time Series Ratio

Inventory turnover ratio measures how efficiently inventory is being managed by showing how many times in average inventory is being sold out and restocked for a time period. Here, it shows that the number of times the company has sold out and restocked its inventories from 2016 to 2019 has decreased from 11.38 times to 10.41 times. It represents the increase in inventories compared to sales. In turn, Days sales outstanding shows the number of days in average it takes for a company to collect cash for its credit sales. Here, the average days to collect cash for credit sales has decreased from 54 days to 41 days in the last four years which shows a good financial position.

2.5.3 Leverage Ratios:

Leverage ratios show us what percentage of the company's funds are financed by debt. It also represents the risks regarding financial standing of the company. Moreover, it also represents the company's ability to resolve any potential problem with their own capital.

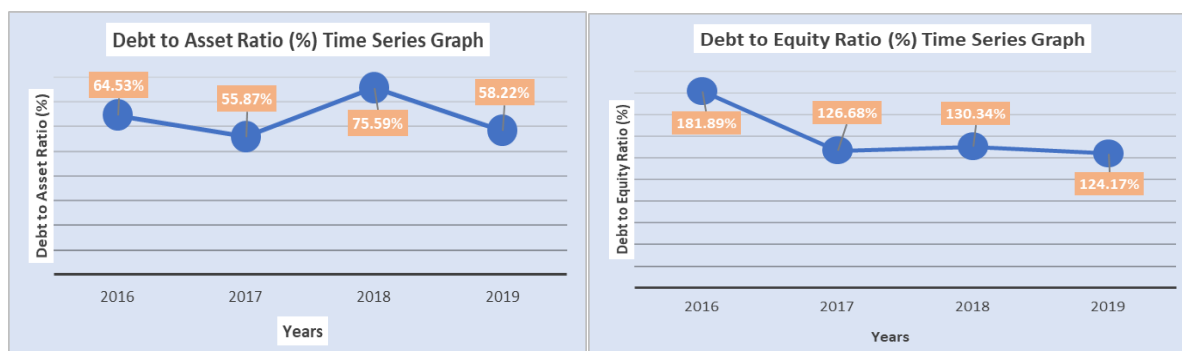


Figure 4: Debt to Asset & Debt to Equity Time Series Analysis

Debt to asset ratio shows how much of the total assets were financed by debt and debt to equity ratio shows how much the percentage of total debt is against its equity. Here it shows that debt to asset ratio has decreased from 64.53% to 58.22% which is a good sign but it is still above 50% meaning 58.22% of its total funds are supported with debt. In case of debt to equity ratio it has also decreased from 181.89% to 124.17% but it is still higher than the equity. This shows that the company has more liabilities than their assets but it is a good sign that it is decreasing.

2.5.4 Du Pont Ratio Analysis:

This is a financial ratio based on the return on equity ratio that is used to analyze a company's ability to increase its return on equity. This model breaks down the return on equity ratio to explain how companies can increase their return for investors based on Profit Margin (Net Income/Sales), Total Asset Turnover (Sales/Total Assets), Financial Leverage (Total Assets/Equity).

| Table 1: Du Pont Analysis Return on Equity (ROE) Ratio Time Series | | | | |
|---|-------------|-------------|-------------|-------------|
| Years | 2016 | 2017 | 2018 | 2019 |
| Profit Margin | 11.14% | 5.09% | 7.60% | 6.93% |
| Total Asset Turnover | 0.56 | 0.54 | 0.76 | 0.61 |
| Financial Leverage | 2.82 | 2.27 | 1.72 | 2.13 |
| Return on Equity (ROE) = (Profit Margin X Total Asset Turnover X Financial Leverage) | 17.57% | 6.21% | 9.91% | 9.07% |

Here, it shows that the company's return on equity ratio has decreased significantly from 17.57% to 9.07% in the last four years. The decreasing trend of profit margin from 11.14% to 6.93% is the main reason for the inefficient management of equity to generate profit. Total asset turnover has decreased compared to last year but it is still stable compared to other years

and financial leverage has increased compared to last year which is a good sign. So, profit margin is the component that needs to be focused on to improve the usage of equity funds and for that analyzing operating cost through proper supply chain management and cutting down unnecessary cost or choosing alternative cost-effective ways may lead to proper utilization of equity funds.

2.5.5 Investor Ratios:

Investor Ratio mainly helps investors in taking investing decision regarding a company's shares. Earnings per Share (EPS) and Price to Earnings (P/E) Ratios are one of the important indicators in investment decisions.

