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Relative Valuation of Stocks: Evidence from the Listed Cement Manufacturing Companies of Bangladesh

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Abstract

The paper aims to apply the relative valuation technique to the listed cement manufacturing companies of Bangladesh and address whether they are mispriced (overvalued/undervalued) or not. It considers the financial information of seven listed cement manufacturing companies of Bangladesh. All the financial data used in this study has been collected from the annual reports published in their websites for the financial year 2020-2021. On the contrary, closing prices of their stocks for the same year has been collected from the website of the Chittagong Stock Exchange (CSE), one of the two major stock exchanges of Bangladesh. The study reveals that in terms of the selected multiples (PS, PE and PB) all the sample companies are undervalued. But when comparison is made in terms of the relative value and the market value, six companies except one were found undervalued. This implies that despite their strong financial and operating performance, the stocks of the listed cement manufacturing companies are not correctly priced.

Keywords: Fundamental analysis, Comparables, Valuation, Absolute valuation, Relative valuation, Multiple analysis, Screening on multiples.

JEL Classification Code: G14, G32, M41, O16

1. Introduction

Valuation is an obvious part of fundamental analysis. During the time of taking investment decision an investor must determine the present value of the stock, both in terms of the income/cash flow the stock is expected to generate in the future and in terms of the value of its market competitors. The former type is referred to as absolute valuation and the latter one is called relative valuation technique. Between the aforementioned two techniques application of the former one quite difficult as it is difficult to forecast the income/cash flow that the investment would generate in the future with certainty. But compared to that technique the relative valuation is easier as it uses financial data that are very much certain. Besides, application of the technique is much easier compared to the absolute valuation technique.

In recent years, the stock market in Bangladesh has shown tremendous growth and has attracted a large number of investors. As a result, accurate valuation of stocks has become crucial for making informed investment decisions and maximizing returns. The cement manufacturing industry is one of the fastest-growing sectors in Bangladesh with significant potential for growth and development, making it an attractive sector for investors. Moreover, the

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government's industrial policy identifies the cement industry as a priority sector, further highlighting its significance. However, despite the growing importance of the stock market and the cement industry in Bangladesh, there is a dearth of research on stock valuation in the country.

Therefore, this study aims to apply relative valuation technique to the listed cement manufacturing companies in Bangladesh and determine whether they are mispriced or not. By analyzing the financial data of seven listed cement companies and comparing it to the closing prices of their stocks for the financial year 2020-2021, this study aims to provide valuable insights into the accuracy of the valuation of stocks in the cement manufacturing industry.

1.1 Relative Valuation Technique

In relative valuation method, the value of a stock is derived based on the pricing of comparable or relative stocks by using some common variables like as sales, earnings and book value. Many times, it happens that the stock of companies with a good financial position and superior operating performance is traded at a price lower than the companies that are not strong enough in terms of their financial position. This indicates an erroneous pricing of individual company. Just not going by the price at which a particular stock is being traded in the market it is better to consider other financial variables for getting a better understanding of the comparative position and performance of the company for taking decision for buying, selling or holding a stock. Therefore, the basic idea behind the relative valuation is to convert the values of companies sharing similar attributes to comparable multiples and then establishing relation on how these stock stands in compared to its peers.

A multiple is simply a ratio between the market value of an asset and an item of the financial statement. The multiples approach seeks to value similar companies based on the same financial metrics. Under this approach, an analyst calculates a certain ratio like– price-to-sales ratio (PS), price earnings ratio (PE) and the price-to-book value ratio (PB) to determine the value of one firm based on the value of another within the same line of business or industry. Such price multiples of a stock are compared to a benchmark to learn if the stock is relatively overvalued or undervalued.

1.2 Cement Industry of Bangladesh

With rapid growth in infrastructural development, increased investment in mega projects and development in the real estate business in Bangladesh the cement manufacturing industry has witnessed a double digit growth (11.50 percent) for the last five years. Business Inspection (2021) reported that the annual per capita cement consumption in Bangladesh has been increased from 45 to 200 kg in the last two decades, where 45 percent of the total consumption has been done by the public sector, 30 percent by the real estate companies and rest of the portion has been consumed by the individuals. Besides fulfilling the domestic demand for cements, the country is now exporting a good quantity of cement in different parts of the globe. Business Inspection (2021) also reported that the industry has an annual production capacity of 58 million tons against the local demand of only 33 million tons. As such, the country has an opportunity to have foreign currency from the export of this surplus production. There are more than seventy cement manufacturing companies in Bangladesh. Among those companies only seven are listed with the two stock exchanges of the country. In this paper all those seven listed cement manufacturing companies has been considered.

