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Inspiring Excellence

Company Fundamental Analysis & Portfolio Analysis

FIN423 : Security Analysis and Portfolio Management

Group-05

Submitted to:

Farhana Zahir, CFA, FRM

Lecturer

BRAC Business School, BRAC University

Contribution Table

Name & ID	Contribution
Shafin Ahmed Chowdhury (21304009)	Worked on BRAC Bank & Portfolio Analysis (EXCEL Calculation)
Shamima Aktar (21304065)	Worked on MARICO Bangladesh Ltd & Portfolio Analysis (Report Writing), Editing
Junaid Khan (21304070)	Worked on BSRM Steel & Portfolio Analysis (Report Writing)
Nowshin Saiyara Khan (21304072)	Worked on Square Pharmaceuticals PLC & Portfolio Analysis (Report Writing)
Abdullah Al Asif (22305038)	Worked on LafargeHolcim Bangladesh & Portfolio Analysis (EXCEL Calculation)

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Introduction

Both individual company analysis and group portfolio analysis strategies are going to be incorporated into this project during its development. A fundamental study of a selected company will be carried out by us. This research will make use of models such as the Dividend Discount Model (DDM), Free Cash Flow to Equity (FCFE), and Market Multiplier, in addition to sensitivity analysis, in order to ascertain a range of intrinsic values. The annual returns and standard deviations of the companies that have been chosen will be computed by us, a variance-covariance matrix will be constructed, and simulations will be used to produce 10,000 random portfolio possibilities. A depiction of the efficient frontier, the identification of optimal portfolios, and an analysis of the consequences of diversity are the objectives of this project. Over the course of this project, a deeper grasp of company valuation and portfolio optimisation will be achieved through the integration of financial theory and actual practice.

Part-01: Company Fundamental Analysis

Fundamental & Technical Analysis of Five Company

BRAC Bank

Stock Profile

BRAC Bank-DDM Model

BRAC Bank was founded in 2001 with a view to providing financing services to small and medium enterprises, typically known as SMEs. At the time, banks were not comfortable loaning out to these SMEs and BRAC saw the gap in the market and brought a solution to these small and medium businesses.

BRAC Bank offers different types of loans and deposit accounts. They provide home loans for individuals seeking a loan to buy a finished/semi finished apartment. They also provide personal loans like weddings, medical attention or for other requirements. Moreover, they also provide deposit schemes for students, along with credit card facilities and current accounts to individuals. Their most lucrative product is the loan provided to SMEs, as they specialize in that.

Market Capitalization (BDT)	65936250000
Shareholder's Equity (BDT)	63,782,029,290
P/E	10.31x
Forward P/E	8.15x
EPS (BDT)	4.54
Price to sales	1.3

BRAC Bank has a sales growth of only 11.64% over the last 5 years. However, a bank's sales are the net income on interest, so 11.64% is normal for them. They have a return on equity of 8.63% over the last 5 years and for the trailing 12 months 12.42%. This indicates that compared to the last 5 years, they have earned higher return on their investment in the last 12 months. Moreover, their return on assets in the last 5 years was 1.04%, which shows that a very low amount of their returns is coming from their non-current assets, which is understandable since it is a financial institution. Brac bank has a net profit margin of 17.73% over the last 5 years. They also have a 29.37% increase in their net profit from 2019 to 2023, which shows a significant improvement in managing their expenses and earning more.

Market Capitalization

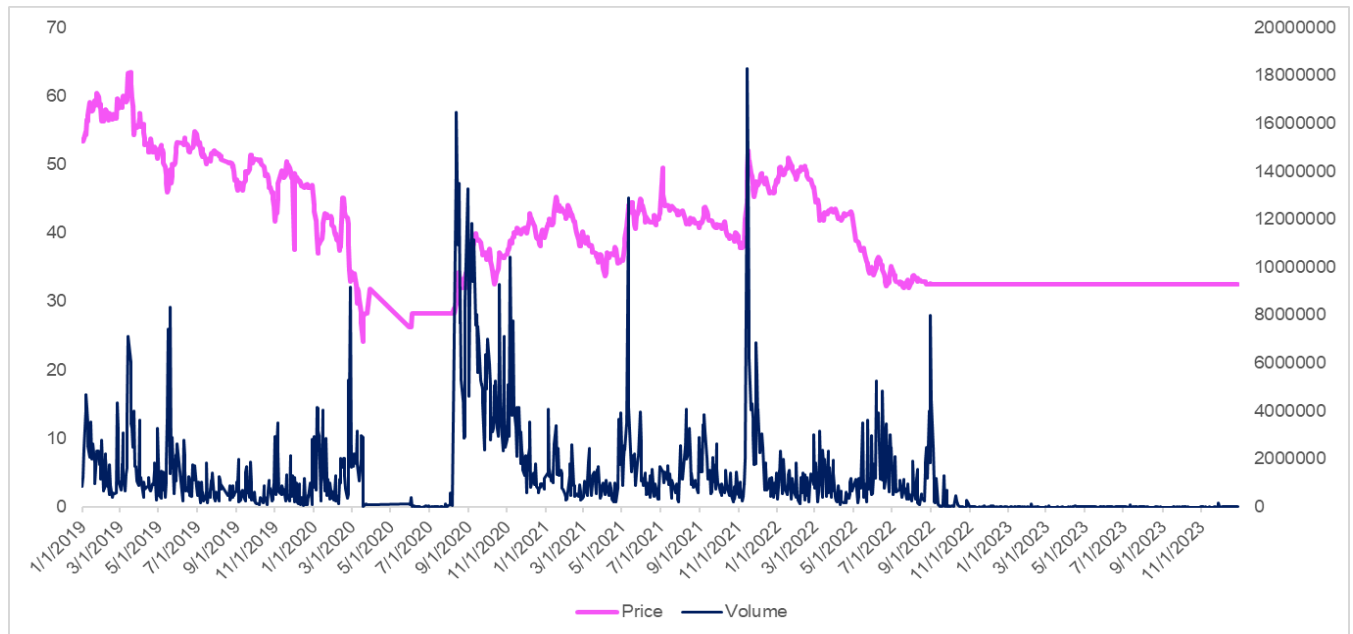
BRAC bank's market capitalization over the 5 years were 70.43 billion, 58.74 billion, 76.99 billion, 57.62 billion and 57.596 billion BDT respectively. BRAC bank has the highest market capitalization in its sector, which means the stock is traded in large volumes. Moreover, it indicates that BRAC bank has a higher presence in the market and it gives an idea about the size of the PLC.

	Year	No. of shares	Dividend	Dividend/Share	Terminal Value	Total CF	Present Value of CF
1	2024	1,608,829,227	1772584808	1.10		1.10	0.96
2	2025	1,608,829,227	2137722531	1.33		1.33	1.00
3	2026	1,608,829,227	2578075586	1.60		1.60	1.05
4	2027	1,608,829,227	3109137707	1.93		1.93	1.10
5	2028	1,608,829,227	3749594206	2.33	35.11660054	37.45	18.61
6	2029	1,608,829,227	4521979416	2.81			
	Required Rate of Return		15.00%			Intrinsic Value/share	22.74
	Long term growth rate		7.00%			Market Price @ 19 Sept 2023	54.6
						The stock is overvalued. So we will sell.	

As we can see from the above Dividend discount model calculation, the stock of BRAC bank is overvalued, so we should sell the share.

Technical Analysis

Price-Volume chart

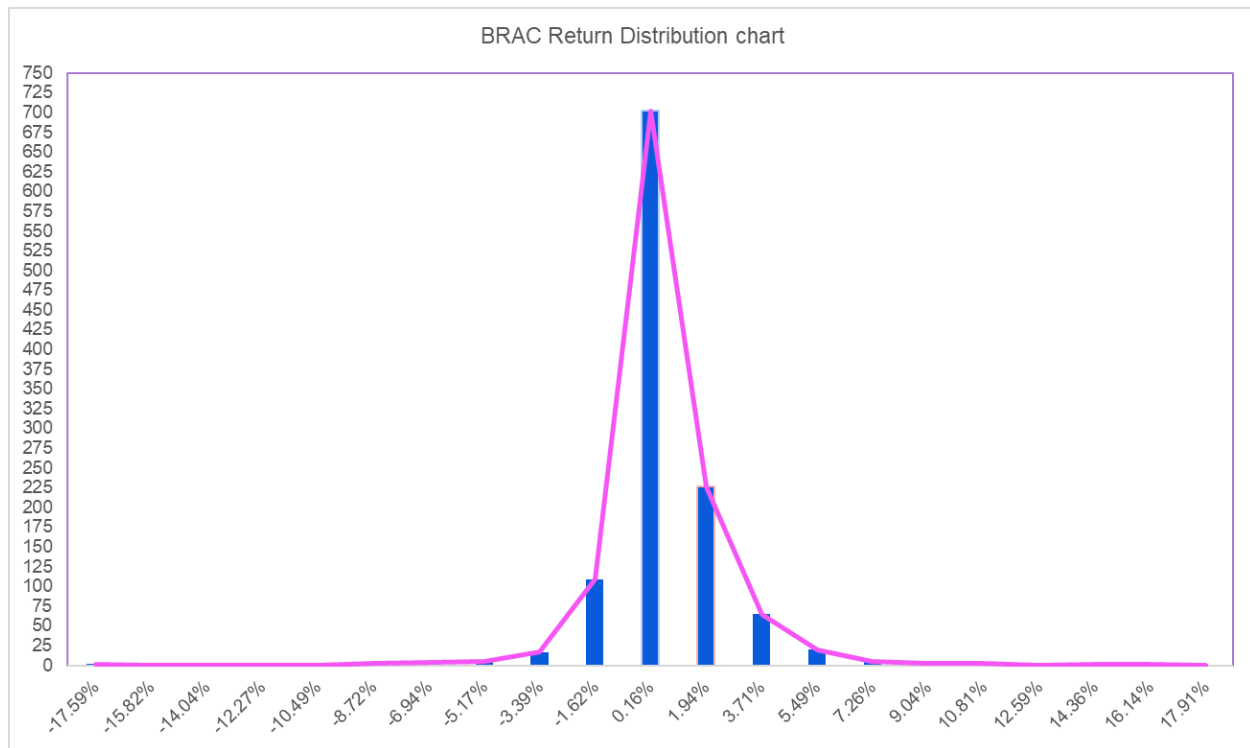


The price volume chart contains the whole year data from 2019 to 2023. Since the start of 2019, apart from an initial price spike during the first quarter, prices gradually fell due to the covid outbreak in late 2019 till the last quarter of 2020. From the fourth quarter of 2020 until the third quarter of 2022, prices were moderately volatile as it kept fluctuating between 35-50 BDT. However, since then, BRAC bank hit floor price at 32.56, later 32.55 till the end of 2023.