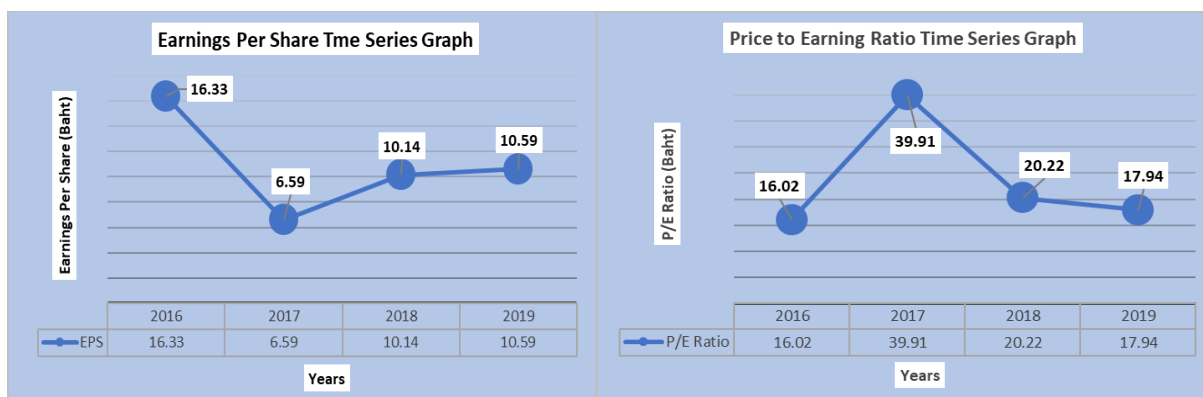


Figure 5: Earnings per share (EPS) & Price to Earning (P/E) Time Series

The earnings per share (EPS) indicate the portion of a company's profit allocated to each outstanding share of common stock. It is a very important information for the investors. This shows that the shareholders have earned 10.59 Baht per share in 2019 and it has increased compared to last two years which is a good sign for the investors. Price to Earning(P/E) Ratio shows the demand of a company's share in the market. Here, in 2019 investors were willing to pay 17.94 Baht per share which has decreased compared to previous years.

2.5.6 Accounting Practices:

The accounting cycle of the company follows the calendar period which is from January to December. They follow the International Financial Reporting Standards (IFRS) accounting system issued by the International Accounting Standards Board (IASB) to make it easier to support their large business platform with numerous ventures and subsidiaries. They have

recently adopted IFRS 16 which will be reflected from 2020 financial reports. Under the regulation of the Stock Exchange of Thailand (SET); under the written charter of the company that was approved by the board of directors the Audit Committee comprises 3 independent directors and performed their responsibilities. The Audit Committee reviews quarterly, annually and consolidated financial statements for the year 2019 of Siam City Cement Public Company Limited and subsidiaries, including related party transactions and items with potential conflicts of interest within the management. Every month the audit committee checks the Internal Audit performance, audit findings and adjusts recommendation based on the results. Internal Auditor and Risk Advisory team sits with Group Chief Finance Officer and External Auditors on a quarterly basis by reviewing stewardship of properties, resource assumption, prevention or reduction of errors or damage, losses, waste, or corrupt practices, operations, credibility of financial reports, and compliance with relevant laws and regulations. Some subsidiaries' transactions are reported monthly in case of special political conditions or market instability.

2.6 Operations Management & Information System Practices:

2.6.1 Procurement & Production:

The 13-acre BD plant located in Narayanganj, 34 km south of Dhaka. In the manufacturing process all raw materials, except fly ash (PFA), are sourced through Siam City Cement Trading Company Limited (SCCTR). PFA is sourced from neighboring India. Finished products are delivered to customers by road and water, at 73 percent and 27 percent, respectively. Due to the increasing price of clinker & other raw materials the company has adopted robust procurement initiatives to continuously develop new strategic sources together with the expertise of SCCTR to source materials at competitive prices while maintaining the product quality.

2.6.2 Multimodal Logistics Service:

The company has initiated a multimodal logistics service to delivery through barge and truck arrangements. Five finished warehouses are being built to better utilize production and capacities so that they can give customers a fast delivery service. Plants were instructed to

explore options to enhance logistics efficiency through centralized third-party finished good warehouse and quick turnaround to gain competitive advantage.

2.6.3 Information System Practices:

The Company has invested in the whole information processing and reporting system which can keep all data, process and report the updated data on a real time basis, allow easy access both online and offline and is fully secured. The system allows to digitize company business processes to eliminate manual work and enhance accuracy and fast decision making.

2.7 Industry & Competitive Analysis:

2.7.1 Industry Analysis: Porter’s Five Competitive Forces:

Porter’s five competitive forces is widespread method to analyze the industry situation and helps to make good business decisions. The five forces analysis based on the cement industry is described here.



Figure 6: Porter’s five competitive forces of Cement Industry

Competitive Rivalry:

According to Dhaka Tribune (2020), “*Growing demand fuels cement industry growth*” news article in the industry there are currently 42 companies that are producing cement now and only 7 of them are publicly listed companies. So, supply is higher than the demand and it results in a fierce competition among the companies for market share so the competitive rivalry is very high.

Threat of New Entrants:

Before the barriers to entry this market was low as it seemed a booming market and easy to make profit but now with the changes in tax policy along with high operating costs and fierce competition the barriers to entry has increased. So, currently threat of new entrants is moderate.

Threat of Substitutes:

Cement does not have many products to be used as substitutes such silica fume, fly ash but these are not widely used by people and not available much in market. So, threat of substitute is low.

Bargaining Power of Suppliers:

The market is highly dependent on imported raw materials such as oil, clinker, limestone, and gypsum. Changing suppliers exposes to volatile foreign exchange risk. So, the bargaining power of suppliers is high.

Bargaining power of Buyers:

Since there are many competitors so customers have many options to choose from. Even among premium quality there are many options. So, buyers have no choice but to set a price closer to their competitors. So, the bargaining power of buyers is high.

2.7.2 SWOT Analysis of Siam City Cement (Bangladesh) Limited:**Strength (S):****Quality Control of the product:**

The company uses highly advanced equipment and production method to produce high quality Portland composite cement and ordinary Portland cement. One of the main raw materials;

clinker is sourced from main factory in Thailand to ensure the best quality. There are testing laboratories in the company with qualified technician and chemists to assess cement quality after production with the latest technology. BUET also approves the quality control.