1.3 Objective of the Study

The major objective of the study is to reveal the applicability of relative valuation technique in stock investment decision. It also attempts to address whether there exist any significant differences between the relative value and the market value of the sample companies or not.

1.4 Significance of the Study

The significance of this study lies in the fact that the correct valuation of stocks is crucial for making investment decisions and maximizing returns. This study also has important implications for investors, financial analysts, and policymakers. The results of this study can help investors make informed investment decisions by identifying overvalued or undervalued stocks in the cement industry. Furthermore, financial analysts can use the findings of this study to conduct more accurate analyses of the industry and provide reliable recommendations to investors. Finally, policymakers can use the insights gained from this study to develop policies that promote a more efficient and transparent stock market in Bangladesh, ultimately contributing to the growth and development of the stock market in the country.

2. Literature Review

Valuation approaches are applied in taking investment decision due to the perception that the market is inefficient in terms of information and the prices of traded assets are incorrect (Damodaran, 2006). As such, price of stocks in the market can be undervalued or overvalued and are supposed to be corrected to the fair value. He also stated that the relative value is more likely to reflect the perceptions of the

market participants than other asset valuation approaches as it is derived from the pricing of similar assets or business.

Dyckman and Morse (1986) evidenced that the value of stocks is presumably reflected by the published accounts in terms of price. When such fundamentals are made publicly available, stock prices are likely to reflect the newfangled quickly (Haskins et al., 1997). PE multiple is one of the most widely used indicators that determines market price of a stock (Block, 1999). A fall in the ratio below a specified level indicates the entrants for purchasing the stock. In the contrary, when it exceeds some specified level, it is suggested to sale off the stock (Haskins et al., 1997; Penman, 1996; Skogsvik & Skogsvik, 2008). Due to its ease of understanding and use many participants apply the multiple frequently when making comparison among a group of stocks.

The relationship between price and book value i.e. PB ratio of a firm can also be an attractive variable for the investors. O'Shaugnessy (1998) called PB ratio as a better gauge of value. Essentially, investors who prefer to buy stocks with lower PB ratio believe that they will be rewarded for not paying high prices for the assets. In many cases many comparables may have negative earnings due to having loss. In that case, use of PB ratio is more meaningful compared to the negative PE ratios.

O'Shaughnessy (1998) termed the price to sales (PS) ratio as the "King of the Value Factors" due to its difficulty in manipulation (Brown & Reilly, 2009). Sales revenue is always positive, even, at the time when a firm is financially distressed. This is why this ratio is not as volatile as PE multiple. For start-up companies use of PE ratios may mislead an investor whereas PS ratio can be an appropriate measure to be considered. It is also a valuable tool for analyzing an industry with cyclical nature or that lies in maturity stage of its industry life cycle. However, Herrmann and Richter (2003) examined different multiples for European non-financial firms and asserted that the multiples based on earnings lead to the highest prediction accuracy compared to the sales multiples. They also found it that the PB multiple performed better than the other multiples when comparable firms were selected based on return on equities (ROEs) and earnings growth.

A good number of studies have been done on relative valuation in the context of different countries. The seminal works performed by McWilliams (1966), Nicholson (1968) and Bosu (1977) presented evidence of a return advantage with low P/E stocks, whereas Park and Lee (2003) found least prediction errors with PB ratio in Japan Stock market. Omran (2009) found it effective for Islamic financial institutions being operated in UAE.

Boatsman and Baskin (1981) studied the accuracy of PE multiples in valuation based on two sets of comparable firms from the same industry and found minimum valuation errors for comparable firms that has been selected based on similar historical Earnings. Focusing on the systematic use of industry-specific multiples, Tasker (1998) found that use of different multiples is appropriate for different industries.

Liu et al. (2002) examine the valuation performance of a comprehensive list of value drivers to determine which of them best explains the stock prices. The study investigates the performance of a comprehensive list of multiples and also examines a variety of related issues, such as the variation in performance across industries and over time by using alternative approaches to computing multiples.

Gill (2003) revealed an acceptable range of PE ratios for different industries and concluded that an investor should focus not only on the past record of the PE ratio but also on the average PE ratio for a particular industry. Dhankar and Kumar (2007) evaluated the performance of a set of portfolios constructed based on PE ratios and found no consistency between the portfolios' expected return and their corresponding P/E ratios.

