Evaluating the Appropriateness of Valuation Models for Emerging Market Firms: A Case Study of Marico Bangladesh.

By

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This Case Study Report is submitted to the Department of Brac Business School in partial fulfillment of the requirements for the degree of
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Declaration

It is hereby declared that

1. The case study report submitted is my own original work while completing degree at BRAC University.
2. The case study 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 case study 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.

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Approval

The Case study Report "**Evaluating the Appropriateness of Valuation Models for Emerging Market Firms: A Case Study of Marico Bangladesh**" submitted by Mukwaya Kasimu (22204288) of Spring 2025 has been accepted as satisfactory in partial fulfillment of the requirement for the degree of Bachelor of Business Administration on 15th May, 2025.

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Abstract

This study assesses the suitability of three traditional equity valuation models, Dividend Discount Model (DDM), Free Cash Flow to Equity (FCFE), and Market Multiples Model (MMM), for emerging market equities by way of a case study of Marico Bangladesh Ltd. Based on a quantitative, case-study research design, it utilizes historical financial data, macroeconomic assumptions, and industry benchmarks. Each model's effectiveness is gauged through sensitivity analysis and its closeness to real-life market prices. The findings of the study reveal that although all the models reflect Marico's share as undervalued, the FCFE approach, especially when combined with P/E multiples, provided the most consistent and reasonable valuation estimates. In contrast, DDM was of limited use because of the arbitrary dividend policies that are a common practice among Dhaka Stock Exchange (DSE)-listed firms. Furthermore, the study highlights the influence of behavioral biases, macroeconomic volatility, and weak corporate governance on the credibility of valuations. These results imply that hybrid valuation models that synthesize both intrinsic and relative approaches are more appropriate for emerging markets. The research enriches a more context-contingent understanding of model selection, deriving applied implications for investors, financial analysts, and regulatory policymakers operating in frontier economies.

Keywords: Equity Valuation; Dividend Discount Model; Free Cash Flow to Equity; Market Multiple Model; Emerging Markets; Dhaka Stock Exchange.

Dedication

This report is lovingly dedicated to my mother, whose unwavering sacrifices, strength, and prayers have been the foundation of my journey. This degree is as much hers as it is mine!

Acknowledgement

I want to express my sincere gratitude to Dr. Sayla Sowat Siddiqui, my supervisor, for her invaluable advice, support, and insightful criticism throughout this research. Her assistance has significantly influenced the quality and direction of this thesis.

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Chapter 1

1.1 Introduction.

Equity valuation presents a simpler yet challenging way for investors to determine the intrinsic value of common stocks, a consideration that holds ownership claims to a company's future cash flows. Valuation is an art that involves both hard data and qualitative judgment; however, valuation becomes immensely tough, particularly in emerging countries, especially when institutional frameworks and market mechanisms of such countries differ from those of the developed economies. This research analyzes three of the most popular approaches to valuation: The Dividend Discount Model (DDM), the Price/Earnings (P/E) ratio, and the Free Cash Flow to Equity (FCFE) model, using the backdrop of the Dhaka Stock Exchange (DSE), where dividend-paying stocks have become increasingly popular with domestic and foreign investors alike. Equity securities are valued primarily based on discounted cash flow or relative value. A fundamental analyst incorporates these techniques, incorporating economic, industry, and company-specific data like macroeconomic indicators, into firm-level items such as earnings quality. However, their applicability in developing markets is quite doubtful because market characteristics like much higher volatility, lesser predictability in dividend policies, and different behavioral patterns of investors disfavor them.

Various studies revealed that there are some limitations in countries concerning the use of this kind of traditional valuation model. It has been stated by several researchers that the investor sentiment (Baker & Wurgler 2006), quality of governance of corporate entities (La Porta et al. 2000), and macroeconomic instability can grossly facilitate the distortion of the results of the valuation. In the specific case of Bangladesh, early evidence suggests that traditional models might not be gaining the whole picture of the relationship between dividend announcements

and price changes (Hossin and Ahmed 2020) and seem to be piercing a hole in the regulatory constraints, as well as market microstructure effects.

1.2 Research Problem.

While standard valuation models like the Dividend Discount Model (DDM), Free Cash Flow to Equity (FCFE), and Market Multiples are commonly applied in developed economies, their effectiveness in emerging economies is questionable owing to structural inefficiencies, irregular dividend policies, and peculiar investor behavior. This raises a pertinent question: which valuation approach best captures a business operating under such conditions' intrinsic value? Taking Marico Bangladesh Ltd. as an example, this study seeks to analyze the effectiveness of commonly utilized valuation models, comparing their predictions to current market conditions and firm fundamentals within a frontier economy framework.

1.3 Research Objectives.

This study has the following four major objectives:

- To assess the applicability of commonly used equity valuation models (DDM, FCFE, and Market Multiples) in valuing a firm operating in an emerging market.
- To find out which model(s) best estimate Marico Bangladesh Ltd.'s intrinsic value compared to its market price.
- To examine how firm-specific characteristics, market inefficiencies, and macroeconomic factors affect model performance.
- To recommend valuation strategies suited to emerging market contexts based on the empirical findings.

1.4 Research questions.

The study brings out four core questions:

- What is the most accurate equity valuation model for estimating Marico Bangladesh Ltd.'s intrinsic value?
- How far do structural features of the Dhaka Stock Exchange, including investor behavior and dividend anomalies, affect the accuracy of different models?
- What role do macroeconomic and firm-specific factors play in shaping the appropriateness of valuation methodologies in emerging markets?
- Would a hybrid methodology for valuation offer a clearer framework for firm level analysis in frontier markets?

Chapter 2.

2.1 Literature Review.

Theoretical Basis of Stock Valuation.

The stock valuation models fall broadly into absolute valuation (discounted cash flow models) and relative valuation (market-based multiples). Among absolute valuations, the Dividend Discount Model (DDM) concept was founded by Gordon (1962), who believed that the intrinsic worth of a share was equivalent to the current worth of all expected future dividends. This model assumed constant dividends for growth and must have been able to accurately estimate the cost of equity (Ke) and the rate of perpetual growth (g). Therefore, owing to sudden interruptions in dividend policies from the company in emerging markets, the validity of applying the DDM may often be questioned (Damodaran, 2012).

The relative way of valuing, the price/earnings (P/E) ratio, compares the stock price of a firm to earnings per share (EPS). The P/E ratio, while popular for its simplicity, provides erroneous signals due to market inefficiency and the selection of relatively comparable firm issues that are likely to be worse in emerging markets (Pinto et al., 2020).

Free cash flow to equity (FCFE) is an alternative stock valuation method in which equity is valued based on residual cash flow after reinvestment needs. Unlike DDM, the FCFE can be applied to firms that do not pay dividends regularly (Brealey et al., 2020). However, estimating future FCFE remains a tough task in agitated macroeconomic environments.

Empirical Evidence on Valuation Models in Emerging Markets.

Existing literature highlights mixed responses with applying conventional models in emerging economies, and:

The Dividend Discount Model (DDM): Stability Versus Volatility

The dividend discount model (DDM) is based on the premise of the stable predictability of dividend payout. This assumption becomes difficult to uphold in the case of inflationary or volatile economies. Tripathi and Aggarwal (2018) argue that, during the high inflation period, the DDM undervalued Indian stocks, with a rough estimate of 15%, which demonstrates its limited response ability towards changing growth expectations in such situations.

The same situations were discussed by Khan (2011) concerning Pakistan, where he concluded that the DDM valuations trend was good for stable and dividend-paying firms, while it provided erratic valuations for stocks in cyclical and volatile sectors. In short, such uncertain valuation becomes thorny because the model depends on payout predictability and earnings stability.

Market-Based Multiples Versus FCFE

The Price-Earnings (P/E) ratio is popular for its simplicity and intuitive appeal. However, its usefulness in emerging markets is very prone to speculative distortions. Da Silva (2017) stated that over-speculation inflates valuations for markets like Brazil, where P/E ratios become detached from fundamental bearings. This was substantiated by Costa et al. (2017), who found speculative bubbles on 20 Brazilian stocks of 27 from 1990 to 2010.

On the other hand, Vermeulen (2017) provided a more refined view from South Africa, according to which stocks on the JSE with low P/E (high earnings yield) delivered better returns while exhibiting low betas, suggesting that this metric works to some extent when considered

in the light of industry or market context. It highlights the need for sector-normalized P/E ratios in turbulent markets to mitigate distortions and enhance predictive validity.