Compliance With Environmental Law:

With the certification of ISO:9001 Quality Management System (QMS) & ISO:14001 Environment Management System (EMS), the company has obeyed the quality and environmental standard with strict policies to truly reach the global standard.

Weakness (W):

Personnel Management:

To collect information from the manufacturing plants some employees have to go to and from the plant and office. It reduces work efficiency greatly and wastes employees time.

High Production Cost:

To maintain the quality as a premium product production cost is higher than competitors. So, the price is also set above average but because of this customer base is lower than competitors resulting in a standard revenue rather than high profit.

Opportunities (O):

Booming Market:

According to EBL Securities Limited (2019), “*Bangladesh Cement Industry: Resilient; Better Days*” report it has been said that the growing government projects and rapid infrastructure development due to high urbanization rate there is a huge prospect in the construction industry and the growth period may last a decade. So, it is possible to make profit by gaining a stable market position within the industry.

Export Opportunities:

There are many opportunities in the near future to export cement outside so it is a chance to expand market. By gaining a global market share it will help to shake off local competitors as well as stabilize the market position.

Threats:

Changes in the tax policy:

The recent changes in the tax policy and the introduction of Advance Income Tax (AIT) has greatly affected the company and the cost has increased a lot including operation and logistics.

Foreign Exchange Rate Risk:

As most of the raw materials are shipped from other countries, fluctuation in the foreign exchange rate is very risky as it can directly impact the business increasing the operational cost of the company.

2.8 Impact of Covid-19 on The Organization:

Due to the recent worldwide covid-19 pandemic the economy is facing many obstacles. Many ongoing development projects have come to a standstill as well as private construction projects to control the pandemic and this will also affect the cement industry. Also, it is quite possible that cement manufacturing will face a threat due to lack of imported raw materials and labor and cost of production will increase again. As Siam City Cement (Bangladesh) Limited has a smaller customer base compared to other companies in the industry so this pandemic will heavily affect them. If they can not secure production materials it will be hard for them to retain their customers. As many infrastructure projects have come to a standstill it will be hard to ensure the income of the company for the upcoming months. There is a possibility that employees' salaries may be delayed and various benefits might be cut back to reduce cost. If the management can quickly response with appropriate measures with the aid from the main company of Thailand, they might be able to overcome this period of crisis.

2.9 Summary & Conclusions:

Siam City Cement (Bangladesh) Limited, a subsidiary company of Siam City Cement Public Company Limited Thailand started its journey in Bangladesh as a cement company that assures quality and considers the environment and community in their business decisions. The overall analysis showed that the company is putting a lot of effort in the development of their

marketing, management, operational practices. The analysis also shows that intense competition in the industry, changes in tax policy and increase in raw materials cost are hampering the development of the company. If the company can adopt appropriate measures for the problems it would be possible for them to stabilize their position in the market.

2.10 Recommendations:

Re-evaluation of cost analysis:

Since the high production and operation cost is a big problem; the company should re-evaluate their cost analysis to find unnecessary costs and utilize their resource properly. This will help in cutting down costs so that the profit margin can improve.

Efficient Management System:

The manufacturing plant and office should have separate personnel so that working time can be efficiently used. Also, information should always stay up to date so communication between employees is easier and can take decisions quickly.

Alternative logistics method:

To lower the operating costs, they should find alternative delivery and distribution method. This will lead to a higher profit margin than before. Supply chain management should be re-evaluated to reduce inventory cost.

Building Customer Goodwill:

Retaining the current customers by building a good relationship with them and providing them good services will not help in creating loyal customers. Also, these customers will help in establishing prospective new customer networks. They should also launch specific customer programs that would help retain their customers and get new customers.

To conclude this company should focus on their weakness and improve them to have a better standing in the industry.

Chapter 3: Project Part

A Study on The Financial Soundness of Bangladesh Cement Industry Using Altman Z-Score on Selected Listed Companies

3.1 Introduction

Background:

Financial soundness means analyzing financial data to understand the financial condition of the firm. For manufacturing companies Altman Z-Score model is a reliable numerical method that uses financial ratios to measure the financial stability of the company. This model has been proved to have a 76.9% accuracy rate in predicting financial crisis with samples. (Begley et al. 1996). Altman (1968) has designated five factors to assess the validity of multivariate model. Mahbuba (2015) assessed the financial soundness of Bangladesh Tannery Industry using the Altman Z-Score. She conducted her assessment based on the tannery companies which were listed in both Dhaka and Chittagong Stock Exchange Markets. Her study revealed the overall direction of the financial health of Bangladesh Tannery Industry based on the listed companies. Mohammed (2016) has used the Altman z-score model to conduct a study on Raysut Cement company and its subsidiaries. His study assessed the Raysut and its subsidiaries financial health for investment and managerial decision making. Cement Industry is a booming manufacturing industry because of the rise in government infrastructure projects along with growing urban population. Bangladesh Cement Manufacturers Association (BCMA) data shows that an annual 10% growth rate in demand will last at least the next five years. But there are many factors which are affecting the industry such as increased raw materials cost, high fuel and transportation cost along with the recent change in tax especially after adding the advance income tax. All of these are leading to a lower profit margin than before. Moreover, there are a large number of competitors and the supply is more than demand so the competition for market share is very fierce and though a certain amount gets exported but export opportunities are not large enough to support the industry. So, it is very necessary to analyze the financial sustainability of the firms in this industry to predict future possible bankruptcy and financial crisis.