Furthermore, the volume of the stock was also quite volatile. From 2019 to March 2020, the volume was not volatile, only spiking a few times during the period. However, over the next 3 months, the stock traded at very less volume. Over the next 2 years, the trading volume was fluctuating with volume not exceeding 4.5 million and a few spikes. However, again from November 2022 to December 2023, the volume was very low, since the stock hit floor price.

Overall, we can understand that BRAC Bank as a company is volatile with its price and volume being very dispersive.

Return Distribution of BRAC Bank

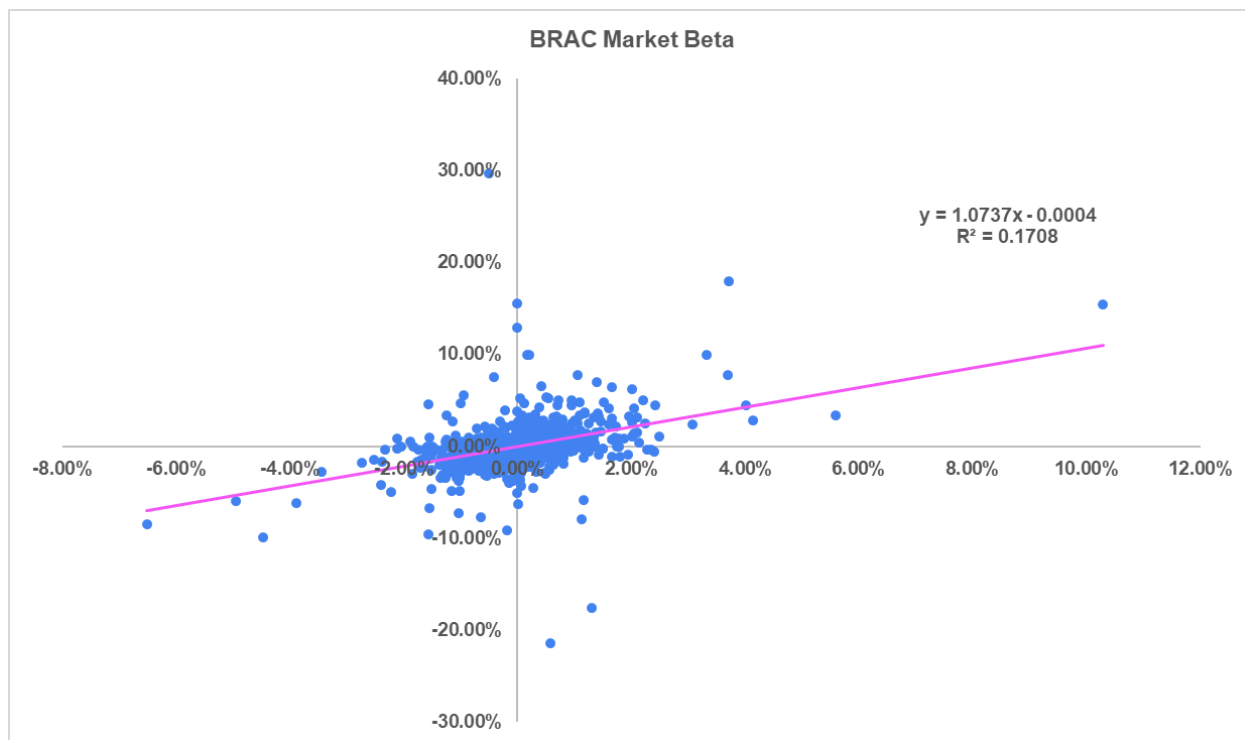


Max	17.91%
Min	-17.59%
Range	35.50%
Skewness	1.1270
Kurtosis	20.4066
Number Of bins	20
Distance	1.78%

The return distribution table above shows that BRAC had a maximum change in price of 17.91% and a minimum change of -17.59%, taking the range to 35.50%, which indicates that over the course of 5 years, BRAC prices moved heavily to both sides of the spectrum. Most of the changes in prices were from -3.39% to 5.49% and the most frequent change in price was 0.16%.

The skewness of the data is 1.13, which means that there was a positive skewness in the data. The data had a longer right tail meaning that most of the values of the data were to the right of the mean, indicating there were mostly higher or positive returns. Moreover, the kurtosis is very high, which means that there were many outliers in the data, which shows that returns were not stable, and very volatile.

Beta and Regression analysis



Slope	1.0737
Intercept	-0.0004
<hr/>	
$y = mx + c$	$m = \text{beta}$
Beta	1.0737

The figure above depicts a positive correlation between the returns of BRAC Bank and the DSEX returns. The beta coefficient is around 1.07 and more than 1, which indicates that BRAC Bank's stocks were more volatile in comparison to the market with higher sensitivity to market changes, and are likely to be high risk investments. The stock of BRAC bank is likely to be 7% more volatile than the market, meaning for every 1% change in the market, BRAC stock will change by 1.07%. However, an R-squared of 0.1708 means that only about 17.08% of the variability in the stock's returns can be explained by movements in the market and hence there is still a significant portion (82.92%) of BRAC bank's returns that are not explained by the model. This indicates a relatively low correlation between the stock and the market. The remaining 82.92% of the variability is due to factors other than market movements, suggesting that the stock's returns are influenced more by company-specific factors or other variables not captured by the market index. Although the stock tends to move somewhat in sync with the market, it has substantial unsystematic risk—meaning its returns are influenced by factors other than just general market movements. So the beta can be considered appropriate.

Required Rate Calculation

We calculated the required rate of return using market capitalization of the Dhaka Stock Exchange. Firstly, we calculated the return of each year from its previous year and then we calculated the geometric mean of the returns. Since 20 years is a long time, we calculated the geometric mean of the last 5 years and last 10 years and then averaged the two returns.

2013	1977400					
2014	2694448	36.26%	136.26%			
2015	2607793	-3.22%	96.78%			
2016	3185700	22.16%	122.16%			
2017	3801000	19.31%	119.31%			
2018	3847300	1.22%	101.22%			
2019	3998200	3.92%	103.92%			
2020	3119700	-21.97%	78.03%	Last 5 years		
2021	5142800	64.85%	164.85%	Using Market Cap		14.95%
2022	5177800	0.68%	100.68%	Last 10 years		
2023	7720800	49.11%	149.11%	Using Market Cap		14.59%

The average of the last 5 years and 10 years is 15.004%.

MARICO Bangladesh Ltd

Stock Profile

❖ Executive Summary:

Marico Bangladesh Limited is a well-known company in Bangladesh's fast-moving consumer goods (FMCG) market, with a focus on a wide variety of food and personal care items. Since its founding more than 20 years ago, Marico has grown to rank among the nation's fastest-growing consumer products companies.

☐ Products:

Marico Bangladesh produces and sells a range of goods under recognizable brand names, such as:

- **Haircare:** Parachute, Nihar
- **Skincare:** Parachute Body Lotion
- **Male Grooming:** Set Wet, Beardo
- **Baby Care:** Just for Baby
- **Food Products:** Saffola

With production facilities in Gazipur and a strong national distribution network, the company makes sure its goods are delivered to customers on time.

□ Financial Overview:

Marico Bangladesh has consistently improved its financial performance, as evidenced by the most recent financial reports.

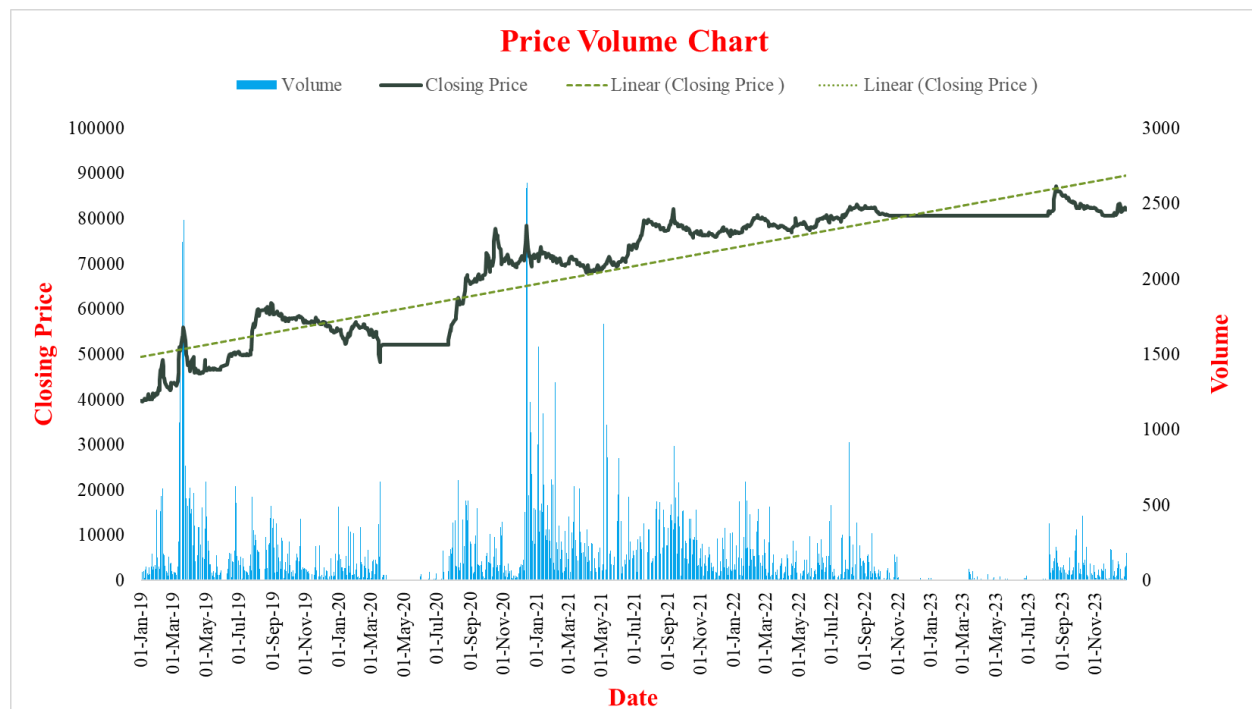
- Market Capitalization: Approximately BDT 71.19 billion (21/9/2024).
- Turnover: The company reported a turnover of BDT 14.52 billion for the fiscal year 2024.
- Profit Before Tax (PBT): BDT 5856.61 billion for the same period.
- Net Profit After Tax (PAT): BDT 4606.32 billion in FY 2024.