The FCFE model, on the other hand, gains prominence as a more flexible tool for the valuation of those firms with low or erratic dividend-paying policies. Liu and Nissim (2008) showed, among some Chinese firms, that FCFE gave superior valuation results to those growth-oriented firms that reinvest their earnings rather than disburse dividends. In relation to DDM, it was found that FCFE gives a better reflection of the real economic value of the firms by taking into account free cash flows and capital structure interactions.

Unique Challenges to the Dhaka Stock Exchange (DSE)

The prevailing nature of challenges affecting valuation practices in Bangladesh serves only to compound their difficulty further in the case of conventional model applications. Among them are irregular dividend behavior, behavioral biases, macroeconomic instability, and governance vulnerabilities.

According to Hossain et al. (2023), only about 40% of DSE-listed firms make regular dividend payments. This irregularity undermines the basic assumptions applied with DDM. Additionally, political intervention, such as the 2011 order mandating dividend declarations, distorted flow, thereby jeopardizing model reliability.

As outlined in Hasan et al. (2021c), family-owned businesses in Bangladesh predominantly prefer paying dividends sporadically and instead prefer to finance their operations through retained earnings. This strategic decision to reinvest has rendered dividend valuation models inefficient for a large section of the market.

DSE is strongly influenced by investor sentiments and behavioral anomalies. Mobarek (2009) found that herd behavior and weekend effects lead to price fluctuations that do not pertain to fundamental values. Retail investors constitute almost 80% of trading volume- an aspect that exacerbates sentiment-driven volatility, thereby affecting models based on rational price discovery. (Exchange, n.d.).

Inflation and currency considerations are additional headaches. As argued by Hossin and Ahmed (2020b), since macroeconomic conditions are volatile in Bangladesh, stability in corporate earnings is distorted, thereby rendering any forward-looking estimates worthless. Political instability has also played a part in valuation levels. Using 19 important political events from 2005 to 2023, Roy (2023) found persistent mispricing of capital markets during the periods of unrest. Also, Hasan and Islam (2013) found that political instability undermines investor confidence in Bangladesh, thereby negatively impacting stock valuation and violating market efficiency assumptions.

According to the Dividend Signaling Theory, dividends signal management's confidence. However, this does not hold in Bangladesh all the time. Though Bhattacharya (1979) states the theory, the findings in DSE are ambiguous. Hossain and Ali (2012) found positive stock reactions in the banking stocks, but Karim and Ahmed (2018) found negative reactions in the manufacturing sector, partly due to tax disincentives for dividend income.

Moreover, Mamun et al. (2013) reported that the DSE overreacts to dividend announcements by about 12%, indicating investor irrationality in conflict with the semi-strong form of the Efficient Market Hypothesis.

Numerous empirical studies have suggested that while traditional valuation models provide strong conceptual clarity, in the case of developing markets, they should be viewed as requiring contextualization. In these environments, such as the DSE, structural anomalies due to dividend

unpredictability, macro-political shocks, speculative trading, and governance challenges tend to overshadow the applicability of models such as DDM and P/E ratio. Although a model like FCFE would be relatively more adaptable, it too would require customization to the particular behavioral and structural features of the market being analyzed. Therefore, the practice of valuation in emerging markets has to be treated as a hybrid and dynamic affair, in which qualitative assessments of the local ambiance complement quantitative models.

2.2 Research Gap.

Existing research provides elaborate discussion on equity valuation models in developed and broad emerging markets, yet few attempts seem to have been made in critically assessing their applicability within the unique structural setup of the Dhaka Stock Exchange. More particularly, few researchers have considered:

The comparative performance of conventional valuation methods, such as DDM, FCFE, and Market Multiples, on dividend-paying companies listed in the DSE;

The implications of peculiar inefficiencies at the DSE, such as government regulations on dividend policies, dominance of retail investors, and behavioral trading biases on the precision and reliability of these models; and The requirement for a well-defined or context-specific hybrid valuation approach for the Bangladeshi capital markets that considers adjustments in both intrinsic and relative valuation methods to local market volatility, governance, and disclosure constraints.

This study, therefore, addresses these gaps by providing a focused firm-level analysis on the appropriateness of models using Marico Bangladesh Ltd. as a case, and also suggests valuation methodologies that are suitable for frontier market realities.

2.3 Company Analysis: Marico Bangladesh Limited (MBL).

Marico Bangladesh Limited (MBL) is a multinational company that began operations in 2000. The company is regarded as one of India's leading consumer products firms. This innovative organization meets the dynamic needs of consumers by offering a diverse range of products, including skincare, healthy foods, and hair care. Currently, the company's headquarters is located in Mumbai, and it has a global presence in over 25 countries, covering the emerging markets of Asia and Africa. The company's mission is to achieve sustainable growth aimed at positively impacting society through its innovative products.

2.3.1 Ownership Structure.

As per the DSE website, the company's ownership structure is as illustrated in Fig.1 below.

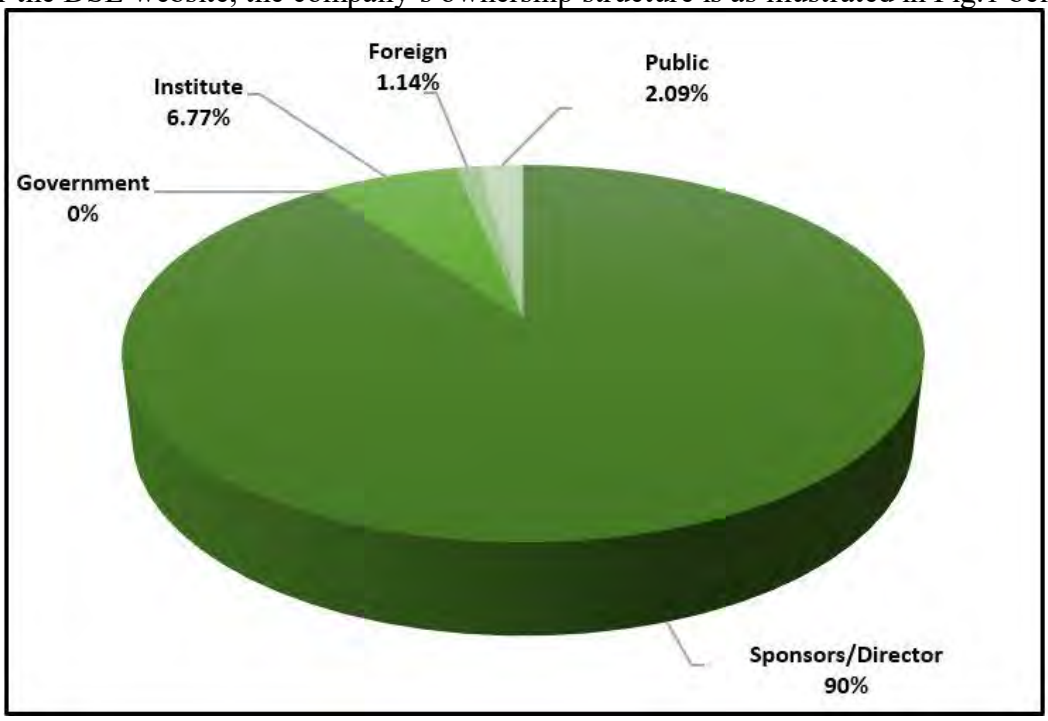

Figure 1. Ownership as of March'25

Here, MBL owns 90% of the total shares issued, with institutional owners controlling the remaining 6.77%. Marico Limited, the parent business, owns the majority of the shares, which account for 90% of Marico Bangladesh Limited's shares. While foreign shareholders own

1.14% and the general public owns 2.09%, in the context of Bangladesh, the government owns 0% of MBL shares.

2.3.2 Company Layout.

Marico's revenue stream comes from beauty and wellness products. As per the annual reports of Marico's 2024, Fig.2. shows the different market segments. The largest contributor of Marico's revenue is Parachute Coconut Oil (59.16%), which indicates that Marico dominates the coconut oil segment mostly compared to the other segments. Moreover, VAHO is considered to be the second largest segment (29.17%), which implies that Marico relies on its broader hair care offerings, beyond just Parachute Coconut Oil.