Objective(s):

Broad Objective: The principal objective of this study is to evaluate the selected listed companies in this industry to understand the efficiency of their financial operations and predict the financial viability of this industry.

Specific Objectives:

- Figuring out the liquidity position and opportunity for future investment and growth of the industry.
- To understand the fundamental soundness of the companies.
- To find out the earning power of the companies through their operations.
- To understand the investors' confidence in the financial strength of the industry.
- To understand the usage of resources to make sales.
- After analyzing the findings provide appropriate recommendation

Significance:

As this report is based on the prominent five listed companies with majority of market share thus their analysis with Z-score shows the fundamental financial health of the industry. As a developing country with rapid urban growth, infrastructure is necessary for moving forward and cement industry is an integral part of this development. So, it is imperative that companies in the industry do not collapse and this study can help in predicting how the financial stability of the company will be affected and can help managers in their financial decision making. It can also help stockholders regarding their investment decisions.

3.2 Research Methodology

As this study is based on Bangladesh Cement Industry so for the analysis, within the industry five listed companies in Dhaka Stock Exchange were selected based on their customer market share and performance. This study was conducted based on quantitative method as the Altman Z-Score Model is an equation based on ratios. American finance professor Edward Altman created this model to analyze the financial health of companies. This model is one of the convenient and efficient ways to judge future financial instability using figures from balance sheet and income statements. It uses profitability, leverage, liquidity, solvency, and activity parameter ratios to predict financial health. The selected companies are as follows-

| Selected Listed Cement Companies in Bangladesh | | |
|--|-----------------|------------------------|
| Name | Market Category | Year of Listing in DSE |
| Heidelberg Cement Bangladesh Ltd. (HEIDELBCEM) | A | 1989 |
| M.I. Cement Factory Limited (MICEMENT) | A | 2011 |
| Premier Cement Mills Limited (PREMIERCEM) | A | 2013 |
| LafargeHolcim Bangladesh Limited (LHBL) | A | 2003 |
| Meghna Cement Mills Ltd. (MEGHNACEM) | A | 1995 |

Figure 7: Selected Listed Companies of Cement Industry (Source: dsebd.org)

The data for the analysis is secondary data collected from the annual reports of the selected companies. The background information and other relevant research information are also secondary data. The analysis was conducted with data from year 2014-15 to year 2018-19 for a five-year time period. The equation for manufacturing companies is-

$$Z=1.2x_1+ 1.4x_2+ 3.3x_3+ 0.6x_4+ 1x_5$$

Where the ratios are-

x_1 = Net working capital (NWC) to total assets (TA) which shows the firm's ability to cover its short-term obligations.

x_2 = Retained earnings (RE) to total assets (TA) which shows how the firm funds their operations.

x_3 = Earnings before interest and tax (EBIT) to total assets (TA) which shows the capacity to earn profit and covering immediate debt obligations.

x_4 = Market value of equity (MVE) to total liabilities (TL) which indicates the firm's value compared to its liabilities in the market

x_5 = Sales (S) to total assets (TA) which shows the firm's efficiency in using its resources.

The analysis of the calculation of Z-value is based on as follows-

$Z < 1.8$ means distress zone which indicates that the company is in poor financial health and might collapse soon; a high chance of bankruptcy.

$1.8 < Z < 2.99$ means grey zone which indicates that it has less probability to fall in financial crisis in near future.

$Z > 2.99$ means safe zone which indicates that the firm is financially stable and they are least likely to face financial crisis.

3.3 Analysis & Findings:

The analysis was performed based on the data from the selected companies for the last five years to figure out the trend in financial health of the industry. Market price was taken from DSE as it is the oldest and biggest stock market in Bangladesh. All the other variables were added from the annual reports.

3.3.1 Net Working Capital to Total Assets (x1) Analysis:

| Company Name | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
|--|----------------|----------------|----------------|----------------|----------------|
| Heidelberg Cement Bangladesh Ltd. (HEIDELBCEM) | 0.3616 | 0.3103 | 0.2758 | 0.2247 | 0.0942 |
| M.I. Cement Factory Limited (MICEMENT) | 0.1999 | 0.1333 | 0.0986 | 0.0748 | 0.0496 |
| Premier Cement Mills Limited (PREMIERCEM) | (0.1341) | (0.1057) | (0.0240) | (0.1410) | (0.0849) |
| LafargeHolcim Bangladesh Limited (LHBL) | 0.1858 | 0.2555 | 0.2812 | 0.2675 | 0.0614 |
| Meghna Cement Mills Ltd. (MEGHNACEM) | 0.1278 | 0.1081 | 0.0477 | 0.0682 | (0.1279) |
| Industry Average | 0.1482 | 0.1403 | 0.1358 | 0.0988 | (0.0015) |

Source: x1 computed by values extracted from financial statements

This NWC/TA ratio helps to understand the liquidity position of the companies. Cement industry generally has a high cost in working capital by nature. So, it is better if their net working capital is positive and shows an increasing over the years. But from the table it is indicated that over the years all five companies are showing a decreasing trend and industry average is also decreasing. Also, only Heidelberg Cement Bangladesh Ltd. And LafargeHolcim Bangladesh Ltd. could keep above the industry average and other companies were below the industry average. This clearly shows that the industry is not properly able to cover their short-term costs and became dependent on fixed assets to cover their operational costs which is a bad sign for the industry and companies without a very strong financial support may not be able to run smoothly in the near future.