□ Valuation Ratios:

Key valuation ratios for Marico Bangladesh consist of:

- **Price-to-Earnings (P/E) Ratio:** 14.22
- **Earnings Per Share (EPS):** BDT 158.83
- **Return on Equity (ROE):** Approximately 67.4%
- **Debt-to-Equity Ratio:** 120.00
- **Price-to-Book (P/B) Ratio:** 7.2

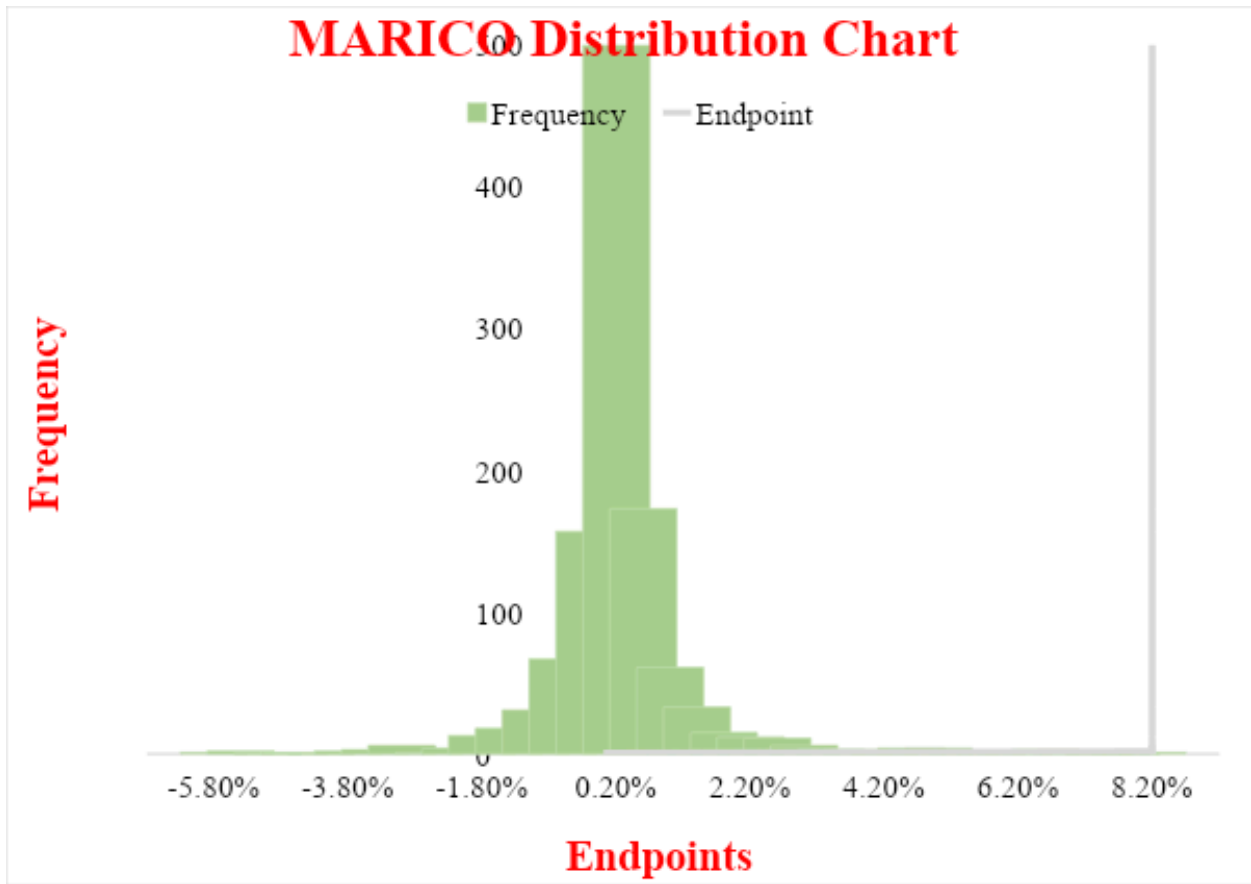
Price volume of MARICO



Comment:

Marico's stock is characterized by moderate volatility, as evidenced by its price fluctuations and volume surges. Indicating short-term market reactions or news events, the chart displays periods of rapid price movements, particularly during high trading volumes. In spite of occasional volatility, the stock's long-term stability is indicated by the upward trend in its price, which follows a linear growth trajectory. A few significant price fluctuations occur, which are indicative of periods of increased volatility; however, these fluctuations are relatively rare. The linear trend's consistency implies that Marico generally adheres to a consistent growth pattern, despite experiencing periodic volatility.

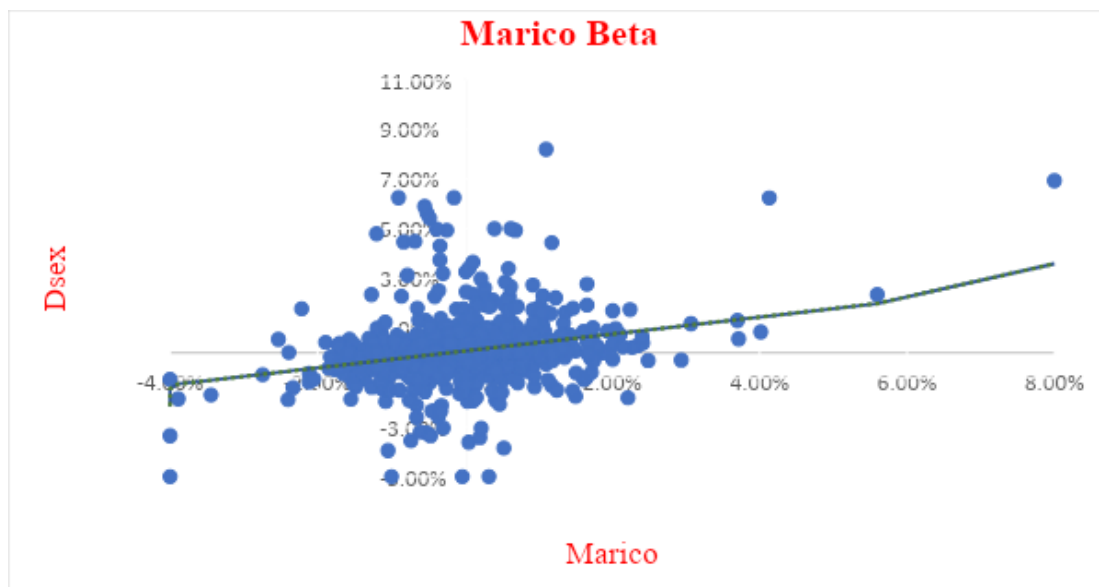
Return Distribution of MARICO



Min	-5.81%
Range	14.01%
No. of Bins	35
Distance	0.40%
Skewness	1.442505 6
Kurtosis	12.61433 3

Comment: According to Marico's return distribution chart, which is depicted in the image, the data is skewed heavily towards the mean. The low volatility and sharp peak close to 0 suggest that most returns are close to 0. Extreme positive and negative returns do occur, but they are far less common, because the distribution's tails stretch symmetrically. Returns for Marico are stable with infrequent outliers, according to this distribution type. The general form is similar to that of a leptokurtic distribution, in which the majority of observations cluster close to the mean and outliers are extremely unusual.

Beta & Regression



Slope	0.2176
Intercept	0.0007

Comment: Marico has a low beta value of 0.2176, which means the company has lesser volatility relative to the market, according to the Beta and Regression chart. Marico stock is a relatively steady investment with a beta below 1, meaning it moves less than the market. The market index explains just a small fraction of Marico's price variations, as seen by the weak

connection between Marico's returns and the index ($R^2 = 0.0744$). A minimal consistent return independent of the market is indicated by an intercept of 0.0007, and the low susceptibility to market swings is further confirmed by the slope of 0.2176.

Required Rate of Return

Using Market Capital (In million)			
Year	Market Cap	Yearly Return	
2004	224922.00		
2005	233542.00	3.83%	103.83%
2006	323368.00	38.46%	138.46%
2007	753955.00	133.16%	233.16%
2008	1059530.00	40.53%	140.53%
2009	1887177.00	78.11%	178.11%
2010	3471109.00	83.93%	183.93%
2011	2327000.00	-32.96%	67.04%
2012	1933500.00	-16.91%	83.09%
2013	1977400.00	2.27%	102.27%
2014	2694448.00	36.26%	136.26%
2015	2607793.00	-3.22%	96.78%
2016	3185700.00	22.16%	122.16%
2017	3801000.00	19.31%	119.31%
2018	3847300.00	1.22%	101.22%
2019	3998200.00	3.92%	103.92%
2020	3119700.00	-21.97%	78.03%
2021	5142800.00	64.85%	164.85%
2022	5177800.00	0.68%	100.68%
2023	7654720.00	47.84%	147.84%

R_m Market Return	20.40%
------------------------------------	---------------

Comment: The market capitalization and annual return for Marico from 2004 to 2023 are displayed in the table. Because of the company's fluctuating financial performance over time, the needed rate of return varies dramatically. Early on, there were high returns (233.16% in 2007 for example), which suggested significant growth. Negative returns happened in 2011, 2012, 2015, and 2020. This implies that although Marico went through times of rapid expansion, it also had difficulties. A strong 47.84% return in 2023 indicates a rebound from lower or negative returns in previous years, and the market capitalization has increased significantly to BDT 7.65 million.

Fundamental Analysis

□ FCFE Model

Year	BDT in crore			Using CFO		
	Cash From Operating	CAPEX	Net Borrowing	FCFE	Growth	
2018	154	8	30	176		
2019	267	9	-10	248	41%	141%
2020	301	32	-20	249	0%	100%
2021	330	24	25	331	33%	133%
2022	360	31	-25	304	-8%	92%
2023	539	52	0	487	60%	160%
Growth Rate of FCFE						22.58%

Comment: The table highlights Cash from Operating (CFO), Capital Expenditures (CAPEX), Net Borrowing, and Free Cash Flow to Equity (FCFE) and displays financial data in BDT crores from 2018 to 2023. Over time, CAPEX fluctuated and reached a peak of 32 in 2020, while CFO grew from 154 to 539. In 2019, 2020, and 2021, net borrowing showed negative levels as it varied. FCFE showed notable growth, rising by 160% in 2023 alone to contribute to a 22.58% growth rate overall. This points to a strong financial performance during the period, with notable gains in equity returns and cash flow.