A considerable body of literature has focused on the application of relative valuation techniques to stock markets worldwide, but there is a dearth of research on stock valuation in Bangladesh. Several studies have explored the stock market in Bangladesh and its potential for growth and development. Hossin and Islam (2019) investigated the relationship between stock market development and economic growth in Bangladesh and found that the stock market had a positive impact on economic growth. Similarly, Uddin and Rahman (2020) examined the impact of the COVID-19 pandemic on the stock market in Bangladesh and found that the market had shown resilience despite the challenging economic conditions.

In the context of the cement manufacturing industry in Bangladesh, several studies have highlighted its potential for growth and development. Ershad et al. (2021) analyzed the financial performance of listed cement manufacturing companies of Bangladesh based on different financial ratios including mean value analysis technique. Islam and Rahman (2020) investigated the financial performance of the cement industry in Bangladesh and found that it had achieved a steady growth rate over the years. Similarly, Uddin et al. (2019) analyzed the sustainability reporting practices of listed cement manufacturing companies in Bangladesh and found that the companies had made progress in disclosing their environmental and social impacts.

However, there is a lack of research on the valuation of listed stocks in the Bangladesh Stock Exchange, especially in the cement manufacturing industry. Therefore, this study aims to address this research gap by applying relative valuation techniques to the listed cement manufacturing companies in Bangladesh. By comparing the financial data of these companies to the closing prices of their stocks, this

study aims to provide valuable insights into the accuracy of the valuation of stocks in the industry.

3. Methodology

The study has been conducted based on secondary sources of data. It considers all the seven cement manufacturing companies listed in the Chittagong Stock Exchange (CSE), one of the two major stock exchanges of Bangladesh, as sample. All the required data used in this study has been collected from the annual reports published in the website of the sample companies for the financial year 2020-2021. On the contrary, closing prices of their stocks for the same year has been collected from the website of CSE. By using the collected data, multiple analysis has been performed based on the method provided by Penman (2013). A screening on the multiples (PS multiple, PE multiple and PB multiple) has been done to address whether the stocks are overvalued or undervalued. Besides, the difference between the relative value and the market value of the companies has also been determined to find whether the stocks are overvalued or undervalued.

4. Hypothesis

Following hypothesis has been tested to prove whether there exists a significant difference between the relative value and the market value of the companies or not based on different parameters:

Hypothesis 1

Null Hypothesis, H_0: There is no significant difference between the relative value of sales and the actual sales of the companies.

Alternative Hypothesis, H_μ: There is significant difference between the relative value of sales and the actual sales of the companies.

Hypothesis 2

Null Hypothesis, H_0: There is no significant difference between the relative value of earnings and the actual earnings of the companies.

Alternative Hypothesis, H_μ: There is significant difference between the relative value of sales and the actual sales of the companies.

Hypothesis 3

Null Hypothesis, H_0: There is no significant difference between the relative book value and the actual book value of the companies.

Alternative Hypothesis, H_μ: There is significant difference between the relative value of sales and the actual sales of the companies.

Hypothesis 4

Null Hypothesis, H_0: There is no significant difference between the relative value and the market value of the companies.

Alternative Hypothesis, H_μ: There is significant difference between the relative value and the market value of the companies.

5. Analysis and findings

By taking the sales revenue (S), earnings after tax (E), book value (B) - the product of par value and the number of shares outstanding and market value (P) -the product of market price per share and the number of shares outstanding from the annual reports the PS ratio, PE ratio and PB ratio for each of the comparable firms (except for the target firm) has been calculated through the following formula:

$$\text{PS ratio} = \frac{P}{S} \qquad \text{PE ratio} = \frac{P}{E} \qquad \text{and} \qquad \text{PB ratio} = \frac{P}{B}$$

Next to the aforementioned calculation, the average multiple for comparable has been determined by taking the averages for all these ratios. Then, the relative sales, earnings and book value for the target company have been calculated by multiplying the average multiples by its sales, earnings and book value. The average of the three relative values ultimately reflects the relative market value of the target company.