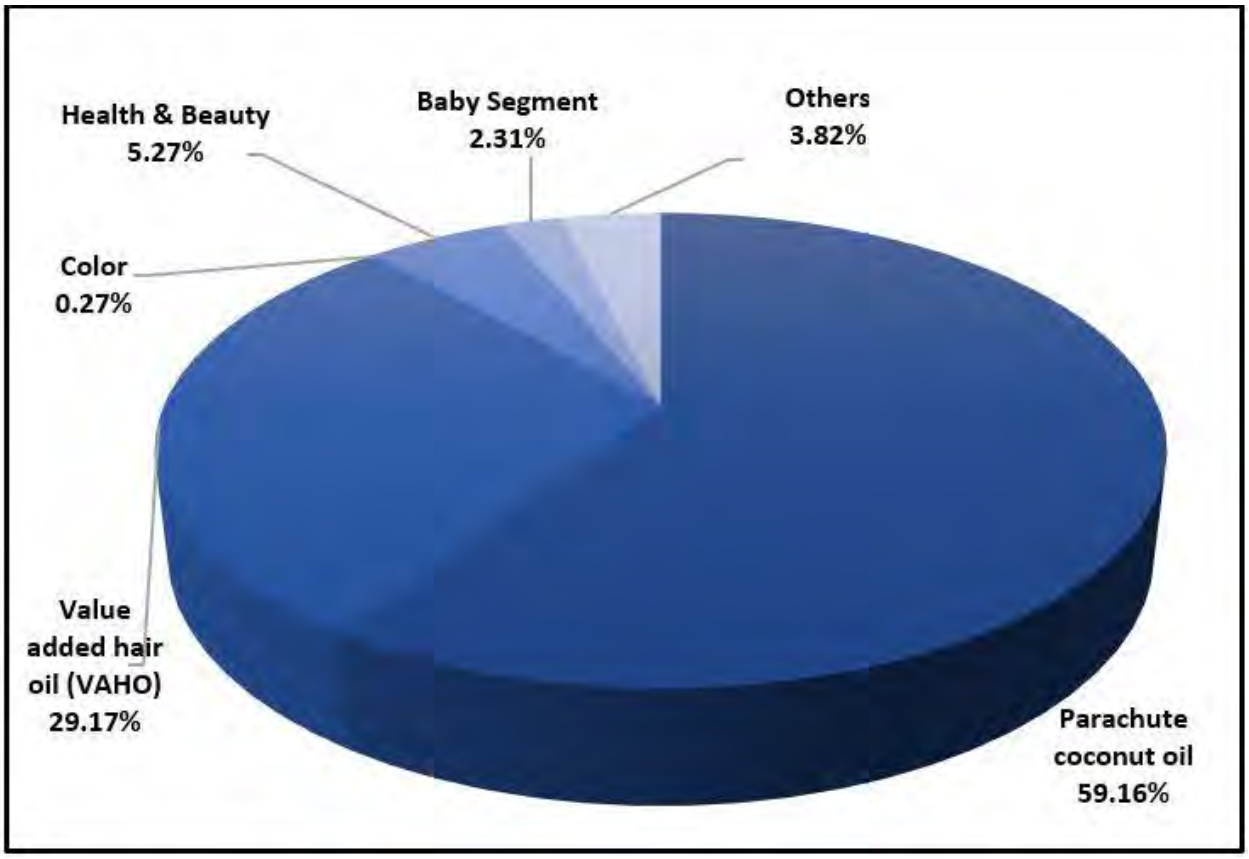

Figure 2. Revenue Contribution by Products

Apart from this, moderate revenue is generated from the Health & Beauty (5.27%) segment and Baby segment (2.31%) which relies that the company holds some position in niche market segments. Although the contribution made to the revenue is significant, this would allow Marico to grow further if it decides to expand this niche market segment.

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2.3.3 Financial Profile: Key Financial Highlights.

Table 1. Company Profile.

Company Profile	
Ticker	MARICO
Company Name	Marico Bangladesh Limited
Sector	Fast-Moving Consumer Goods (FMCG)
Number of shares (in mn)	31.50
Price as of 29th March 2025	2,409.30
52 weeks hign-low	1990.00-2659.90
Market Cap (BDT mn)	75,892.95
Year End	March
Annualized PE	16.48

Table 2. Financial Statements.

Amount in BDT mn

Financial Statement	FY19	2020	2021	2022	2023	2024
Revenue	8768	9796	11307	13032	14135	14524
Operating Profit	2736	3567	4285	4644	5137	6151
EBITDA	4663	5527	6268	6731	8597	6342
EBIT	3476	4498	5280	5657	6191	7107
Net Profit After Tax	2023	2646	3109	3554	3872	4606
Operating Cash Flow	2672	3013	3305	3605	5394	6150
Non- current Assets	577	894	1394	1375	1666	1893
Current Assets	4000	4113	4400	5673	9970	15014
Total Assets	**4577**	**5007**	**5794**	**7048**	**11636**	**16907**
Current Liabilites	3209	3367	4003	4236	7976	8521
Non-current Liabilites	65	254	155	122	73	176
Total Liabilities	**3274**	**3621**	**4158**	**4358**	**8049**	**8697**
ST Debt	200	43	295	49	57	39
LT debt	-	168	122	79	46	152
Total Debt	**200**	**211**	**417**	**128**	**104**	**191**
Total Equity	**1302**	**1388**	**1637**	**2689**	**3586**	**3586**

Table 2. Key Financial Highlights.

Financial Ratios	FY19	2020	2021	2022	2023	2024
OPM	31.2%	36.4%	37.9%	35.6%	36.3%	42.3%
NPM	23.1%	27.0%	27.5%	27.3%	27.4%	31.7%
ROA	44.2%	52.8%	53.7%	50.4%	33.3%	27.2%
ROE	155.4%	190.6%	189.9%	132.2%	108.0%	128.5%
Debt to Equity	15.4%	15.2%	25.5%	4.8%	2.9%	5.3%
Current Ratio	1.25	1.22	1.10	1.34	1.25	1.76

YoY Growth	FY19	2020	2021	2022	2023	2024
Revenue		11.7%	15.4%	15.3%	8.5%	2.8%
OP		30.4%	20.1%	8.4%	10.6%	19.7%
EBITDA		37.6%	38.2%	35.8%	36.9%	42.8%
NPAT		30.8%	17.5%	14.3%	8.9%	19.0%
Fixed Assets		422.2%	9.7%	-58.4%	21.2%	13.6%

Per share data	FY19	2020	2021	2022	2023	2024
EPS	64.2	84.0	98.7	112.8	122.9	146.2
Average Stock Price	1208.6	1620.7	1984.7	2278.7	2415.0	2471.4
NAV	41.3	44.1	52.0	85.4	113.8	113.8
Sales per share	278.3	311.0	359.0	413.7	448.7	461.1
NOCF per Share	84.8	95.6	104.9	114.5	171.2	195.2

Dividend	FY19	2020	2021	2022	2023	2024
Cash	650%	950%	900%	800%	750%	200%
Stock	0%	0%	0%	0%	0%	0%
Dividend Yield	-	5.68%	4.33%	3.40%	3.10%	0.82%

The company exhibits a commendable economic performance for the period, there is significant and consistent growth in profitability in both **OPM and NPM**, that improved significantly for the past 5 years. Growth rates of revenue and operating profit slumped down which indicates intense competition from the market.

Strong **ROE of MBL** further holds up their ability to generate **a high return to the shareholders.**

The trend of MBL debt to debt-to-equity ratio shows a decline, which indicates that the company has been less dependent on external borrowings over its trading period. It also maintains a good liquidity position, meaning it is able to meet its short-term liabilities and smoothens the operations of the firm.

MBL also has a high increase in **EPS** during its trading period. This reflects **MBL's strong profitability per share and attracts most investors.**

Investors also enjoyed **high dividend yields from the year 2020 to 2021**. This, however, did not last for long since it gradually fell toward the end of 2024. Despite this drop, as indicated in MBL's economic records, it still retains a positive yield.