□ Forecasting and Terminal Value:

Time	Forecast	FCFE	PV
1	2024	596.94	528.78
2	2025	731.70	574.15
3	2026	896.89	623.41
4	2027	1099.37	676.89
5	2028	1347.55	734.97
Terminal Value in crore Calculated using Last 5 Years of P/E Ratio			
5	2028	20213.27	11024.51
Total			14162.71

Comment: Free Cash Flow to Equity (FCFE) and its present value (PV) are forecasted for the years 2024 to 2028 in the table. It is anticipated that FCFE will increase dramatically between 2024 and 2028, from BDT 596.94 crores to BDT 1347.55 crores. These cash flows' present value

risers as well, indicating promising future results. Using the P/E ratio for the last five years, the terminal value is estimated to be BDT 31,344.04 crores in 2028, with a present value of BDT 17,095.33 crores. With a total present value of BDT 20,233.53 crores for future cash flows and terminal value, there is a significant expectation of growth and value.

□ **Valuation:**

dev. By No of Shares (in crore BDT)	3.15
Intrinsic Value based on P/E Ratio	4496.10
Current Price (20/09/24)	2259.30
Required Return	12.89%
Last 5 Years Marico P/E	15.00

Technical Analysis

The Marico Bangladesh Limited technical analysis shows a one-year price chart with a clear downward trend, which goes against our positive fundamental view. The chart shows big sell-offs with sharp drops in prices, especially in the last few months. The Relative Strength Index (RSI), which is a momentum oscillator, shows that the stock is heavily oversold with a value of 16. This adds to the bearish mood. This very low RSI value often comes before price corrections that go up, especially when prices start to deviate from their underlying values. This extreme value suggests that the price may turn around or stabilize.



BSRM STEEL

Company Overview

BSRM Steel is one of the well-known steel manufacturing industries situated in Bangladesh. The company has its operational base in Bangladesh, and it is listed under the Dhaka stock exchange that has a market capitalization of 245. Twelve billion of Bangladeshi Taka (BDT).

Business Description: The business of BSRM Steel is mainly based on manufacturing and selling structure steel, rebars and wire rods. These products are very much useful in the construction of buildings and other infrastructural structures as well as in other industrial projects.

BSRM STEEL	
Company Overview	
Market Capitalization (BDT)	24512103000
Shareholders Equity (BDT)	76899120000
P/E Ratio TTM	5.28
Price to Sales TTM	0.29
Price to Cash Flow MRQ	2.26
Price to Free Cash Flow TTM	-2.66
Price to Book MRQ	0.82
Price to Tangible Book MRQ	0.82
Revenue/Share TTM	222.52
Basic EPS ANN	7.92
Diluted EPS ANN	7.92
Book Value/Share MRQ	78.26
Tangible Book Value/Share MRQ	78.14
Cash/Share MRQ	15.55
Cash Flow/Share TTM	9.16
5 Year EPS Growth 5YA	10.59%
5 Year Sales Growth 5YA	11.85%
5 Year Capital Spending Growth 5YA	33.30%

Valuation Ratios:

As of Date, BSRM Steel's valuation ratios provide insights into its financial performance:

P/E Ratio (TTM): 5.28, indicating that investors are willing to pay 5.28 times the company's earnings.

Price-to-Sales (TTM): 0.29, suggesting that investors are paying 0.29 times the company's annual sales.

Price-to-Book (MRQ): 0.82, indicating that the stock is trading at a discount to its book value.

Market Capitalization:

The market capitalization of BSRM Steel is quite significantly large being 245. 12 billion BDT makes it one of the leading firms in the Bangladesh steel industry. Large market cap means have earned the confidence of investors and that it has the potential to increase in the future.

Other Key Metrics:

Shareholders Equity: 76.89 billion BDT

Revenue/Share: 222.52 BDT

Basic EPS: 7.92 BDT

Cash/Share: 15.55 BDT

Financial Performance:

Return on Assets (ROA): 4.20%

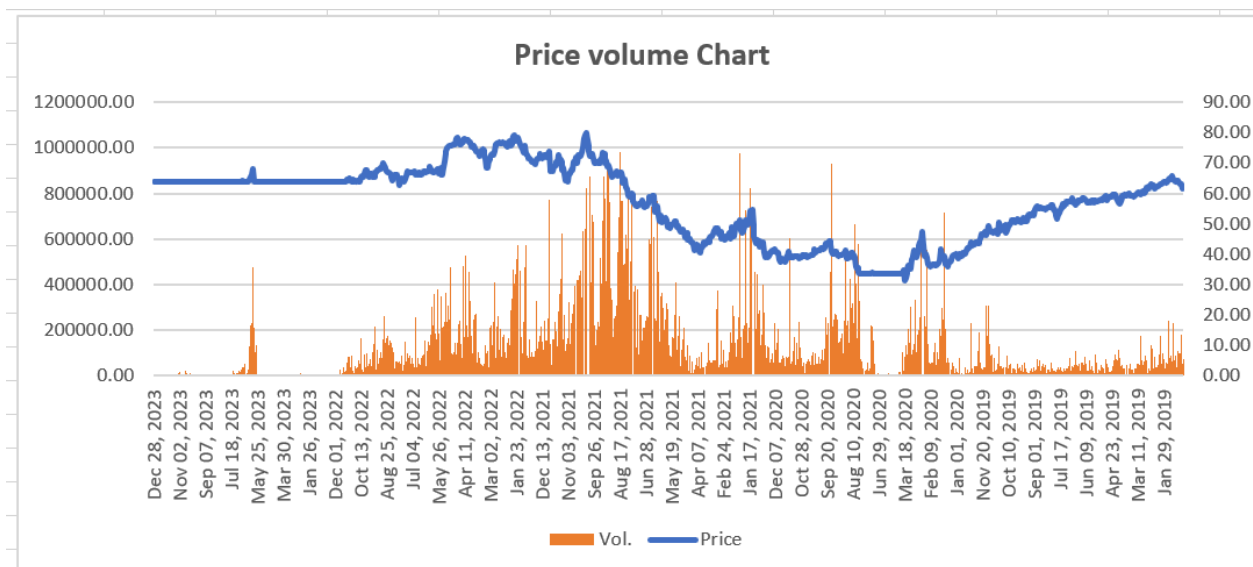
BSRM Steel demonstrates it yields 4.20% profit for every dollar allocated to assets. A better ROA reflects resource optimization and comes to profitability.

Return on Equity (ROE): 10.36%

This calculates the earnings outcome concerning the capital investment of its backers. With an ROE of 10.36%, investors of BSRM Steel are experiencing solid profit.

In general, BSRM Steel can be suggested to be a first-generation organization, which started its activity in the context of the Bangladeshi steel market. The sound performance as reflected by its financial performance and high market capitalization put it in a vantage position that is likely to reap big in the future.

Analyzing BSRM Steel's Volatility Based on the Price Volume Chart



Observations from the chart:

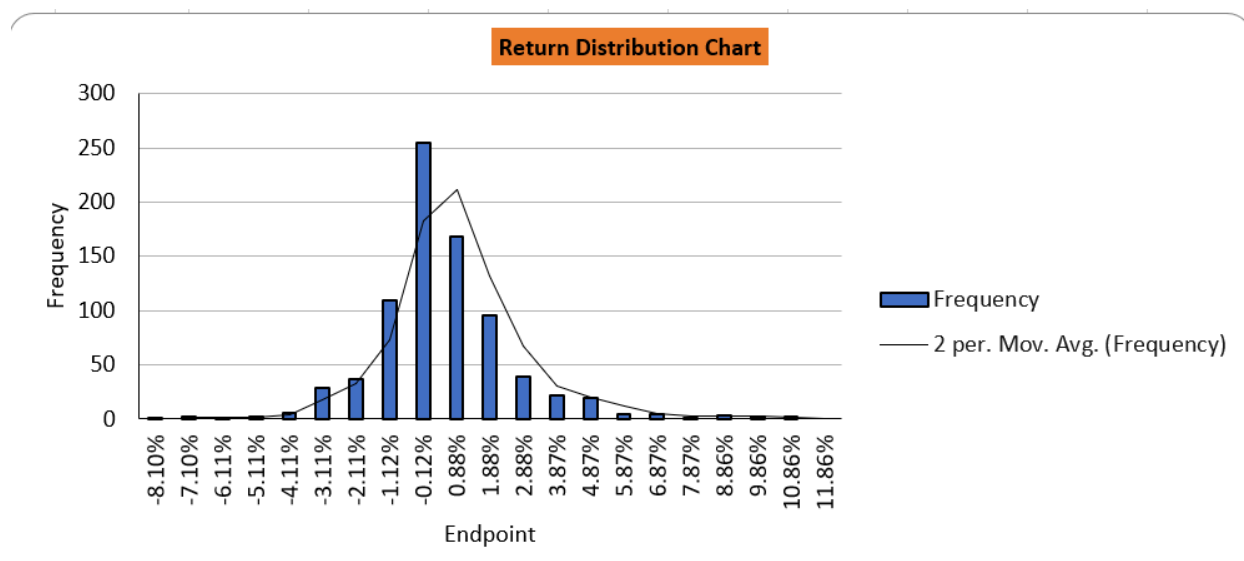
- **Volatility:** From the chart, it is evident that the price has had high volatility over the last 5 years which makes the stock to be relatively risky. There are time intervals, which show high volatility and therefore stock price may have large fluctuations, this depends on the investor's behavior and market circumstances.
- **Volume:** The trading volume could be seen to be having a positive, yet an intimate relationship with the price volatility. More fluctuations in price are observed at certain time intervals, which could be seen as proof of active trading, and investors' reactions to the movements on the stock.
- **Trend:** It is quite obvious that there is slightly upward movement on the whole in the 5-year period although there have been some fluctuations in the upwards and downwards direction. However, this has not always been the case with the industry experiencing a string of low growth periods.

Overall Assessment:

From the price volume chart, one can assume that BSRM Steel's stock is not totally stable, it is rather volatile. The price of the goods and services of the company could experience sharp swings up or downwards and hence investors need to understand their capacity to handle risk while engaging in the investment with the company. Such co-variation between the price fluctuation and trading volume gives an indication that the attitude of investors in the stock market has significant influence on the price of the stock.

Though the price volume chart helps to know the volatility of BSRM Steel it is pertinent on the part of the investor to perform a fundamental analysis of the company and market environment.

Analyzing BSRM Steel's Return Distribution



Key Observations from the Chart:

- **Skewness (1.024):** The positive value of skewness which is 0.62 reveals that the frequency distribution has a long tail towards the right side. This means that any return that BSRM Steel is likely to record will have a wider positive deviation (upside gain) than negative deviation (downside losses).
- **Kurtosis (4.86):** From the above analysis of the result, kurtosis stands at 4.39 affirming that the distribution of data has fatter tails than a normal distribution. This suggests that BSRM Steel has higher variability of returns vis-à-vis a normal distribution stock and therefore is exposed to huge swings (both on the upside and downside).