The following table shows the relative values derived for each of the parameters considered for each of the companies as compared to their comparable:

Table 1: Derived relative values of all the sample firms

Companies	Relative Sales	Relative Earnings	Relative Book Value	Relative Market Value	Relative PS ratio	Relative PE ratio	Relative PB ratio
ARAMITCEM	2017083183	20265241	337754017	3003189105	1.49	148.19	8.89
CONFIDCEM	4619313000	1240739000	782347310	24005619118	5.1968	19.35	30.68
CROWNCEMNT	16315315000	859222000	1485000000	30157418641	1.8484	35.10	20.31
HEIDELBCEM	14328000000	475000000	565476190	18227214491	1.2721	38.37	32.23
LHBL	20534000000	3882000000	11622754491	108301783800	5.2743	27.90	9.32

Companies	Relative Sales	Relative Earnings	Relative Book Value	Relative Market Value	Relative PS ratio	Relative PE ratio	Relative PB ratio
MEGHNACEM	9646850000	74380000	272454212	9390241271	0.9734	126.25	34.47
PREMIERCEM	12810440000	653420000	10545000000	49333519250	3.8510	75.50	4.68

The following table (Table 2) shows the differences between the resulted relative values companies their respective actual values for all the sample companies:

Table 2: Differences between the resulted relative values and actual values of sales, earnings and book values

Companies	Variables	Relative Value	Actual Value	Overpriced/ Underpriced	t Stat	P Value	Null Hypothesis Accepted/ Rejected
ARAMITCEM	S	4521849021	2017083183	Undervalued	2.749	0.111	Accepted
	E	715062215.3	20265241	Undervalued			
	B	3772656078	337754017	Undervalued			
CONFIDCEM	S	9192363816	4619313000	Undervalued	1.352	0.309	Accepted
	E	55243287322	1240739000	Undervalued			
	B	7581206216	782347310	Undervalued			
CROWNCEMNT	S	36719299120	16315315000	Undervalued	3.556	0.071	Accepted
	E	37812719301	859222000	Undervalued			
	B	15940237500	1485000000	Undervalued			
HEIDELBCEM	S	31169502317	14328000000	Undervalued	2.748	0.111	Accepted
	E	19309710605	475000000	Undervalued			
	B	4202430552	565476190	Undervalued			
LHBL	S	35372486341	20534000000	Undervalued	2.236	0.155	Accepted
	E	165177140509	3882000000	Undervalued			
	B	124355724551	11622754491	Undervalued			
MEGHNACEM	S	22281744642	9646850000	Undervalued	1.842	0.207	Accepted
	E	3041878063	74380000	Undervalued			
	B	2847101106	272454212	Undervalued			
PREMIERCEM	S	17906381358	9646850000	Undervalued	1.389	0.299	Accepted
	E	17791683892	74380000	Undervalued			
	B	112302492500	272454212	Undervalued			

From the aforementioned table it can be observed that, the relative values of all the parameters (sales, earnings and book values) are higher than the actual values for all the companies. This indicates that all those parameters are undervalued compared to their actual figures. To test whether the differences are statistically significant or not a "t test" has been conducted. The resulted test statistic for each of the parameters for all the sample companies shows that it is not extreme enough (t statistic compared to the t critical value of 4.30 for each of the sample companies) to reject the null hypothesis. On the contrary, it can also be observed that the p value for all those parameters is higher than the standard significance level of 0.05. This implies that, the difference between the relative values and the actual values of the parameters for all the sample companies are not statistically significant. This also indicates an acceptance of the null hypothesis for Hypothesis 1, Hypothesis 2 and Hypothesis 3.

The following table shows the resulted relative values of all the sample companies and compares the value with their respective market values:

Table 3: Differences between the resulted relative value and actual value of the sample companies

Companies	Relative Value	Market Value	Overpriced/ Underpriced	T Stat	P value	Null Hypothesis Accepted/ Rejected
ARAMITCEM	3003189105	1285491787	Underpriced	1.1892	0.2793	Accepted
CONFIDCEM	24005619118	9922510933	Underpriced			
CROWNCEMNT	30157418641	9533700000	Underpriced			
HEIDELBCEM	18227214491	14835267857	Underpriced			
LHBL	108301783800	77047239521	Underpriced			
MEGHNACEM	9390241271	2213962930	Underpriced			
PREMIERCEM	49333519250	73034670000	Overpriced			

From the above table (Table 3) it can be seen that, except for the PREMIERCEM, the relative values of all the companies are higher than their actual values. This indicates that all those companies (except PREMIERCEM) are undervalued. To test whether the differences are statistically significant or not a "t test" has been conducted. Like the earlier cases, the resulted test statistic for each of the sample companies here also shows that it is not extreme enough (t statistic compared to the t critical value of 4.30 for each of the sample companies) to reject the null hypothesis. On the contrary, a higher p value compared to the standard significance level of 0.05 also implies that, the difference between the relative values and the actual values of all the sample companies are not statistically significant. This also indicates an acceptance of the null hypothesis for Hypothesis 4.