2.3.4 Trading Performance Over the Past 10 Years.

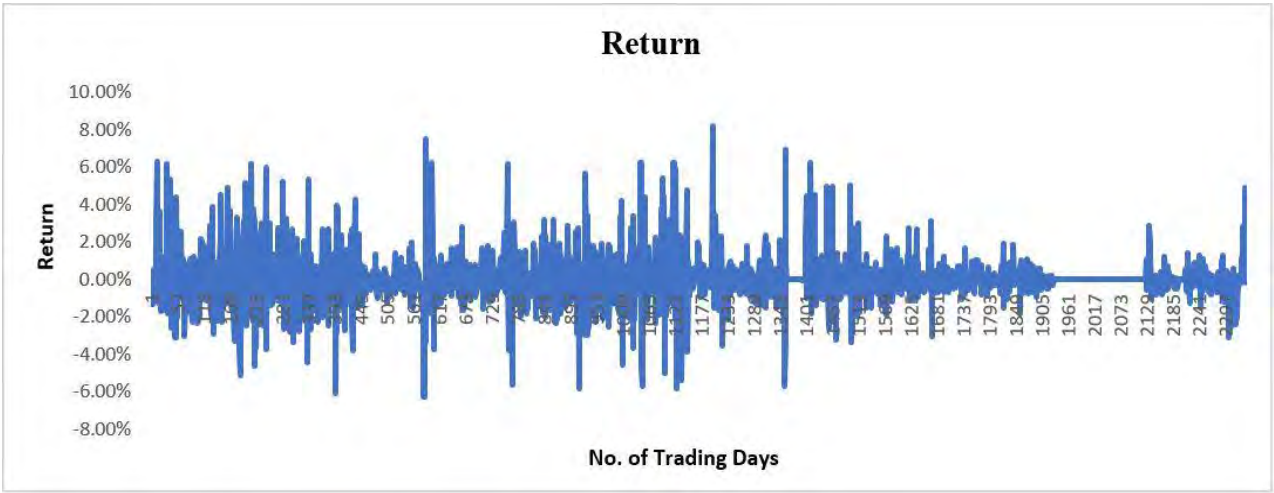

Figure 3. Trading Performance Over the Past 10 Years

We can observe that the return has been highly volatile over the last ten years of Marico Ltd.'s trade, from March 1, 2014, to March 30, 2024. In the early trading sessions, the return

fluctuated between -8% and the highest of +10%, indicating market volatility. Nonetheless, we can observe that the returns' volatility decreased throughout the course of the trading years, indicating that the stock grew steadier with time.

Table 3. Summary of Trading Performance Over the Past 10 Years

Daily Average Return	0.04%
No. of Trading Days	2341
No. of Trading Days Per Year	234
Annualized Return	10.10%
Daily Standard deviation	1.327%
Annualized Standard deviation	20.30%

Furthermore, the annualized return of 10.10% indicates that Marico was able to provide investors with steady returns over the previous ten years, despite producing a modest daily average return of 0.04%. However, as shown in Fig. 3, the stock has a high level of risk because of its substantial volatility, with an annualized standard deviation of 20.29%. Consequently, even though Marico's stock has inherent risk, a prospective risk-tolerant investor can lessen this risk by keeping a diverse portfolio, which will help preserve the investment's value over time.

2.3.5 Pattern Detection in Paired Data.

The subsequent figure; The XY scatter plot, which shows the daily return the business produced throughout the previous five years of trading, is shown in Fig. 4. We could conclude that Marico's beta, which takes into consideration how sensitive the stock return is to the market return (DSEX), is 0.3087. In this case, 0.3087 shows that Marico's stock is less volatile than

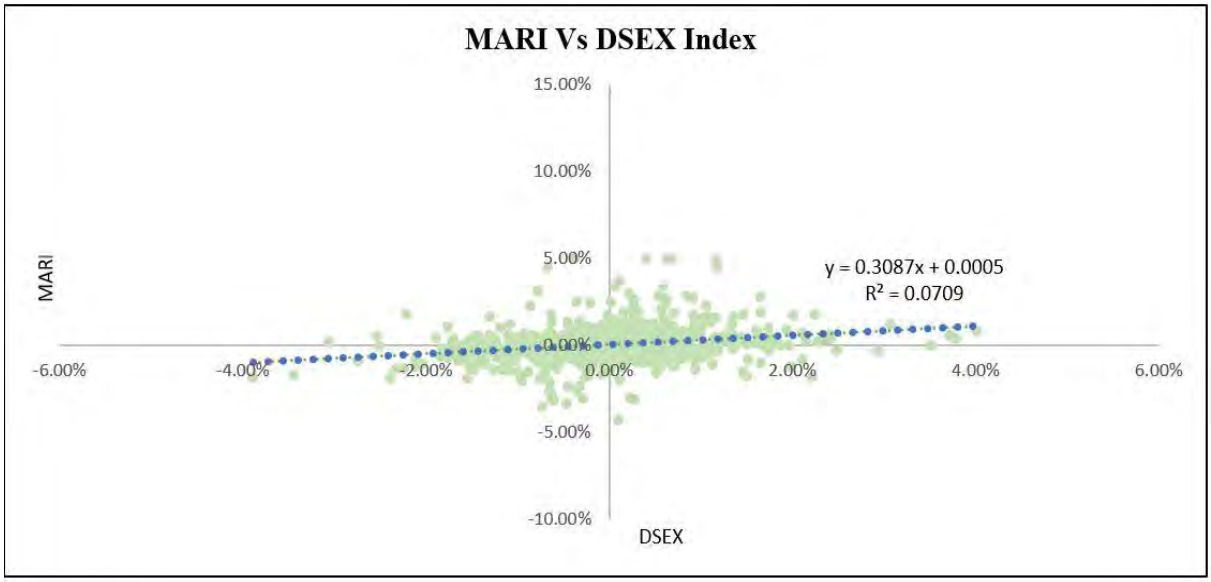

Figure 4.Trend Analysis: Mari Vs DSEX

the market (DSEX); that is, the company's return changes by 0.3087% for every 1% change in market returns. Consequently, the investor will have the chance to make a safer investment. Additionally, the trend line (shown in blue) indicates that MARI and DSEX have a positive connection. However, because the returns are clustered around the trend line, the link appears weak.

R-squared shows how much of the variation in Marico's stock return can be ascribed to the DSEX return. Here, the R-squared is .0709, meaning that variations in DSEX returns account for 7.09% of the company's returns. Furthermore, this low R-squared indicates a weak correlation between Marico and DSEX returns. As a result, other factors (such as company-specific factors) also affect Marico's pricing variations in addition to market fluctuations. Marico, for instance, exports its goods to other nations, and the high exchange rate at the

moment can increase its earnings. A stock with a low R-squared might reduce risk when investing in diversification because of its lower market correlation. As a result, Marico's stocks are less susceptible to fluctuations in the market, and holding a mix of investments with different market sensitivities might offer investors more diversification advantages.

On the same note, Marico's alpha of.0529% shows that it is outperforming the DSEX by .0529%. Positive alpha signifies that the asset is producing more return than anticipated, demonstrating Marico's significant excess return. Because Marico's stocks have the potential to exceed the DSEX by .0529 %, we can conclude that investing in them will be a wise choice.

2.3.6 Drawing Conclusions from Marico's Past Trading Performance

Above all, Marico's positive alpha will generate returns exceeding the market's expectations. Second, the returns show little correlation with the DSEX, indicated by an R-squared of only 7.09%. Consequently, purchasing Marico's stock can mitigate risk during market downturns. Finally, Marico's returns are less sensitive and volatile than the movements of the DSEX, as suggested by their beta of 0.3837. Therefore, Marico's stock is less risky and provides an excess return compared to the market, making it a potentially advantageous investment for investors. This conclusion is supported by a higher alpha, a lower R-squared, and the beta together.

2.4 Industry Analysis: FMCG Sector of Bangladesh.

Bangladesh's fast-moving consumer goods (FMCG) sector is one of the country's most dynamic and competitive sectors. Product sales are in bulk with low margins for a fast-moving inventory, considerably affecting consumers' daily lives. Typical products range from food to beverages, from personal care to toiletries and home care, and groceries represent broader classifications. During the past few decades, common growth factors have been; an increasing middle-class population, urbanization, disposable income, and demand for branded and packaged goods.

2.4.1 Market Trends and Drivers

- Increase in awareness about hygiene and wellness
- Increase in the penetration of e-commerce and modern retail outlets
- Brand awareness among young consumers
- Expanding export avenues for locally manufactured FMCG products
- Digital marketing and influencer involvement

2.4.2 Comparative Positioning Table.

Table 4. Comparative Positioning Table.

Company	**Focus Area**	**Market Strategy**
Marico Bangladesh	Hair Oils, Skin Care, Wellness	Ayurveda branding, efficient local ops, rural focus.
Unilever Consumer Care Ltd	Nutrition and personal care	Strong R&D, premium branding, nationwide presence
Pharma Aids	Pharmaceutical Adhesives (tablet coatings)	Niche Segment, Pharma Partnership.
Reckitt Benckiser Bangladesh.	Hygiene, Health, Home care.	Health Education Campaigns, Brand-centric marketing

2.4.3 Positioning the Company in the Industry.

Table 5. Positioning the Company in the Industry.