3.3.2 Retained Earnings to Total Assets (x2) Analysis:

| Table 3: Retained Earnings (RE) to Total Assets (TA) Ratio (x2) | | | | | |
|--|----------------|----------------|----------------|----------------|----------------|
| Company Name | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
| Heidelberg Cement Bangladesh Ltd. (HEIDELBCEM) | 0.5239 | 0.4692 | 0.4316 | 0.4015 | 0.3992 |
| M.I. Cement Factory Limited (MICEMENT) | 0.1012 | 0.1127 | 0.1114 | 0.1039 | 0.1093 |
| Premier Cement Mills Limited (PREMIERCEM) | 0.1561 | 0.1942 | 0.1998 | 0.1695 | 0.1491 |
| LafargeHolcim Bangladesh Limited (LHBL) | 0.8174 | 1.3128 | 1.5141 | 2.8650 | 1.5310 |
| Meghna Cement Mills Ltd. (MEGHNACEM) | 0.0935 | 0.0731 | 0.0788 | 0.0459 | 0.0454 |
| Industry Average | 0.3384 | 0.4324 | 0.4671 | 0.7172 | 0.4468 |

Source: x2 computed by values extracted from financial statements

This RE/TA ratio helps to understand the fundamental situation of the companies. It shows how much portion of total assets is from retained earnings. The positive and increasing value indicates the growth of companies and vice versa. Here it is shown that the industry average increased sharply only in the year of 2017-18 but decreased again in the last year. And except LafargeHolcim Bangladesh Ltd. all other companies have failed to keep up with the industry average. All other companies also showed a decreasing trend over the years. This indicates that the earning is decreasing in the industry which is another bad sign for the industry and companies who do not have large amount of fixed assets will have a hard time to continue their business,

3.3.3 Earnings before Interest & Tax to Total Assets (x3) Analysis:

| Table 4: Earnings before interest and tax (EBIT) to Total Assets (TA) Ratio (x3) | | | | | |
|---|----------------|----------------|----------------|----------------|----------------|
| Company Name | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
| Heidelberg Cement Bangladesh Ltd. (HEIDELBCEM) | 0.1199 | 0.1640 | 0.1803 | 0.1098 | 0.1031 |
| M.I. Cement Factory Limited (MICEMENT) | 0.0816 | 0.0845 | 0.0619 | 0.0508 | 0.0611 |
| Premier Cement Mills Limited (PREMIERCEM) | 0.0961 | 0.1361 | 0.0845 | 0.0722 | 0.0667 |
| LafargeHolcim Bangladesh Limited (LHBL) | 0.1348 | 0.1002 | 0.0952 | 0.0385 | 0.0704 |
| Meghna Cement Mills Ltd. (MEGHNACEM) | 0.0862 | 0.0881 | 0.0666 | 0.0511 | 0.0548 |
| Industry Average | 0.1037 | 0.1146 | 0.0977 | 0.0645 | 0.0712 |

Source: x3 computed by values extracted from financial statements

This EBIT/TA ratio helps to understand the chance of profitability of the companies through their operations. It should be in an increasing trend. Here it is shown that compared to year

2014-15 it has decreased in year 2018-19 and it has been somewhat an inconsistent trend between the years. Industry average was also low compared to year 2014-15. No companies were above the industry average. This shows that operational costs have increased so much that companies are having a hard time to cover it so resulting in lower profit margin in the industry. So, companies without a large source of external funds might collapse in the near future.

3.3.4 Market Value of Equity to Total Liabilities (x4) Analysis:

| Table 5: Market value of equity (MVE) to Total Liabilities (TL) (TA) Ratio (x4) | | | | | |
|--|----------------|----------------|----------------|----------------|----------------|
| Company Name | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
| Heidelberg Cement Bangladesh Ltd. (HEIDELBCEM) | 7.7331 | 7.9542 | 6.7886 | 5.9561 | 4.8799 |
| M.I. Cement Factory Limited (MICEMENT) | 1.8255 | 1.5140 | 1.2803 | 0.9566 | 0.8338 |
| Premier Cement Mills Limited (PREMIERCEM) | 1.4634 | 2.3736 | 1.8820 | 0.8892 | 0.5307 |
| LafargeHolcim Bangladesh Limited (LHBL) | 30.9514 | 18.8489 | 21.2239 | 16.6362 | 6.7276 |
| Meghna Cement Mills Ltd. (MEGHNACEM) | 0.8731 | 0.6244 | 0.6174 | 0.3640 | 0.3040 |
| Industry Average | 8.5693 | 6.2630 | 6.3584 | 4.9604 | 2.6552 |

Source: x4 computed by values extracted from financial statements

This MVE/TL ratio shows the investors' perspective regarding the financial strength of a company. An increasing trend will show a strong financial strength of the company and vice versa. Here, we can see that all the companies are showing a decreasing trend over the years as well as the industry average. Except Heidelberg Cement Bangladesh Ltd. and LafargeHolcim Bangladesh Limited all other companies have failed to keep up with the industry average. This clearly shows that shareholders risk has increased in this industry and shareholders do not have high confidence in the financial strength of this industry. This will make it harder for poor performing companies of the industry to secure funds.