Overall Assessment:

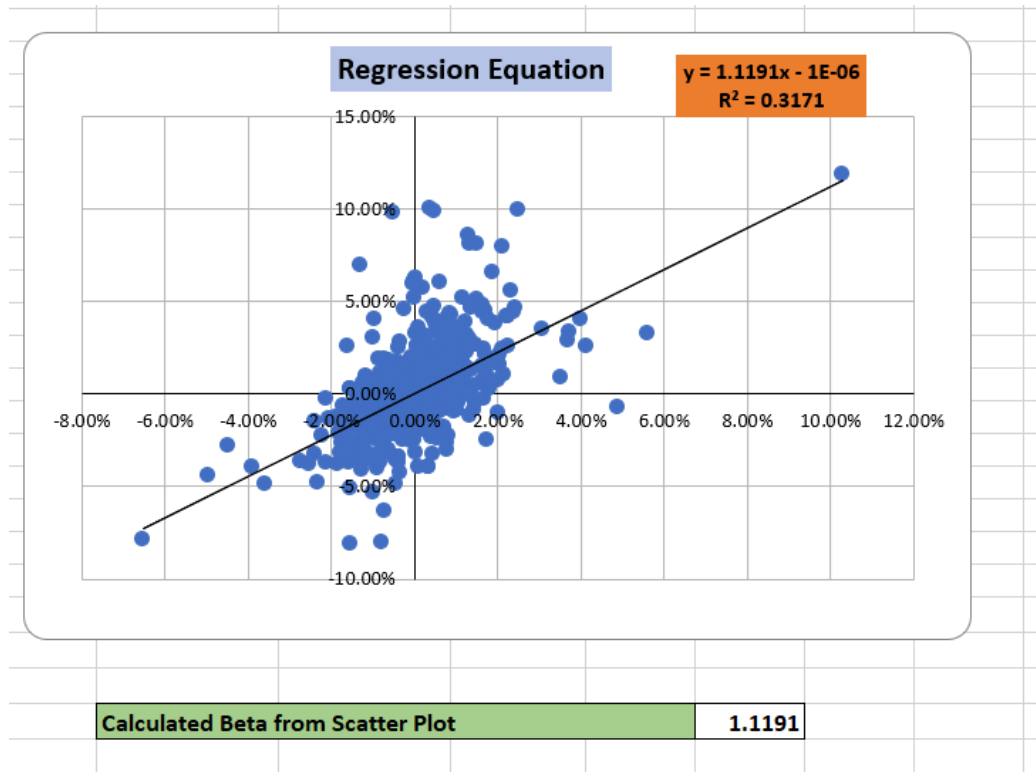
The return distribution of BSRM Steel exhibits characteristics of a **right-skewed leptokurtic distribution**. This means that the stock is more likely to experience large positive returns (upside potential) but also carries a higher risk of extreme negative returns (downside risk).

Implications for Investors:

- **Asymmetric Risk:** BSRM Steel possesses an asymmetric risk profile which the investors have to understand. As with any stock, owning the stock fund has the prospects of both making a large amount of money or losing a lot of money.
- **Risk Tolerance:** Consequently, if they are ok with such kind of risk and returns, then BSRM Steel can be deemed right for the investor's portfolio. But for those with a lower risk-taking ability they should consider going for the other investments.
- **Diversification:** They may wish to diversify with other securities which would provide them with other kinds of return since the return distribution of BSRM Steel is skewed and

leptokurtic.

Analyzing BSRM Steel's Beta & Regression



Beta Interpretation:

A beta of 1.1191 indicates that BSRM Steel's stock price is expected to move 1.1191 times as much as the overall market (DSEX) over a given period. In other words, it's slightly more volatile than the market average.

Risk Comparison: BSRM STEEL's standard deviation (0.0210821) is higher than the DSEX Market's standard deviation (0.010608709). This suggests that BSRM STEEL is indeed more volatile than the overall market.

	DSEX Market	BSRM STEEL
Risk	0.010608709	0.0210821
Expected Return	0.02%	0.03%

While a beta of 1.1191 suggests that BSRM Steel's stock is slightly more volatile than the market, it's important to consider the factors mentioned above to determine if this beta is appropriate. If the company's business model, financial strength, and market conditions align with the observed beta, it suggests that the calculated beta is a reasonable representation of the

stock's risk.

Fundamental Analysis of BSRM STEEL

Valuation Analysis:

BSRM STEEL				Ev/ebitda			
	PE	P/S	P/B	Revenue growth	ROA	ROE	
BSRM STEEL	4.82			11.85%	4.20%	10.36%	
GPH Ispat	10.93			42.50%	4.06%	10.02%	
Ratanpur Steel Re-Rolling Mills	-5.3			-23%	6.63%	8.60%	
S. Alam Cold Rolled Steels	89.5			9.29%	2.62%	3.41%	
S S Steel	86.98			-33%	5.88%	8.38%	
Appollo Ispat Complex Ltd	-33.83			-5.28%	4.83%	6.37%	
Dominage Steel Building Systems Ltd	-36.3			-10.75%	3.92%	5.13%	
Industry	16.6857			-1.19%	4.59%	7.47%	
Industry PE	16.6857						
Company EPS	7.92						
BSRM STEEL Intrinsic value	132.151				56.94%		
BSRM STEEL stock Price 28th September	56.9						
The company is trading at a 56.94% discount to fair value, so we should buy							

Market Multiplier Model:

The market multiplier model measures an organization's actual worth by examining its revenues and relevant industry ratios. For this scenario, we employ the market multiple of the Price-to-Earnings (P/E) ratio.

The P/E ratio shows what investors value as the amount of each dollar of a company's earnings. When the P/E ratio rises it usually means investors believe the company should expand its earnings more quickly in the future.

Calculation:

- **Intrinsic Value = EPS * Industry P/E**
- **Intrinsic Value = 7.92 * 16.6857**
- **Intrinsic Value ≈ 132.151**

Discount to Fair Value:

- **Discount = (Intrinsic Value - Stock Price) / Intrinsic Value**
- **Discount = (132.151 - 56.9) / 132.151**
- **Discount ≈ 56.94%**

Interpretation:

According to the market multiplier model BSRM STEEL seems considerably low in value. Its actual worth of 132.151 surpasses the existing market value of 56.9. There is a clear indication that the stock is selling at a reduction of around 56.94% compared to its real value.

Technical Analysis of BSRM STEEL



According to the chart shared here, BSRM STEEL is exhibiting a sideways pattern. There has been a stable trend in the prices without any discernible direction upwards or down. The indicators at 57.50 and 66.00 are operating as limits for the trend.

Volume levels have consistently been steady with some bursts occurring throughout periods of price change. A typical link exists between price and volume with greater volume rising along with significant price changes.

Currently, the 50-day and 200-day moving averages are close to each other suggesting no discernible trend. An RSI score of around 50 points to an impartial atmosphere.

The indicators suggest that BSRM STEEL is undecided and lacks a visible trend. A surpassing of 66.00 or a decrease under 57.50 may show a reversal in course.

Assessing BSRM Steel as an Investment

BSRM Steel's key characteristics:

- **Volatility:** The stock exhibits significant price fluctuations, indicating higher risk.

- **Return Distribution:** The distribution is positively skewed and leptokurtic, which means that they have potential for large gains together with high risks of losses in the extreme.
- **Beta:** It has been stated that a beta has a value of 1.1191 can be regarded as somewhat above the average in terms of the volatility that is expected for this market.
- **Risk:** Based on the standard deviation rate, the risk level for the company under consideration is higher than the overall market index.

Investment Decision:

Given the information available, I would approach BSRM Steel with caution.

here are several reasons why I might consider avoiding BSRM Steel as an investment:

1. **High Volatility:** The volatility which is shown by the fluctuating stock price suggests that the stock possesses a relatively high risk. This is something that can be very uncomfortable especially for investors such as I who like fixed securities.
2. **Skewed Return Distribution:** They also show that the return distribution is right-skewed and leptokurtic, indicating that extreme returns are more probable than in the normal distribution. This means that it has the capability of reaping big profits, but at the same time the investor is exposed to higher chances of making big losses.
3. **Beta:** a value of 1. Here the beta value 1.1191 suggests that the price fluctuation of the stock of BSRM Steel is slightly above the benchmark value of the market indicating high volatility. This means that it is highly probable that it will fluctuate more, either upwards or downwards than the index does.
4. **Higher Risk:** It also reveals that the risk level of this company is slightly above the overall risk of the market as measured by standard deviation. This implies that resource owners particularly the investors might be exposed to certain risks and probabilities of loss.
5. **Individual Risk Tolerance:** Since, I am risk-averse investor since I prefer investments with low risks, BSRM Steel may not be the appropriate security for me.

While BSRM Steel offers the potential for significant gains, the high volatility, skewed return distribution, and industry-specific risks make it a relatively risky investment.

Square Pharmaceuticals PLC

Company Summary

Square Pharmaceuticals is one of the largest pharmaceutical companies in Bangladesh. It was established in 1958(Square Pharmaceuticals PLC, n.d) The company has evolved from a local pharmaceutical company to a diversified group. This company has a strong presence both in

domestic and international markets. Square Pharma specializes in manufacturing and marketing medicines and healthcare products across various therapeutic categories including antibiotics, cardiovascular drugs, anti-diabetics, and more. It is also recognized for its ethical practices and commitment to high-quality healthcare solutions. The company exports its products to over 50 countries. Over the years it has also extended its product line.

Products:

Square Pharmaceuticals Ltd. offers a comprehensive range of products across multiple therapeutic areas. These include cardiovascular drugs such as beta-blockers, ACE inhibitors, and calcium channel blockers; a variety of antibiotics like penicillins and cephalosporins; and antidiabetic medications including oral hypoglycemics and insulin formulations. The company also provides a wide array of pain management solutions with non-steroidal anti-inflammatory drugs (NSAIDs) and analgesics, dermatological products such as creams, ointments, and topical treatments (Square Pharma products, n.d). Additionally, it caters to the over-the-counter (OTC) market with vitamins, nutritional supplements, and other healthcare products. This diverse portfolio enables Square Pharmaceuticals to meet the evolving needs of both local and international markets.

Key Financial metrics:

Square Pharmaceuticals Ltd. is a dominant player on the Dhaka Stock Exchange with a market capitalization of approximately USD 1.6 billion (around 175,000 million BDT, subject to currency fluctuations). The company boasts a healthy financial profile, with a price-to-earnings (P/E) ratio of around 17x and earnings per share (EPS) of BDT 15.25. It has consistently delivered strong returns, reflected in a return on equity (ROE) of 21.5%, and provides a dividend yield of 3.2% (Square Pharmaceuticals Ltd. Financials, n.d). These financial metrics underscore the company's solid profitability and its capacity to generate shareholder value, making it an attractive investment in the pharmaceutical sector.