Attributes	**Marico Bangladesh**	**Unilever Consumer Care Ltd**	**Pharma Aids**	**Reckitt Benckiser Bangladesh.**
Brand Strength	High	Very high	Low	Very high
Product Diversification	Moderate	High	Low	High
Innovation	Moderate	High	Low	High
Market Penetration	High	High	Niche	High
Export Capability	Stable	Moderate	Minimum	Moderate
Financial Stability	Consistent	Inconsistent	Stable	Stable

2.4.4 Porter's Five Forces: Marico Bangladesh Limited.

Table 6. Porter's Five Forces Analysis

Porter's Five Forces: Marico Bangladesh Limited.

Characteristic	Competitive Rivalry	Threat of New Entrants	Bargaining Power of Suppliers	Bargaining Power of Buyers	Threat of Substitutes
Level	High	Moderate	Moderate	High	High
Key Factors	Fierce competition	Low entry barriers	Limited supplier options	Many consumer choices	Many alternatives
Impact on Marico	High investment needed	Brand recognition issues	Cost structure affected	Innovation required	Significant threat
Strategic Response	Marketing & innovation	Strong brand loyalty	Local manufacturing	Affordable pricing	Continuous innovation

1. Competitive Rivalry – ***High***

The Bangladeshi FMCG sector is so hostile in nature with fierce competition, that giants like Unilever and Reckitt Benckiser coexist with local turf presence from Square Toiletries and ACI.

Low product differentiation coupled with low switching costs heightens rivalry.

To sustain Marico's market presence, heavy investment in marketing and innovation plays an important role.

2. Threat of New Entrants – ***Moderate***

Entry barriers are reasonably low with minimal capital requirement and regulatory constraints, newcomer challenges arise in establishing brand recognition and distribution networks.

Marico's strong brand loyalty and distribution channel enhance its competitive edge.

3. Bargaining Power of Suppliers – *Moderate*

Marico relies on a select group of top suppliers for 70% of its coconut oil, providing fewer options and negotiating leverage.

Over 65% of procurement is through strategic partnerships, ensuring dependable supply and integrating suppliers into the company's value chain.

The company's cost structure is significantly impacted by global commodity prices, such as the 15% increase in coconut oil prices in October 2023, which could force them to accept higher prices from suppliers.

Investing in local manufacturing facilities serves to somewhat alleviate these risks.

4. Bargaining Power of Buyers – *High*

Consumers have ample choices in the FMCG sector, conferring a high bargaining power.

The purchasers differ from one to another, depending on price sensitivity, brand names, etc. Continuous product innovation and affordable pricing will surely contribute.

5. Threat of Substitutes – *High*

The sheer existence of alternatives, inclusive of local and even unbranded products, severely threatens it.

Consumer behavior toward organic and natural products gives Marico products a hard time.

2.4.5 SWOT Analysis: Marico Bangladesh Ltd.

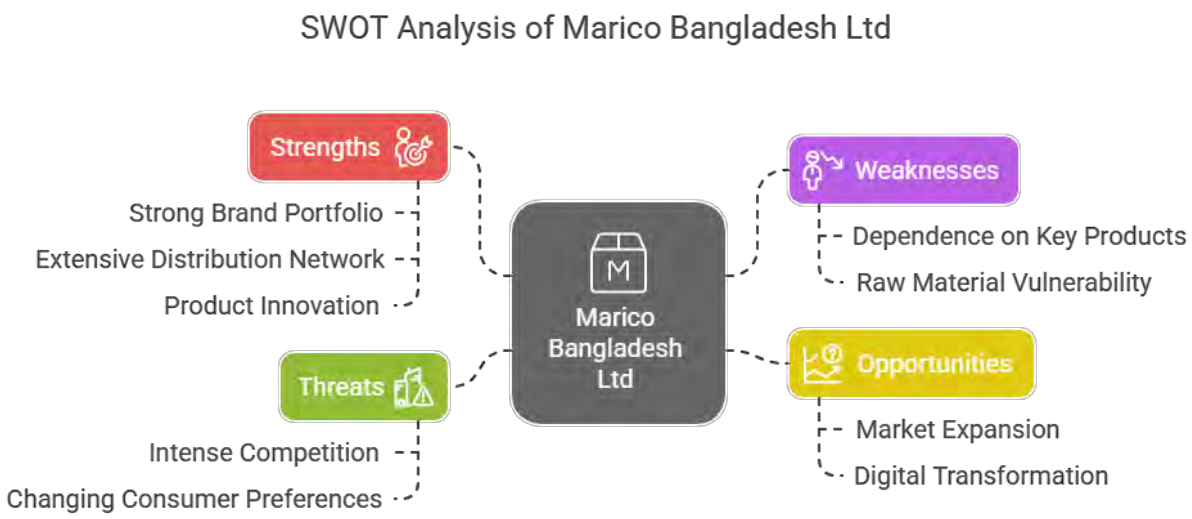

Figure 5. SWOT Analysis: Marico Bangladesh Ltd.

Strengths.

Strong Brand Portfolio: Marico has a stable market presence due to strong brand acceptance by consumers for brands like Parachute, Saffola, and Livon.

Wide Distribution Network: The company has a large reach of over 2.5 million outlets ensuring widespread availability of the products.

Product Innovation: Continuous diversification into baby care, and skin care, among others, has been a major growth driver in the recent past.

Weaknesses.

Key Product Dependence: Parachute coconut oil accounts for a significant proportion of revenue; hence, there is product concentration risk.

Raw Material Vulnerability: The company relies on imported raw materials, opening it up to the risk of supply chain disruptions and price volatility.

Opportunities.

Market Expansion: New manufacturing unit investments, such as in Bangabandhu Sheikh Mujib Shilpa Nagar, help to reach South Asia and the Middle East.

Digital Transformation: The e-commerce and digital marketing opportunities should be pursued to cater to an increasingly growing online consumer base.

Threats.

Intense Competition: Competition in the market gradually increases with the presence of international giants and local brands.

Changing Consumer Preferences: A growing trend toward organic and natural products might lead to potential losses for Marico's more conventional products.

2.4.6 Key Growth Drivers.

1. Economic Growth and Rising Incomes: Bangladesh's sustained economic growth has increased consumer spending power, leading to an increased demand for FMCG products ranging from essential commodities to high-end goods.

2. Urbanization and Changing Lifestyles: The rapid pace of urbanization has accentuated consumer preferences. The growing urban population, along with a youthful demography, have been inclined toward convenience-oriented products, ready-to-eat meals, and modern personal care solutions

3. Rising Aspirations and Global Connections: Consumer aspirations are increasingly becoming global, with trends being attracted by Bangladesh's global connectivity. Marico is present in more than 25 countries and is actively diversifying its portfolio of brands to include hair-cleansing shampoos, cooling oils, skin care, baby care, men's grooming, and food.

4. Digital Transformation, diversification and E- commerce: With the advent of smartphones and Internet connectivity, shopping has undergone a transformation along the lines of e-commerce platforms. Thanks to strategic execution and ingenious campaigns, Marico Bangladesh's e-commerce has been growing at 15% since 2022-which is double the growth rate of the industry.

5. New Emerged Categories, Market Segments, and Strong Brands: There is an untapped potential in the new emerging categories and market segments, like rural markets and the lower-income group consumer segments. This simply implies that catering to the needs of the consumers with the products or solutions available at the right price may prove beneficial for creating new growth avenues. At the same time, Marico has greatly established itself as an international brand and is keeping this first-mover advantage, which requires a long-term outlook, strong marketing teams, precise value propositions, and strategic brand-building capabilities, which are crucial for any company's upliftment.

6. Strong Sales, Innovation, and Distribution Channel Development: Brands could ride the wave of broader distribution routes and sales systems, giving an edge in bringing brands to customers in Bangladesh's vast geography. Creating properly functioning sales structures and a culture of execution excellence with foresight requires constant investment in skill development. Marico Bangladesh has developed good relationships with grocers, cosmetics, and wholesalers in urban and rural distribution, aiding its growth. Marico Bangladesh's

strategic growth over the last five years in hair care, baby care, and skin care segments has spurred growth in the FMCG sector through innovations.

Figure 6. Key Growth Drivers of FMCG Industry

7. Sustainability and Ethical Practices: Consumers are placing a lot of value on sustainability and ethics while making their purchasing decisions. Marico Bangladesh and other FMCG companies are adhering to such practices by executing 31 projects toward social and financial inclusion in FY'24.