3.3.5 Sales to Total Assets (x5) Analysis:

| Table 6: Sales (S) to Total Assets (TA) Ratio (x5) | | | | | |
|---|----------------|----------------|----------------|----------------|----------------|
| Company Name | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
| Heidelberg Cement Bangladesh Ltd. (HEIDELBCEM) | 1.0326 | 1.0730 | 1.0404 | 1.1227 | 1.3214 |
| M.I. Cement Factory Limited (MICEMENT) | 0.6852 | 0.6368 | 0.5268 | 0.6371 | 0.7591 |
| Premier Cement Mills Limited (PREMIERCEM) | 0.8572 | 0.9297 | 0.8942 | 0.7462 | 0.6408 |
| LafargeHolcim Bangladesh Limited (LHBL) | 0.6376 | 0.5906 | 0.5745 | 0.5859 | 0.5682 |
| Meghna Cement Mills Ltd. (MEGHNACEM) | 0.9506 | 0.9720 | 0.9908 | 0.8041 | 0.9499 |
| Industry Average | 0.8326 | 0.8404 | 0.8053 | 0.7792 | 0.8479 |

Source: x5 computed by values extracted from financial statements

This S/TA ratio shows the company's ability to make revenues by using its assets efficiently. The higher it is the more efficiently the assets are being used and vice versa. Here, the industry average has increased in the last year compared to the years before. Heidelberg Cement Bangladesh Ltd. and Meghna Cement Mills Ltd. were able to stay above industry average and others were below the industry average. This shows that the companies are not able to utilize their resources properly resulting in less revenue and inefficient management.

3.3.6 Z-Score Analysis:

| Table 7: Z-Score Calculation ($Z=1.2x1+ 1.4x2+ 3.3x3+ 0.6x4+ 1x5$) | | | | | |
|--|----------------|----------------|----------------|----------------|----------------|
| Company Name | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
| Heidelberg Cement Bangladesh Ltd. (HEIDELBCEM) | 7.2355 | 7.4160 | 6.6438 | 5.9947 | 5.2615 |
| M.I. Cement Factory Limited (MICEMENT) | 2.4313 | 2.1418 | 1.7735 | 1.6139 | 1.7271 |
| Premier Cement Mills Limited (PREMIERCEM) | 2.1100 | 2.9480 | 2.5530 | 1.5860 | 1.2761 |
| LafargeHolcim Bangladesh Limited (LHBL) | 21.0206 | 17.3511 | 14.1762 | 15.0267 | 7.0542 |
| Meghna Cement Mills Ltd. (MEGHNACEM) | 2.0432 | 1.8694 | 1.4152 | 1.3372 | 1.2232 |
| Industry Average | 6.9681 | 6.3453 | 5.3123 | 5.1117 | 3.3084 |

From, this table of Z-Score Calculation, it can be seen that all companies Z-Scores have decreased over the years and industry average has also decreased significantly. Except Heidelberg Cement Bangladesh Ltd. and LafargeHolcim Bangladesh Ltd. all other companies are below 1.8 which shows that those three companies are at greater financial risk and have a greater chance of bankruptcy. Only Heidelberg Cement Bangladesh Ltd. and LafargeHolcim Bangladesh Ltd. are financially sound. Also, the last year industry average is at 3.31 which is slightly over the safe zone of 2.99. which shows that the industry can fall into grey zone at any time and companies without a strong financial support will collapse in the near future. The overall analysis makes it clear that the financial soundness of the industry is in a precarious condition.

3.4 Summary & Conclusions:

The financial health of a company is the greatest indicator to show the company's ability to survive and growth. This study is based on the evaluation of financial health of the Bangladesh Cement Industry with the selected companies. Altman Z-Score model is a reliable tool to measure the soundness of an organization. It has been clear in this study that among the companies only Heidelberg Cement Bangladesh Ltd. and LafargeHolcim Bangladesh Ltd. are financially sound; the other three companies are at a risk of financial distress. This study also

shows that industry averages are also on the decline. Since, this five companies are selected based on their performance and customer market share so taking this as a benchmark it can be seen that the industry is not in a good condition and companies without good financial position will face crisis. So, shareholders also have a high investment risk in this industry. It is imperative that the management of the cement companies should take appropriate measures to overcome this adverse situation and present better financial performance. Also, investors should be very careful regarding investment in this industry.

3.5 Implication of This Study for Siam City Cement Subsidiary Bangladesh:

Siam City Cement Bangladesh Limited is a subsidiary of Siam City Cement Public Company Limited Thailand. As this study shows the overall financial condition of Bangladesh Cement Industry with the analysis of five listed top performing companies with a large customer market share. This can be used as a benchmark for other companies in the industry. This study shows that only Heidelberg Cement Bangladesh Ltd. and LafargeHolcim Bangladesh Ltd. shows a positive and stable financial condition and other three companies have a higher chance to face financial crisis in the future. This study also shows the declining industry average with these five companies. As a benchmark, this indicates that the overall condition of the industry is not good and the increasing cost trend is causing narrow profit margins which will cause a financial crisis in the future. Since the companies with majority of customer market share will face crisis it goes without saying that the companies who have less customer market share will be more affected. And as Siam City Cement Bangladesh Limited is a venture that introduced their new brand from 2016 so with only four years of operating business with a small customer market share it is very likely that their financial condition will be affected. From the organizational analysis part, through the financial performance analysis it can be understood that although for the main company in Thailand profit margin has decreased than before but the overall condition is stable and it has a strong foundation in terms of financial strength. So, with the support and utilization of the resources from the main company in Thailand the Bangladesh subsidiary company might be able to tackle their financial crisis if they can response early enough.