After getting the relative market value of the target company screening on multiples has been done based on the PS multiple, PE multiple or PB multiple. A stock with lowest multiple is considered undervalued and gets higher preference for investment. On the contrary, a stock with a high multiple is considered overvalued and indicates that the stock should get less preference for investment.

The following table (Table 4) addresses the companies that should get the top priority ranking based on a particular multiple:

Table 4: Priority ranking of the companies based on the multiple considered

Target Company	Base of Multiple	Rank 1 is for						
		ARAMIT CEM	CONFID CEM	CROWN CEMNT	HEIDELB CEM	LHBL	MEGHNA CEM	PREMIER CEM
ARAMITCEM	PS	1.49	2.15	0.58	1.04	3.75	0.23	5.70
	PE	148.19	8.00	11.10	31.23	19.85	29.77	111.77
	PB	8.89	12.68	6.42	26.24	6.63	8.13	6.93
CONFIDCEM	PS	0.64	5.19	0.58	1.04	3.75	0.23	5.70
	PE	63.43	19.35	11.10	31.23	19.85	29.77	111.77
	PB	3.81	30.68	6.42	26.24	6.63	8.13	6.93
CROWNCEMNT	PS	0.64	2.15	1.85	1.04	3.75	0.23	5.70
	PE	63.43	8.00	35.10	31.23	19.85	29.77	111.77
	PB	3.81	12.68	20.31	26.24	6.63	8.13	6.93
HEIDELBCEM	PS	0.64	2.15	0.58	1.27	3.75	0.23	5.70
	PE	63.43	8.00	11.10	38.37	19.85	29.77	111.77
	PB	3.81	12.68	6.42	32.23	6.63	8.13	6.93
LHBL	PS	0.64	2.15	0.58	1.04	5.27	0.23	5.70
	PE	63.43	8.00	11.10	31.23	27.90	29.77	111.77
	PB	3.81	12.68	6.42	26.24	9.32	8.13	6.93

Target Company	Base of Multiple	Rank 1 is for						
		ARAMIT CEM	CONFID CEM	CROWN CEMNT	HEIDELB CEM	LHBL	MEGHNA CEM	PREMIER CEM
MEGHNACEM	PS	0.64	2.15	0.58	1.04	3.75	0.97	5.70
	PE	63.43	8.00	11.10	31.23	19.85	126.25	111.77
	PB	3.81	12.68	6.42	26.24	6.63	34.47	6.93
PREMIERCEM	PS	0.64	2.15	0.58	1.04	3.75	0.23	3.85
	PE	63.43	8.00	11.10	31.23	19.85	29.77	75.50
	PB	3.81	12.68	6.42	26.24	6.63	8.13	4.68

From the above table it can be observed that, MEGHNACEM gets the most preference for investment based on the PS multiple when the target company is any of its comparables except itself. When the base of selection is PE multiple, CONFIDCEM gets most priority for investment considering its comparables as the target firm except itself. On the contrary, ARAMITCEM gets the most preference for investment based on the PB multiple when the target company is any of its comparables except itself. From the matrix, it can also be seen that, CROWNCEMNT gets priority based on PB multiple, PE multiple and PS multiple when the target company is ARAMITCEM, CONFIDCEM and MEGHNACEM respectively. For whatever the multiple or target company, no preference has been achieved for HEIDELBCEM, LHBL or PREMIERCEM.

6. Conclusion

The paper aims at applying the relative valuation technique to the listed companies operating under the cement manufacturing industry of Bangladesh and attempts to address whether they are mispriced (overvalued/undervalued) or not. Relative valuation requires less number of financial data all of which are readily available from the annual reports of the companies. The study reveals that in terms of the selected multiples (PS, PE and PB), all the sample companies were undervalued. But when comparing them in terms of their relative value to market capitalization, six except one of the companies were found to be undervalued. This means that despite strong financial and operating performance, the stocks of listed companies were not properly priced. These results suggest that despite the strong financial and operating performance of the listed cement manufacturing companies, their stocks are not correctly priced. The mispricing of stocks in the Bangladesh stock market could be due to a variety of factors, such as inefficient market structures, limited information availability, and investor behavior.

The findings of this study could be useful for investors, financial analysts, and policymakers in making informed investment decisions and promoting the growth and development of the stock market in Bangladesh. Further research can be conducted to explore the determinants of the mispricing of stocks in the Bangladesh stock market and to evaluate the effectiveness of different valuation techniques in this context. Overall, this study highlights the need for ongoing research and attention to the valuation of stocks in the Bangladesh stock market, especially in the cement manufacturing industry.

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