Square Pharmaceuticals Ltd. leads the Bangladeshi pharmaceutical market with an 18% share, supported by a strong local distribution network and an expanding global presence. Its focus on highly regulated markets like the US, UK, and Europe, backed by approvals from international

regulatory bodies such as the US FDA and UK MHRA, boosts its competitiveness. Vertical integration into active pharmaceutical ingredient (API) production and ongoing innovation in R&D further strengthens its market position domestically and abroad.

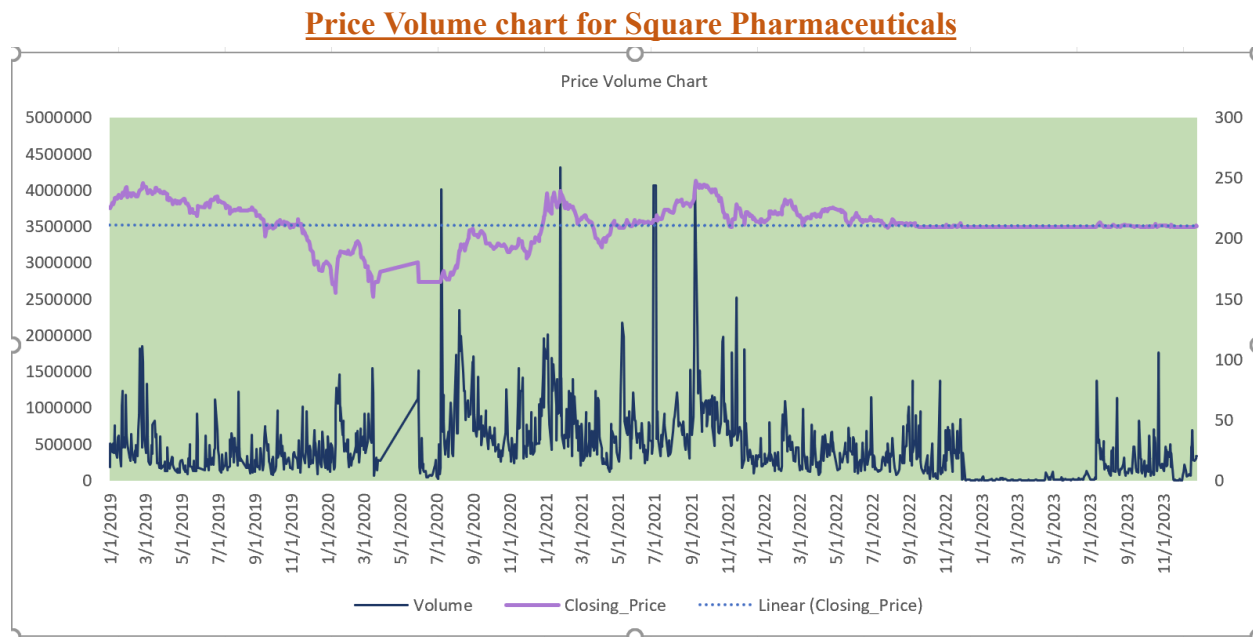


Figure 1: Price Volume chart

Figure 1 shows the price and volume movements of Square Pharmaceuticals PLC from the year 2019 to 2023. During late 2019 and throughout 2020 stock prices declined and it is likely due to Covid-19. Prices fluctuate from 150 BDT to 250 BDT throughout the observed period. This also shows stabilization by the year of 2023.

While there was some volatility in trading volumes, a notable spike occurred in 2021, coinciding with a price recovery after the earlier decline. For the rest of the period, from 2019 to 2022 onward, trading volumes generally remained below 2.5 million shares, with occasional fluctuations.

Return Distribution Chart of Square Pharmaceuticals

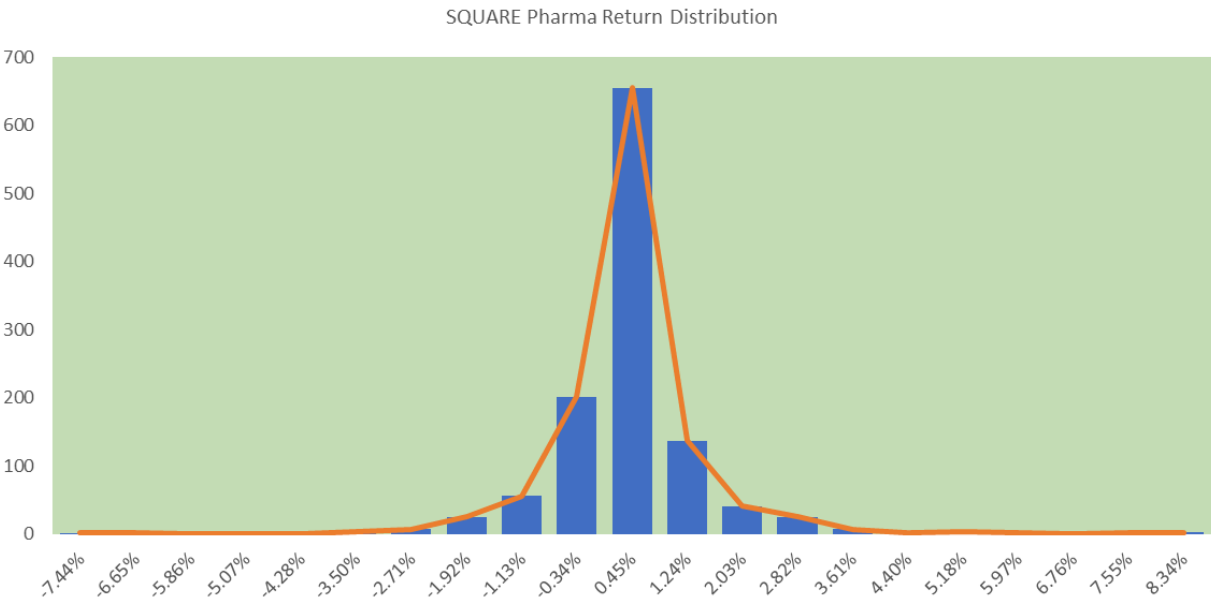


Figure 2: Return Distribution Chart

Max	8.34%
Min	-7.44%
Range	15.78%
No of bins	20
Skewness	0.7947817
Kurtosis	15.0964

Table 1: Values for return Distribution Chart

The return distribution of Square Pharmaceuticals PLC, as shown in Figure 2, has a maximum return of 8.34% and a minimum return of -7.44%. Most returns between 2019 and 2023 fall between -0.34% to 1.24%. The dataset reveals significant extreme outliers and peaks, with a

kurtosis of 15.10, indicating much heavier tails and greater peaks compared to a normal distribution. Additionally, the distribution has a skewness of approximately 0.75, suggesting moderate positive skewness and indicating that returns are skewed towards higher values.

The return distribution of Square Pharmaceuticals Ltd. exhibits a positive skewness of 0.7948, indicating that the returns are slightly skewed to the right, with more frequent small positive returns and occasional larger positive outliers. The high kurtosis value of 15.0964 suggests a leptokurtic distribution, characterized by a sharper peak and heavier tails than a normal distribution. This implies that the stock experiences more extreme price movements than usual, indicating both the potential for occasional large gains and an increased risk of large losses.

Beta Calculation



Figure:3 Beta calculation of Square Pharmaceuticals PLC

The calculated beta for Square Pharmaceuticals Ltd. is 0.7909. This value represents the stock's sensitivity to movements in the DSEX index, with a beta of less than 1 indicating that the stock is less volatile than the market index. Specifically, a beta of 0.7909 suggests that Square Pharmaceuticals' returns are expected to move approximately 79% as much as the DSEX index.

Given this beta value, the stock is relatively stable compared to the broader market, implying lower risk. This can be appropriate for investors seeking lower volatility within the

pharmaceutical sector, which tends to be less sensitive to market fluctuations compared to more cyclical industries. However, the lower beta also means that while the stock may experience less dramatic swings in price, it may also provide lower returns compared to higher beta stocks in more volatile sectors.

However, the R-squared value of 0.41 for the linear regression indicates that only 41% of the variance in Square Pharmaceuticals' returns can be explained by the model using the DSEX index as the benchmark. This suggests that the linear relationship between the company's returns and the index is only moderately strong, and a substantial 59% of the variance in the stock's returns remains unexplained by this model. Consequently, there are other factors influencing Square Pharmaceuticals' returns that are not accounted for by the index movements alone, highlighting the presence of additional risks or influences affecting the stock's performance beyond the general market trends.

Should I Invest in This Company or Not?

Deciding to invest in Square Pharmaceuticals Ltd. involves assessing various factors. The company's beta of 0.7909 suggests lower volatility than the DSEX index, offering relative stability that may suit risk-averse investors. However, with an R-squared value of 0.41, only 41% of the stock's return variance is explained by market movements, indicating significant influence from other factors. The return distribution displays volatility and potential for extreme returns, as indicated by high kurtosis. Despite its strong market position and expanding international presence, the unexplained return variability and potential for significant price swings may be a concern. If I seek stability with moderate volatility, Square Pharmaceuticals could be a suitable investment, but consulting a financial advisor to match my investment goals and risk tolerance is recommended.

LafargeHolcim Bangladesh

Valuation Criteria: FCFE

As a leading player in the cement industry, we believe LafargeHolcim Bangladesh (LHBL) has the potential to deliver substantial cash dividends in the future. To capture this value, we've employed the **Free Cash Flow to Equity (FCFE) model** for an accurate valuation.

FCFE Calculation:

We derived the FCFE by using the formula:

$$\text{FCFE} = \text{Cash from Operations} - \text{Capex} + \text{Net Borrowing}$$

Growth Assumptions:

We observed a stable growth trajectory for LHBL starting in 2022, leading us to calculate an average **FCFE growth rate of 21.39%**, based on data from 2022 and 2023. This growth rate has been used to forecast the company's performance over the next five years, till 2028.

Discount Rate & Valuation:

To value the stock, we applied an **18% discount rate** along with an industry **P/E average of 15** to calculate the terminal value. From this, we derived an intrinsic value of **BDT 170.515** per share.

Current Market Price & Recommendation:

As of September 21, 2024, LHBL's market price was **BDT 64.60**, suggesting the stock is trading at a significant **62% discount** to its intrinsic value. Given this substantial undervaluation, we recommend a **buy** for investors looking to capitalize on future growth and potential high cash returns.

In summary, LHBL offers a promising investment opportunity, with the potential for significant upside based on its current price and future cash flow prospects.