2.4.7 PESTEL Analysis: Marico Bangladesh.

Political Stability Supporting Business Continuity.

In recent years, Bangladesh has enjoyed relative political stability, creating a favorable environment for FMCG companies like Marico. The peaceful national elections held early in 2024, coupled with a sustained government push to improve the ease of doing business, have increased investor confidence further. As per the World Bank's report "Doing Business," Bangladesh improved its rank by 8 positions from 2022 to 2023, tracking the government reforms in taxation and cross-border trade. This stability can only support Marico in its ongoing and long-term investments in the country.

Economic Growth Fueling Consumer Spending.

According to the Asian Development Bank (ADB), Bangladesh will register a growth rate of 6.5% in 2024. This steady growth is stimulating disposable incomes and encouraging the formation of an expanding middle-class segment, the main consumers of Marico's personal care and wellness products. The personal care segment in Bangladesh experienced an 11% growth in FY2023, as per the Bangladesh Cosmetics and Toiletries Manufacturers Association. The growing urban demand for the brands, notably Parachute and Livon, is strengthening this upward trajectory.

Sociocultural Trends Driving Grooming and Wellness Products.

There is an emerging cultural trend among urban Bangladeshi consumers, especially youth, in favor of personal grooming and wellness. In 2023, an urban youth survey conducted by Nielsen Bangladesh indicated that 67% of respondents aged 18-35 consider skincare and haircare an integral part of their lives; this illustrates a paradigm shift toward awareness and demand for

premium grooming solutions. Marico seized the opportunity presented by this trend towards personalized variants of Livon and Set Wet for Bangladeshi skin and hair, in step with the changing trends of consumers.

Technological Advances in Distribution and Marketing.

On digital transformation, Marico Bangladesh strives to optimize its distribution network and engage customers through e-commerce. From FY2023 onwards, the company engaged local delivery startups and e-retailers such as Chaldal and Daraz, spurring an increase in online sales by more than 30% on the year, according to its annual disclosure. Furthermore, data analytics and AI are being leveraged to improve product placement and target marketing in tier-2 and tier-3 cities, thereby facilitating greater market penetration.

Environmental Pressures and the Pursuit of Sustainable Methods.

Environmental sustainability is gaining importance in Bangladesh's FMCG market. Among the factors are rising concerns about plastic pollution and climate change, which have led Marico to consider going greener. By the end of FY2023, the firm claimed to have reduced plastic in its packaging by 15% by using lightweight bottles and refill pouches. Moreover, the recently developed and passed regulation by Bangladesh's Department of Environment regarding the strict enforcement of plastic waste management has made the path for Marico and other companies to fast-track eco-friendly packaging and sustainable sourcing, particularly for coconut oil.

Changes in product compliance with regard to law and regulation.

The Bangladesh Standards and Testing Institution (BSTI) has recently tightened compliance standards for cosmetics and hair oil products. The BSTI introduced a new certification system for herbal ingredients during the second quarter of FY2024, requiring unambiguous labeling and quality assurances. Marico's response was to reformulate some SKUs to conform to the

advancements made in the legal framework of this country. Compliance costs are slightly up when compared to pre-BSTI; however, it helps to secure the consumers' trust while avoiding any kind of regulatory penalties because of noncompliance in the competitive marketplace.

Chapter 3

3.1 Methodology

The research uses a case-based empirical methodology to set up traditional equity valuation models for the case of dividend-paying stocks in an emerging market, where Marico Bangladesh Ltd. acts as the focal company. The methodology stresses the application of the three most commonly used valuation methods: Dividend Discount Model (DDM), Free Cash Flow to Equity Model (FCFE), and Market Multiple Model (MMM). Concerning data application, the models use historical financial data from Marico and market data from the Dhaka Stock Exchange (DSE).

3.1.2 Research Design

This study employs a quantitative, explanatory case study design to evaluate the applicability of conventional equity valuation models within an emerging market. Using Marico Bangladesh Ltd., a dividend-paying FMCG company listed on the Dhaka Stock Exchange, as the targeted case, this research tests the applicability and reliability of three conventional models: the Dividend Discount Model (DDM), Free Cash Flow to Equity (FCFE), and the Market Multiples Model (MMM). The study utilizes secondary financial and market data to determine intrinsic valuations for each model, comparing the results with the current market price of Marico to assess model congruence with market realities. This approach allows for a firm-level diagnosis of model effectiveness under the structural and behavioral conditions that characterize emerging markets.

Determining the Cost of Equity/Required Rate of Return.

The cost of equity (R) is a crucial input in both the Dividend Discount Model (DDM) and the Free Cash Flow to Equity (FCFE) model, representing the return investors expect for taking on

equity risk in an emerging market like Bangladesh. It was calculated using the Capital Asset Pricing Model (CAPM), which links a stock's risk to overall market risk.

Determining the Market Return.

Source: Bangladesh Bank Annual Report				Using Index		Using Market Cap	
Whole Period	Using Market Cap	Using Index	Using Index Without Outliers	Last 5 Years	Last 10 Years	Last 5 Years	Last 10 Years
R_m Market Return	20.44%	6.42%	-0.52%	3.01%	3.89%	14.89%	14.57%
Expected Market Return	17.50%	This will be used for calculating the Required Return					

Table 7.Determining expected Market Return.

From Fig. 6 above, both the market Cap and the Index were considered to determine the appropriate market return.

Using the Market Cap.

The augmented market returns of 20.44% with the market capitalization weighting through the entire study duration confirm that larger companies with more capital in Bangladesh have earned a good standing over time. These companies are likely to have benefited from the economic upturns in Bangladesh, have fairly stable revenue streams, and have had good access to capital. Large-cap companies generally tend to prevail in any market; therefore, this tends to show a greater aggregate return in value-weighted terms when there are high returns from these companies. The last five years are calculated at 14.89%, while the last ten years are pegged at 14.57%: this low return shows that the market may have had some problems or slow growth recently, and has been facing such challenges despite the performance of larger companies over these years. The causes can, therefore, be attributed to sectoral constraints, national political and economic challenges, and global economic influences.

Using the Index

The broader market, including mid-cap and small-cap companies, has not performed as well as large-cap companies, with a lower market return of 6.42% over the entire period. This could be due to higher volatility, lower access to capital, or increased sensitivity to economic changes. The last 5 years (3.01%) and last 10 years (3.89%) returns are even lower, suggesting a more recent struggle due to political instability, monopoly information, individualistic rules, economic slowdowns, or adverse conditions like COVID-19. The Index Without Outliers (-0.52%) shows a negative return when outliers are removed, suggesting that the outperformance of a few large or successful companies may mask broader underperformance in the market. This may also indicate that the overall market health is weaker than it appears when outliers are included or compared to the others.

Expected Market Return.

The expected market return of 17.50% the average of the entire period (Market Cap) likely reflects a balance between the performance of large-cap firms and the overall market. This relatively high expected return may result from rising interest and risk-free rates, but it also suggests that, despite difficulties in some areas, there is a general expectation of substantial returns because of Bangladesh's great economic growth potential**.**

Cost of Equity using CAPM.

Table 8. Cost of Equity using CAPM.

Beta	0.3087
Risk-Free Rate	11.95%
Required Rate of Return	
Formula	$r = rf + \{\beta \times (rm - rf)\}$
	11. 96% +{ 0.30872 × (17.50% − 11.96%)
	13.66%
Expected Market Return	**17.50%**

The CAPM determines the cost of equity for an asset via the risk-free rate, beta, and market return. The risk-free rate of 11.95% has been derived from the 1-Year Treasury Bill; the low beta of 0.3087 indicates less volatile returns; the market return is determined to be 17.50%. Altogether, these yield a return rate of **13.66%**.

Thus, 1.71% is the premium over the risk-free rate, which is attributable to the low systematic risk involved in holding MARI.

Considering other Microeconomic Factors.

The growth rates of the FMCG industry **(16.18%)** and the operating income growth rate **(15.15%).** Operating income is a measure of a firm's financial health, and the rate of growth of operating income indicates how the company is growing in terms of efficiency and business scale.

In order to estimate Marico Bangladesh Ltd.'s long-term growth prospects, the 10-year trend of operating profits derived from the business from 2015 to 2024 was analyzed. As a result, the simple average growth rate obtained was 15.513%, and the compound annual growth rate (CAGR) stood at 15.152%. However, the straight use of these measures in any type of valuation model could be misleading because it actually precedes the intrinsic volatility of up-and-down performance from year to year.