3.6 Recommendations:

For the cement industry to rise from their precarious financial situation and strengthen their position some measures could be considered by the cement companies such as-

Sales & Inventory Management:

If sales & inventories are not properly managed it leads to high inventory management cost. So, the companies should adopt an appropriate demand management system to predict the demand of their products and thus properly manage their sales and inventories.

Utilization of Assets:

Companies should re-evaluate their asset management to find unnecessary assets maintenance costs as well as ways to use assets to their full capacity to generate more revenue.

Re-evaluation of cost management:

As the increasing operating costs is one of the main reasons behind this situation so companies should re-evaluate their whole cost management to find unnecessary costs and opportunities for better investments. They should also try to find alternate suppliers to cut materials cost and alternate process of delivery and distribution to reduce operating costs. This would also help to increase profit margin.

Efficient Management System:

The companies should adopt a management system that efficiently utilizes their personnel and also ensures better communication from top management to line managers to avoid mistakes in decision making. This way they can swiftly make an appropriate decision when facing a crisis.

Utilizing Export Opportunities:

The companies should try to utilize export opportunities for their surplus products to reduce inventory management and defect costs along with increasing sales volume. This way they can also use their maximum production capacity and earn more profit with economies of scale.

References:

Siamcitycement.com. (2020). *Siam City Cement Public Company Limited*. [Online] Available at: <https://www.siamcitycement.com/en/home>

Siam City Cement Public Company Limited. (2020). *Annual Reports*. [Online] Available at: <https://www.siamcitycement.com/en/investor/yearly>

Rayhan. A. (2018). Managing Accounts Payable Process of Siam City Cement Bangladesh. *BRAC University*. Retrieved from http://dspace.bracu.ac.bd/xmlui/bitstream/handle/10361/10138/15364011_BBA.pdf?sequence=1&isAllowed=y

Begley J., Ming J. and Watts S. (1996). “Bankruptcy classification errors in the 1980s: An empirical analysis of Altman’s and Ohlson’s models”. *Review of Accounting Studies*, 1(4):267-284 <https://doi.org/10.1007/BF00570833>

Mahbuba, S. (2015). Assessing Financial Soundness of Tannery Industry in Bangladesh: Empirical Investigation Using Z-Score. *European Journal of Business and Management*, 7. Retrieved from <https://www.iiste.org/Journals/index.php/EJBM/article/view/25055>

Mohammed, S. (2016). Bankruptcy Prediction by Using the Altman Z-score Model in Oman: A Case Study of Raysut Cement Company SAOG and its subsidiaries. *Australasian Accounting, Business and Finance Journal*, 10(4), 70-80. doi:10.14453/aabfj.v10i4.6

EBL Securities Limited. (2019). Bangladesh Cement Industry: Resilient; Better Days Await. Retrieved from http://www.eblsecurities.com/AM_Resources/AM_ResearchReports/SectorReport/Comprehensive%20Review%20on%20Bangladesh%20Cement%20Industry.%20August%202019.pdf

Dsebd.org. (2020). *Dhaka Stock Exchange*. [Online] Available at: <https://www.dsebd.org/>

Cse.bd. (2020). *Chittagong Stock Exchange*. [Online] Available at: <https://www.cse.com.bd/>

Investing.com. (2020). [Online] Available at: <https://www.investing.com/>

Pritu, A. J. (2019, July 8). Growing demand fuels cement industry growth. *Dhaka Tribune*.

Retrieved from

<https://www.dhakatribune.com/business/economy/2019/07/08/growing-demand-fuels-cement-industry-growth>

LightCastlePartners.com. (2019, March 20). Building A Concrete Future. Retrieved from

<https://www.lightcastlebd.com/insights/2019/03/20/cement-in-bangladesh-building-a-concrete-future>

Heidelberg Cement Bangladesh Ltd. (2020). *Financial Reports*. [Online] Available at:

https://www.heidelbergcementbd.com/financial_report.aspx

M.I. Cement Factory Limited. (2020). *Financial Statements*. [Online] Available at:

<https://crowncement.com/financial-statements/>

Premier Cement Mills Limited. (2020). *Financial Reports*. [Online] Available at:

<https://www.premiercement.com/page/investors-premier.html>

LafargeHolcim Bangladesh Limited. (2020). *Financial Reports*. [Online] Available at:

<https://www.lafargeholcim.com.bd/financial-reports>

Meghna Cement Mills Ltd. (2020). *Financial Reports*. [Online] Available at:

<http://www.meghnacement.com/annual-reports/>

Appendix:

Relevant Financial Data of All the Companies in The Study

| Siam City Cement Public Company Limited Thailand | | | | |
|---|--------------------|--------------------|--------------------|--------------------|
| Particulars | 2016 (Baht) | 2017 (Baht) | 2018 (Baht) | 2019 (Baht) |
| Operating Profit (EBIT) | 5,584,614,039 | 4,379,577,040 | 5,340,031,211 | 5,484,125,239 |
| Total Sales | 34,895,912,927 | 43,884,863,518 | 45,039,671,292 | 47,990,971,634 |
| Net Profit | 3,886,343,155 | 2,232,311,351 | 3,421,450,701 | 3,327,212,237 |
| Total Equity | 22,116,690,038 | 35,939,155,496 | 34,541,031,015 | 36,670,995,203 |
| Total Assets | 62,345,385,660 | 81,486,054,084 | 59,562,680,703 | 78,206,112,990 |
| Total Debt | 40,228,695,622 | 45,526,898,588 | 45,021,649,888 | 45,535,117,787 |
| Inventory | 3,065,231,633 | 3,901,530,819 | 4,873,099,562 | 4,608,212,754 |
| Accounting Receivables | 5,215,835,811 | 5,920,864,413 | 5,433,075,960 | 5,455,711,119 |
| Market Price Per Share | 261.66 | 263.00 | 205.00 | 190.00 |
| EPS | 16.33 | 6.59 | 10.14 | 10.59 |