	Forecast Year	FCFE	PV	*Millions BDT
1	2024	9113.18	7723.034	
2	2025	11062.25	11062.25	
3	2026	13428.17	13428.17	
4	2027	16300.1	16300.1	
5	2028	19786.26	19786.26	
Terminal value using last 5 years PE Average				
5	2028	296794	129731.4	
	Total		198031.2	
Divided by	Total shares		1161.37	
	Intrinsic value		170.5152	
Market Price	Sep21, 2024		64.6	
		Undervalued By		
			62%	

Technical Analysis



Based on the technical chart from **TradingView.com**, our fundamental analysis is strongly validated by the stock's recent price movement. The technical indicators further affirm our view of **undervaluation**, indicating that the market may not have fully appreciated the stock's intrinsic value yet.

With both technical analysis and the **Free Cash Flow to Equity** model pointing in the same direction, **LafargeHolcim Bangladesh (LHBL)** offers a compelling opportunity for **long-term investors**. The stock presents a solid potential for significant **capital growth** in the coming years, making it an attractive investment option.

Company and Ratio Analysis

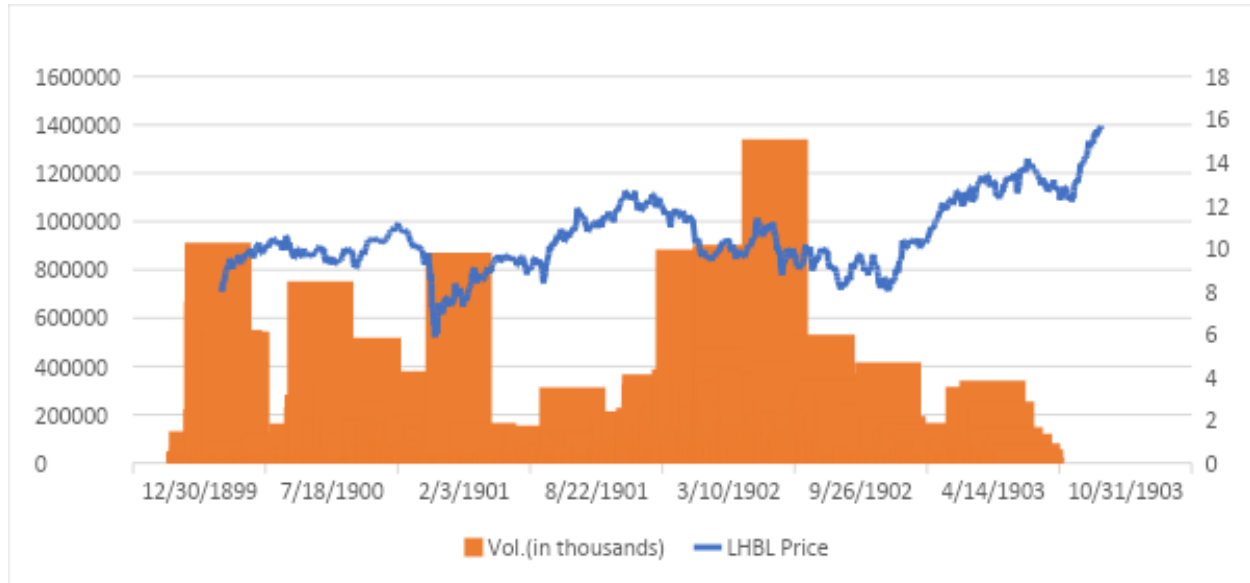
LafargeHolcim Bangladesh Limited (LHBL) stands out as a major player in Bangladesh's cement industry, distinguished by its fully integrated operations and broad product range. As a joint venture between LafargeHolcim and Cementos Molins, LHBL operates the only fully integrated cement manufacturing and grinding facilities in the country. This vertical integration allows LHBL to produce key components like clinker, essential for cement production, providing the

company with a significant competitive edge. LHBL's product lineup includes cement, clinker, and clear-sized aggregates, showcasing its diverse offerings in the construction sector.

In terms of financial performance, LHBL has shown impressive growth. The company's Return on Assets (ROA) increased from 8.9% in 2019 to 24.9% in 2022, reflecting its efficient use of assets. Similarly, its Return on Equity (ROE) rose substantially from 14.1% in 2019 to 40.6% in 2022, highlighting strong returns for its shareholders. LHBL's leverage metrics further underscore its conservative financial approach. The Debt-Assets ratio has been very low, at just 0.4% in 2019, 0.2% in 2020, and 0.1% in 2021, and slightly increased to 2.6% in 2022, indicating minimal reliance on debt. The Debt-Equity ratio similarly reflects this cautious approach, ranging from 0.6% in 2019, 0.3% in 2020, and 0.2% in 2021, with a modest rise to 4.2 in 2022.

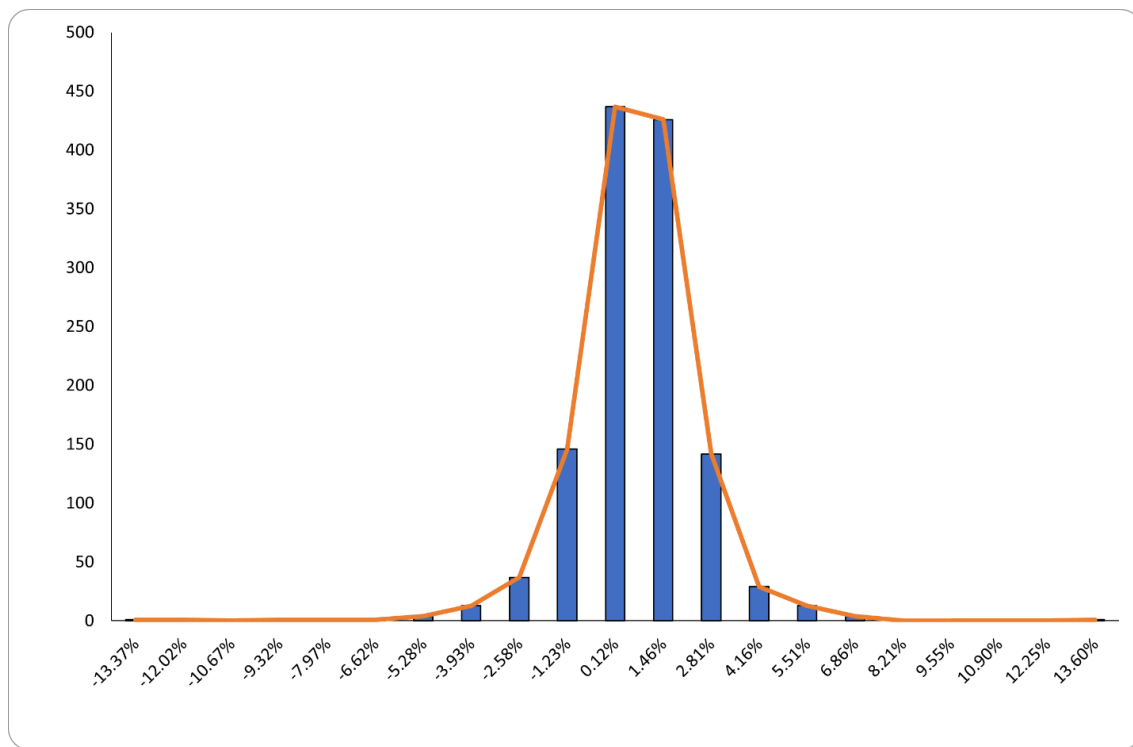
With a market capitalization of 76,302.2 million BDT, LHBL holds a significant position in the Bangladesh stock market. Its robust financial performance, conservative leverage, and strategic market presence make it an attractive investment option, emphasizing its importance in the country's construction sector

Price volume Chat



The stock analyzed in the provided chart exhibits a moderate level of volatility. Price fluctuations are significant, and trading volume often correlates with heightened volatility. Factors contributing to volatility include market sentiment, economic conditions, company-specific news, and industry trends. Investors should be aware of the stock's volatility and consider additional factors for a more comprehensive understanding of its potential risks and rewards.

Return Distribution



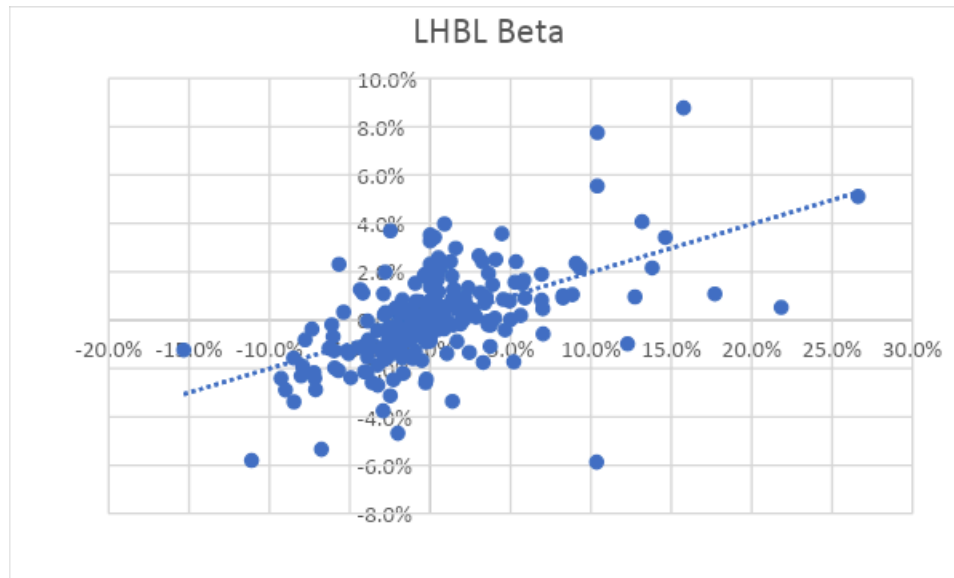
When looking at financial data, it's important to understand how returns are spread out to assess risk and performance. Two key measures that help with this are skewness and kurtosis.

Here skewness shows if the return distribution is lopsided. A negative skewness, like -0.576 in this case, means the distribution leans towards the left, with more frequent or severe losses compared to gains. So, there's a higher chance of experiencing significant losses.

kurtosis measures the "heaviness" of the tails in the distribution. A high kurtosis of 9.64 means the returns have more extreme highs and lows than a normal distribution. Most returns are close to the average, but there are occasional very high or very low returns, indicating high volatility.

On the other hand, the company's returns are often negative and can vary a lot. This suggests a higher risk of big losses and the possibility of big gains, so careful risk management is needed

Beta Calculation



The stock's beta is 1.5102, which means it is 51.02% more volatile than the market. If the market goes up or down by 1%, the stock's return is likely to change by about 1.51% in the same direction. This high beta suggests the stock is riskier but may offer higher returns, appealing to investors who are willing to take on more risk.