Table 9. Determining Operating Income Growth Rate

Year	Operating Profit	% Change (Year to Year)
2015	1,727,836,281	
2016	1,809,609,175	4.733%
2017	1,858,450,301	2.699%
2018	2,136,042,141	14.937%
2019	2,591,547,066	21.325%
2020	3,378,838,315	30.379%
2021	4,284,691,947	26.810%
2022	4,644,343,824	8.394%
2023	5,137,879,525	10.627%
2024	6,150,814,725	19.715%

Thus, a risk-adjusted CAGR was computed by allowing for the standard deviation of the annual growth rates, which appeared to be 9.717%. This resulted in a risk-adjusted growth rate of 13.679%, which should prove more conservative and therefore very realistic. This adjustment is important because growth in operating income is often related to performance, but doesn't consider volatility, one of the prime risk components in risk assessment by an investor.

Table 10.risk-adjusted growth rate

Average % Change over 10 years	
Average Growth	15.513%
CAGR	15.152%
Standard Deviation	9.717%
Risk-Adjusted CAGR	**13.676%**

This risk-adjusted growth rate would make valuation inputs performance-grounded and risk-sensitive, giving more reliability in the intrinsic value estimates from an approach that might be a Dividend Discount Model (DDM) or FCFE.

The Estimated Rate of Return for this Analysis.

It is reasonable to assume that MARI's rate of return should lie between its operating income growth rate and its CAPM cost of equity. Considering the cost of equity as established by the CAPM, Marico's anticipated growth, and the projected expansion of the FMCG sector in Bangladesh, we arrive at an average rate of 14.41%. For this analysis, however, we will stick to Mari's established cost of equity of **13.66%** because it seems reasonable given all other factors.

Key Assumptions for the Proforma Financial Statements.

In order to prepare the pro forma financial statements, historical figures from 2020 to 2023 were analyzed. 2024 was excluded as it was an outlier year, marked by an unusual decrease in sales caused by external inflationary pressures, which was confirmed by Marico's management (The Daily Star, 2024). The intention was to arrive at consistent and risk-adjusted assumptions in a normal economic and operational environment.

Table 11. Assumption Sheet.

	Assumptions					
	2024	2023	2022	2021	2020	Average (2023-2020)
Sales growth	2.75%	8.46%	15.26%	15.42%	11.72%	12.72%
Current assets/Sales	103.37%	141.78%	229.72%	256.98%	244.90%	218.34%
Current liabilities/Sales	58.67%	177.22%	307.65%	282.46%	290.94%	264.57%
Net fixed assets/Sales	13.03%	424.47%	473.72%	405.56%	547.57%	462.83%
Costs of goods sold/Sales	41.99%	207.53%	218.62%	243.06%	237.02%	226.56%
Depreciation rate	12.50%	12.50%	12.50%	12.50%	12.50%	12.50%
Interest rate on debt	12.47%	12.47%	12.47%	12.47%	12.47%	12.47%
Tax rate	22.50%	22.50%	22.50%	22.50%	22.50%	22.50%
Dividend payout ratio	13.70%	61.00%	70.90%	91.20%	113.00%	84.03%

Sales Growth (12.72%): This was calculated from the year-on-year discrete sales growth between 2020 and 2023. The four years' average was used to project future revenue between 2025–2029. The exclusion of 2024 is to ensure the projections reflect normalized operating trends rather than inflationary distortions.

Current Assets to Sales (218.34%): Based on the average ratio from 2020 to 2023, this assumption reflects the working capital required to finance operating activities.

Current Liabilities to Sales (264.57%): Averaged over the same period, this ratio estimates how much of sales is financed by short-term obligations.

Net Fixed Assets to Sales (462.83%): The high average ratio reflects Marico's capital intensity and ongoing investment in long-term assets. Used to forecast capital expenditures and depreciation.

Cost of Goods Sold to Sales (226.56%): The ratio estimates the direct costs of revenue. The average smooths out yearly price and cost volatility.

Interest Rate on Debt (12.47%): Assumed constant based on Marico's historical cost of borrowing and stable financing structure.

Tax Rate (22.50%): Based on the benchmark corporate income tax rate for listed companies in Bangladesh.

Dividend Payout Ratio (84.03%): It was found as the average payout ratio from 2020 to 2023, revealing Marico's high and consistent dividend distribution policy even during economic crises.

Depreciation Rate (12.50%): Marico uses different depreciation rates for different asset classes. An equally weighted average was computed for all the asset classes for simplicity of forecasting without loss of accuracy.

Table 12. Determining the Depreciation Rate.

Assets	Depreciation rates	Weights
Plant and machinery	10%	0.25
Buildings	10%	0.25
Furniture, fixtures and offi	10%	0.25
Computer and IT equipme	20%	0.25
Weighted average=	12.50%	100%

3.1.3 Data Sources:

Firm Financials: Annual reports of Marico Bangladesh Ltd from the fiscal year 2014 to the fiscal year 2024

Macroeconomic indicators: Bangladesh Bank, ADB

Market Data: DSE price reports, sector average, peer companies (Unilever, Reckitt Benckiser, Pharma Aids)

Excel model: Contains all workings according to the valuation, assumptions, simulations of sensitivity, and representation through a football field chart.

Valuation models incorporated:

Historical Dividends Sourced from Marico annual reports.

Required Rate of Return (r): Derives from the CAPM formula or historical performance of the market.

Growth Rate (g): Estimated by using historical CAGRs of dividends or by using management forecasts.

EPS, BVPS, and SPS are used to calculate the Market Multiplier extracted from Marico's financials.

Chapter 4.

Results and Analysis.

4.1 Market Multiplier Model (MMM)

Table 13. Market Multiplier Model

Selected Competitors in the Industry	PE	P/S	P/B
Unilever Consumer Care Limited	55.22	12.95	12.22
Pharma Aids	26.66	6.61	7.16
Reckitt Benckiser Bangladesh Limited	27.47	4.54	26.98
Industry(Average)	**36.45**	**8.03**	**15.45**
Intrinsic value uisng PE	4,480.80	EPS	122.93
Intrinsic value uisng PB	1,759.47	P/B Ratio	113.8512903
Intrinsic value uisng PS	3,604.35	P/S ratio	448.753687
Recent price OF MARICO	2,295.30		

The financial data of three companies from the FMCG industry are compared above: Unilever Consumer Care Limited, Pharma Aids, and Reckitt Benckiser Bangladesh Limited. Market multiples in relation to Price-Earnings Ratios, Price-to-Sales Ratios, and Price-to-Book Ratios are calculated with these companies serving as a benchmark against the real industry average for these multiples. Thus, from the above calculations, the average P/E of 36.45, P/S of 8.03, and P/B of 15.45, respectively. With the help of these industry averages, the determination of the intrinsic value of Marico Company Limited ensues. For P/E, intrinsic value will be calculated by multiplying the industry P/E with Marico's earnings per share of 122.93, which gives the intrinsic value of 4,480.80 (all figures in BDT taka). Intrinsic value from P/B on the other side was calculated by multiplying the industry P/B with Marico's book value per share of 113.85, thereby giving an intrinsic value of 1,759.47.

Conversely, with a P/S of 8.03 and sales per share of 448.75, Marico yields an intrinsic value of 3,604.35. These intrinsic values were compared with Marico's most recent market price of 2,295.3, and an analyst would be able to judge whether the stock is undervalued or otherwise. The P/E and P/S indicate that the stock is indeed understated, whereas the P/B suggests a slight overvaluation from the book value perspective. Because Marico operates in inefficient markets, there will be moments when the stock price may not take into account all the available information.

4.2 Dividend Discount Model (DDM)

For the valuation purpose of MBL, DDM is used, where both the Gordon Model and industry P/E are calculated to figure out whether MARICO is presently overvalued or undervalued.

4.2.1 Dividend Discount Model using Gordon.

Table 14. Dividend Discount Model using Gordon.

Year	0	1	2	3	4	5
Projected Dividends	4915.44	5093.79	5622.41	6204.50	6854.57	7580.45
Terminal Value (using Gordon)						96443.38
Total CF Gordon	4915.44	5093.79	5622.41	6204.50	6854.57	103297.94
Present Value Gordon	4915.44	4481.61	4352.18	4225.55	4107.23	54456.96

Intrinsic Value	76538.98
Intrinsic Value (Per Share)	**2429.81**

As per the determined required rate of return of 13.66%, the same discount rate will be used for discounting the expected dividend cash flows. Given the above results, MARICO's intrinsic value per share is BDT 2429.81, so it is considered undervalued compared to the present market price of BDT 2274.50 per share. The discounting of the stock may persuade a potential investor to buy it with a view to its price increasing soon to its intrinsic value, hence becoming a profitable investment opportunity. Due to the inefficient Bangladeshi stock market, there will

be price distortions where the stock price will not instantly reflect all information available about MBL.