| Heidelberg Cement Bangladesh | | | | | |
|-------------------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|
| Particulars | 2014-15 (Taka) | 2015-16 (Taka) | 2016-17 (Taka) | 2017-18 (Taka) | 2018-19 (Taka) |
| Working Capital | 3,678,000,000 | 3,032,000,000 | 2,810,000,000 | 1,962,000,000 | 795,000,000 |
| Total Assets | 10,172,839,000 | 9,771,707,000 | 10,188,507,000 | 8,730,500,000 | 8,438,723,000 |
| Retained Earnings | 5,329,709,000 | 4,584,554,000 | 4,397,317,000 | 3,505,370,000 | 3,368,965,000 |
| EBIT | 1,220,000,000 | 1,603,000,000 | 1,837,000,000 | 959,000,000 | 870,000,000 |
| Market Value of Equity | 28,218,000,000 | 31,761,000,000 | 31,207,000,000 | 24,008,000,000 | 18,912,000,000 |
| Total Liabilities | 3,649,000,000 | 3,993,000,000 | 4,597,000,000 | 4,030,837,000 | 3,875,465,000 |
| Total Sales | 10,504,500,000 | 10,485,084,000 | 10,600,466,000 | 9,801,506,000 | 11,151,286,000 |

| M.I. Cement Factory Limited (Crown Cement) | | | | | |
|---|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|
| Particulars | 2014-15 (Taka) | 2015-16 (Taka) | 2016-17 (Taka) | 2017-18 (Taka) | 2018-19 (Taka) |
| Working Capital | 2,410,614,000 | 1,887,754,000 | 1,765,994,000 | 1,474,763,000 | 956,694,000 |
| Total Assets | 12,061,703,000 | 14,159,619,000 | 17,919,447,000 | 19,713,912,000 | 19,270,753,000 |
| Retained Earnings | 1,221,083,000 | 1,596,351,000 | 1,996,019,000 | 2,047,745,000 | 2,106,437,216 |
| EBIT | 984,673,000 | 1,196,135,000 | 1,109,777,000 | 1,001,290,000 | 1,177,413,000 |
| Market Value of Equity | 11,286,000,000 | 11,256,300,000 | 13,855,050,000 | 12,043,350,000 | 10,098,000,000 |
| Total Liabilities | 6,182,373,000 | 7,434,795,000 | 10,821,652,000 | 12,589,558,000 | 12,110,276,000 |
| Total Sales | 8,264,241,000 | 9,016,549,000 | 9,439,820,000 | 12,559,312,000 | 14,628,433,000 |

| Premier Cement Mills Limited | | | | | |
|-------------------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|
| Particulars | 2014-15 (Taka) | 2015-16 (Taka) | 2016-17 (Taka) | 2017-18 (Taka) | 2018-19 (Taka) |
| Working Capital | (1,116,070,000) | (956,030,000) | (248,780,000) | (1,899,450,000) | (1,590,540,000) |
| Total Assets | 8,321,830,000 | 9,041,750,000 | 10,379,000,000 | 13,467,990,000 | 18,724,530,000 |
| Retained Earnings | 1,299,131,032 | 1,755,848,463 | 2,074,167,159 | 2,282,940,440 | 2,791,406,291 |
| EBIT | 799,800,000 | 1,230,640,000 | 877,530,000 | 972,020,000 | 1,248,560,000 |
| Market Value of Equity | 5,272,500,000 | 9,595,950,000 | 9,532,680,000 | 8,172,370,000 | 7,402,590,000 |
| Total Liabilities | 3,602,880,000 | 4,042,860,000 | 5,065,110,000 | 9,190,750,000 | 13,947,570,000 |
| Total Sales | 7,133,420,000 | 8,405,990,000 | 9,280,420,000 | 10,049,870,000 | 11,999,430,000 |

| LafargeHolcim Bangladesh Limited | | | | | |
|---|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|
| Particulars | 2014-15 (Taka) | 2015-16 (Taka) | 2016-17 (Taka) | 2017-18 (Taka) | 2018-19 (Taka) |
| Working Capital | 3,374,592,000 | 4,744,829,000 | 5,250,376,000 | 4,939,829,000 | 1,308,762,000 |
| Total Assets | 18,166,906,000 | 18,570,202,000 | 18,673,786,000 | 18,464,878,000 | 21,323,019,000 |
| Retained Earnings | 2,001,094,000 | 2,442,798,000 | 2,690,847,000 | 2,034,173,000 | 2,298,905,000 |
| EBIT | 2,448,263,000 | 1,860,771,000 | 1,777,188,000 | 710,020,000 | 1,501,570,000 |
| Market Value of Equity | 142,848,940,500 | 86,638,463,100 | 95,348,764,350 | 81,180,007,650 | 50,519,747,250 |
| Total Liabilities | 4,615,259,000 | 4,596,468,000 | 4,492,518,000 | 4,879,726,000 | 7,509,321,000 |
| Total Sales | 11,583,029,000 | 10,967,952,000 | 10,728,855,000 | 10,819,131,000 | 12,115,261,000 |