The regression equation shows a positive relationship between the stock's returns and the market's returns. However, the equation also shows that the stock's performance is only slightly affected by factors outside of the market's movements.

The R-squared value of 0.3007 means that about 30% of the stock's return can be explained by market returns, while the remaining 70% is due to other factors such as industry news, company performance, or broader economic conditions.

Overall, this stock is quite volatile and carries a higher risk than the average market investment. It could provide greater returns during market upswings but is also more susceptible to losses during downturns. The stock's performance is only partly influenced by market movements,

suggesting it has its own unique risks. This stock may be a good fit for risk-tolerant investors looking for high potential returns but is less suitable for conservative investors.

The beta of 1.5102 for LafargeHolcim Bangladesh, a company in the cement sector listed on the Dhaka Stock Exchange, seems appropriate given the risks associated with both the company and the sector.

The cement industry is generally considered a "cyclical" sector, meaning it tends to rise and fall with the overall economy. When the economy is doing well, demand for cement increases, but during downturns, demand drops. As a result, companies in this sector, especially in emerging markets like Bangladesh, often have higher betas because they are more sensitive to economic changes.

LafargeHolcim Bangladesh faces additional risks, such as changes in local economic policies, political stability, currency fluctuations, and costs for raw materials and energy, which can make its stock more volatile. A beta of 1.5102 indicates that the stock is 51.02% more volatile than the market, which is in line with what might be expected for a company in this sector and market.

Overall, this beta value makes sense for LafargeHolcim Bangladesh. It reflects the typical risks of the cement sector in an emerging market, suggesting the stock can offer higher potential returns but also comes with higher risk

Overall Recommendation on LFAR

As a risk-taker investor, I'm excited about investing in LafargeHolcim Bangladesh for several reasons. Here's why I think this company is a great fit for my investment strategy:

Beta Value

LafargeHolcim Bangladesh has a beta of 1.5102, which means it's 51.02% more volatile than the market. For me, this high beta is attractive because it suggests that the stock will likely experience larger price swings compared to the market. If the market goes up or down by 1%, I can expect this stock's return to change by about 1.51% in the same direction. This higher

volatility can lead to significant gains if the market performs well, which aligns perfectly with my strategy of seeking high returns.

Limited Influence from Market Movements

I've noticed that only 30% of the stock's returns are explained by market movements. This means that a large part of the stock's performance depends on other factors, such as the company's own performance and industry trends. For me, this is a plus because it indicates that the stock has unique characteristics that can offer additional profit opportunities beyond just general market trends.

Cyclical Cement Sector

LafargeHolcim Bangladesh operates in the cement industry, which is known to be cyclical. This means that the demand for cement rises and falls with the economy. When the economy is doing well, cement demand increases, potentially leading to higher profits for the company. Since I'm comfortable with higher risks, I see the cyclical nature of this sector as an opportunity, especially during economic recoveries.

Risk of Larger Losses and Gains

The stock has a negative skewness of -0.576, meaning it tends to have more frequent or severe losses compared to gains. Additionally, its high kurtosis of 9.64 indicates extreme highs and lows in returns. For me, this high risk is appealing because it means there's potential for big gains. I'm ready to accept the possibility of larger losses in exchange for the chance to achieve higher rewards.

Overall Volatility

The stock shows significant price fluctuations, influenced by factors like market sentiment, economic conditions, and company-specific news. Given my comfort with volatility, this characteristic offers me the chance to leverage market movements and potentially achieve higher returns.

Finally, I would say LafargeHolcim Bangladesh aligns well with my risk-taking investment approach. Its high beta, cyclical sector, and significant volatility offer me the potential for substantial gains. While there's a risk of significant losses, my willingness to handle such risks fits perfectly with the characteristics of this stock. Investing in LafargeHolcim Bangladesh could

be a great addition to my portfolio, providing the potential for high returns while matching my readiness to accept greater risk.

Part-2: Portfolio Analysis

Portfolio Analysis with above 5 companies

Annual Returns and Standard Deviations

Using the daily returns provided in the Excel, we calculated the annualized returns and standard deviations for each of the five companies. The number of trading days is **208**.

	BRAC	LHBL	MARICO	BSRM	SQUARE
Average daily return	0.0009%	0.1727%	0.1336%	0.0632%	0.0996%
Standard deviation of daily return	3.40%	2.70%	1.54%	2.54%	1.83%
Annualized daily return	0.18%	35.92%	27.79%	13.14%	20.72%
Annualized standard deviation	49.00%	38.88%	22.18%	36.61%	26.35%

Variance-Covariance Matrix

VarCovar		BRAC	LHBL	MARICO	BSRM	SQUARE
table 2	BRAC	0.001148975	0.000215255	0.000116569	0.000207546	0.000176989
	LHBL	0.000215255	0.000723382	0.000100511	0.000244199	0.000160396
	MARICO	0.000116569	0.000100511	0.000235342	9.40543E-05	8.72432E-05
	BSRM	0.000207546	0.000244199	9.40543E-05	0.000641268	0.000153
	SQUARE	0.000176989	0.000160396	8.72432E-05	0.000153	0.000332176

The variance-covariance matrix is a key component in portfolio analysis:

- **Purpose:** It assesses the interactions of various asset returns by revealing their collective or individual movements.
- **Structure:** The diagonal entries signify asset variability and the off-diagonal measurements reveal asset relationships.
- **Interpretation:**
 - **Positive covariance:** Assets usually advance together.
 - **Negative covariance:** Assets usually proceed in different paths.
 - **Zero covariance:** Assets move independently

Analysis of the given matrix:

- BRAC exhibits the greatest level of fluctuation (0.00149975), demonstrating that it is the most unstable single asset.
- The lowest variance for SQUARE shows it to be the least unstable.
- Most correlations among assets are positive and quite low.
- MARICO and BSRM's covariance stand out as low (9.4054E-05) indicating possible advantages in combining their values.

Portfolio Simulation

	Portfolio risk	Portfolio return
	22.00%	18.33%
1	20.83%	20.19%
2	24.49%	20.31%
3	21.74%	17.29%
4	24.77%	18.72%
5	27.66%	12.63%
6	27.54%	16.32%
7	24.66%	23.09%
8	24.06%	17.50%
9	26.01%	13.36%
10	27.68%	19.74%
11	27.44%	18.73%
12	21.27%	18.86%
13	23.99%	18.52%
14	20.26%	20.96%
15	25.95%	20.58%
16	23.79%	18.22%
17	22.85%	17.24%
18	24.41%	14.72%
19	25.79%	17.22%
20	21.50%	18.58%
21	21.38%	23.44%

The portfolio simulation process involves:

1. **Random Weight Generation:** Accordingly, 10 thousand individual random weights were produced ensuring a total of 100% for each portfolio.
2. **Return Calculation:** Portfolios return value is the total expected return calculated from each asset's weight.
3. **Risk Calculation:** The difference in prices between assets determines the portfolio variance as the product of its weights and variances. Standard deviation is determined from the square root of variance.

4. **Data Point Creation:** Individual portfolios turn into marks on the risk-return chart.

Significance:

- Investigates a multitude of portfolio options.
- Illustrates the risk-return qualities of various portfolios.
- Allows for the discovery of the Ideal Frontiers and the finest portfolios.

Efficient Frontier



The Efficient Frontier defines a collection of best portfolios that achieve maximal expected gains with a certain level of risk or minimal risk for certain expected returns.

Key observations:

- **Shape:** A curved shape of the frontier shows how risk and return are related differently in diverse portfolios.
- **Range:** The area includes figures ranging from 15% to 30% in expected profits and from 18% to 22% in standard deviation.
- **Density:** In this region of the curve the most efficient portfolios are located at a higher density.
- **Tangency Line:** When the frontier and the risk-free rate (R_f) are tangent to each other the optimal portfolio for risk-adjusted returns can be found.

Minimum Variance and Optimum Portfolios

Minimum Variance Portfolio:

		BRAC	LHBL	MARICO	BSRM	SQUARE	
Minimum Variance							
Weight		2.14%	5.97%	54.41%	8.66%	28.83%	100.00%
Portfolio Return		24.38%					
Portfolio Risk		18.79%					
Sharpe Ratio		0.68					

- **Composition:** BRAC (2.14%), LHBL (5.97%), MARICO (54.41%), BSRM (8.66%), SQUARE (28.83%)
- **Characteristics:**
 - Return: 24.38%
 - Risk: 18.79%
 - Sharpe Ratio: 0.68
- **Analysis:** Only this portfolio contains the least volatility of any alternatives. MARICO and SQUARE carry a strong weight in the portfolio rooted in their small volatility and advantageous connections with the rest of the securities.

Optimal Portfolio:

		BRAC	LHBL	MARICO	BSRM	SQUARE	
Optimal Portfolio							
Weight		0.00%	30.64%	69.36%	0.00%	0.00%	100.00%
Portfolio Return		30.28%					
Portfolio Risk		21.58%					
Sharpe Ratio		0.87					

- **Composition:** LHBL (30.64%), MARICO (69.36%)
- **Characteristics:**
 - Return: 30.28%
 - Risk: 21.58%
 - Sharpe Ratio: 0.87
- **Analysis:** With the maximum Sharpe ratio this portfolio gives the best return for risk involved. The portfolio contains only two investments which implies that the benefits from diversifying with other assets are less important than the losses in overall returns.

Diversification Effects

1. **Risk Reduction:** By linking assets together portfolios can be made with reduced risk despite maintaining the same expected return. This is obvious from the shape of the frontiers.
2. **Risk-Return Trade-off:** As we increase risk along the Efficient Frontier we witness a rise in anticipated returns. This demonstrates the essential truth that taking on greater risk might enhance potential returns.
3. **Optimal Diversification:** The Optimal Portfolio reaches the peak Sharpe ratio (0.87), showing the optimal return with risk adjustment. Both LHBL and MARICO are found in the portfolio suggesting that these assets offer the best diversification to increase returns.
4. **Minimum Variance:** All five assets are part of the Minimum Variance Portfolio that reveals how expanded asset counts can lower portfolio risk without necessarily improving returns.
5. **Individual Asset Performance:** In both the Minimum Variance and Optimal Portfolios it holds the highest weight factor as a result of its strong returns and minimal standard deviation.
6. **Efficient vs. Inefficient Portfolios:** Inefficient portfolios are marked by a portion of the chart that yields lower gains with the same risk or involves more risk for the same rewards than those on the frontier.

Conclusion:

This analysis shows how diversification can form portfolios with risk-adjusted returns exceeding those of single investments. Investors can select their best option among different portfolios based on their risk preferences thanks to the Efficient Frontier displaying their optimal choices visually.

The END