4.2.2 Sensitivity Simulation Gordon

Table 15.Sensitivity Simulation DDM-Gordon.

Sensitivity Gordon						
Growth Rate	**Required Return**					
2429.81	**11%**	**12%**	**13%**	**14%**	**15%**	**16%**
4.0%	2903.29	2551.57	2278.29	2059.90	1881.42	**1732.87**
4.5%	3060.23	2665.36	2363.65	2125.68	1933.22	1774.39
5.0%	3243.32	2795.41	2459.69	2198.77	1990.19	1819.67
5.5%	3459.71	2945.47	2568.54	**2280.46**	2053.16	1869.27
6.0%	3719.37	3120.53	2692.94	2372.36	2123.13	1923.83
6.5%	4036.73	3327.43	2836.47	2476.52	2201.33	1984.14
7.0%	**4433.44**	3575.70	3003.92	2595.55	2289.30	2051.14

Sensitivity analysis is used to further assess the intrinsic value generated by the Gordon model to ascertain the effects of changes in the required returns and dividend growth rates. Assuming a growth rate of 4% to 7% and a required return of 11% to 16%, the intrinsic value of the MARICO shares would be between BDT 1,732.87 and BDT 4,433.44.

4.2.3 Dividend Discount Model using Industry P/E

The forecast EPS is multiplied by the industry's price-earnings ratio multiplier to arrive at an intrinsic value per share of BDT 5575.65, which is more than double its present market value of BDT 2274.50. This high valuation is brought about by aggressive EPS growth expectations in the next five years, exhibiting that the company is seriously undervalued. Hence, shareholders should take an opportunity to purchase and hold MARICO stocks, expecting them to rise to the projected value. Yet, it has to be noted that this valuation is only based on expected

EPS; one would need further information about MARICO to chart out intelligent purchasing decisions.

Table 16.Dividend Discount Model using Industry P/E.

Year	0	1	2	3	4	5
Projected EPS	146.23	192.45	212.42	234.42	258.98	286.40
Terminal Value (using Industry P/E)						0.00
Total CF P/E	146.23	192.45	212.42	234.42	258.98	258.98
Present Value P/E	146.23	169.32	164.43	159.65	155.18	136.53
Intrinsic Value (Per Share)	**931.34**					

4.2.4 Sensitivity Simulation DDM-P/E

Table 17. Sensitivity Simulation DDM-P/E

Sensitivity P/E						
P/E Ratio	**Required Return**					
5575.65	**11%**	**12%**	**13%**	**14%**	**15%**	**16%**
15	3537.18	3403.46	3276.459	3155.774	3041.04	**2931.898**
20	4387	4216.02	4053.691	3899.51	3752.99	3613.692
25	5236.82	5028.57	4830.923	4643.246	4464.95	4295.486
30	6086.64	5841.13	5608.155	**5386.982**	5176.91	4977.28
35	6936.47	6653.68	6385.387	6130.717	5888.86	5659.074
40	7786.29	7466.24	7162.62	6874.453	6600.82	6340.868
45	**8636.11**	8278.79	7939.852	7618.189	7312.78	7022.661

According to the sensitivity study above, MARICO's price fluctuates in response to variations in the P/E ratio and the required return on the stock. Using a range of ± 15 from our estimated industry P/E multiplier of 30 and a range for the needed return of 11% to 16%, we have examined the changes in intrinsic value. We arrive at a range of intrinsic stock price values, with BDT 1931.898 representing the lowest extreme. This range has a P/E of 15 and a needed return rate of 16%. The highest extreme is BDT 8636.11, which has a P/E of 45 and a required return rate of 11%.

4.3 Free Cash Flow to Equity (FCFE).

One of the most effective valuation techniques for determining how much cash is available to the company's equity holders is FCFE. In other words, it displays the amount that remains for equity investors after all required business expenses have been removed. People can determine whether the business can sustain itself over an extended period and whether it can pay off debt. As a result, it gives equity investors a clear picture of the potential returns the company could offer.

4.3.1 Free Cash Flow using Industry P/E

Information	
Current Price (31 MAR 2025)	2285.40
Required Return	13.66%
Beta	0.3087
Risk Free Rate	11.95%
Long-Term Growth Rate (2022-2027)	16.18%
Last 5 Year P/E of Marico	20.00
Number Of Shares	31,500,000
WACC	17.43%

As we can observe from the above table and analysis, the discount rate is 13.66%; from 2022 to 2027, the predicted growth rate for the FMCG industry is 16.18% (according to Invest Bangladesh, 2023).

Table 18.Free Cash Flow using Industry P/E.

Using P/E		
Year	**FCFE**	**Present Value**
2025	8140	7162
2026	9457	7320
2027	10987	7483
2028	12765	7649
2029	14830	7818
Terminal value using P/E (last 5 years)=	296599	156362
Total:		193793
Number of shares		31.5
Intrinsic Value		6152
Stock price (31/03/25)	2285	

This growth rate is used to project the future FCFEs of Marico Bangladesh, and its FCFEs are expected to show positive and increasing figures. Furthermore, based on the average P/E ratios of the company over the last 5 years, the average P/E ratio is 20. To align our forecasts with the current market situation, the P/E ratio has been used to calculate the terminal value of the stock for the upcoming year 2029. Moreover, the discount rate of 13.66% has been applied to calculate the intrinsic value, which is 6152.16 BDT for each share. On the other hand, as of 10th March 2025, the stock price of Marico is 2285.40 BDT, indicating that Marico's stock is highly undervalued. Thus, based on this information, it would be beneficial for potential investors to buy Marico's stock because it is undervalued, and existing investors might hold their shares for greater returns in the future.

4.3.2 Sensitivity Simulation FCFE-P/E

Table 19.Sensitivity Simulation.

			Sensitivity analysis using P/E			
Growth rate	Required rate of return					
6152	16%	17%	18%	19%	20%	21%
11%	4545.13	4371.17	4205.63	4048.03	3897.92	3754.88
11.50%	4639.12	4461.36	4292.21	4131.17	3977.79	3831.64
12%	4734.73	4553.10	4380.27	4215.74	4059.03	3909.71
12.50%	4831.97	4646.42	4469.85	4301.76	4141.66	3989.12
13%	4930.88	4741.32	4560.95	4389.24	4225.70	4069.88
13.50%	5031.48	4837.84	4653.60	4478.20	4311.16	4152.00

The above sensitivity analysis illustrates how Marico's price changes with different P/E ratios and the required rate of return. We arrive at a range of values for the intrinsic stock price where the highest extreme, with a P/E of 13.50% and a required return rate of 16%, is BDT 5031.48. The lowest extreme, with a P/E of 11% and a required return rate of 21%, is BDT 3754.88.

4.3.3 Free Cash Flow using Gordon

The FCFF has been calculated for the years 2026 to 2029 using the projected Free Cash Flows in the pro forma for each year from 2025 to 2029, along with the long-term growth rate of 16.18% anticipated for the FMCG industry. The terminal value was then determined using this 16.18% growth rate and a 17.43% WACC, which was previously established using the CAPM approach. The worth of Marico after 2029 is represented by the terminal value. Next, we apply the WACC to discount future cash flows to find their present value. As a result, we can determine Marico's total value, which is the sum of its terminal value and the present value of its future cash flows.

We reduce the loan amount from the business value and then add back the initial cash amount to determine the equity value. There are currently 31.5 million shares of Marico in circulation. This allows us to calculate Marico's intrinsic value per share using the FCFE (Gordon) model,

which comes out to 422.70. However, the market price is 2285.40. Since the intrinsic value of the stock is higher than the market price, this would signal a purchase since it is undervalued.

Table 20.Free Cash Flow using Gordon.

Using Gordon					
	2025	2026	2027	2028	2029
FCFF	6045.62	7023.80	8160.25	9480.57	11014.53
Terminal Value					1023734.55
Discount factor (WACC)	0.17	0.17	0.17	0.17	0.17
Present value	1053.75	1224.25	1422.33	1652.46	180356.76
Total firm value	185709.56				
Add back initial cash	1887.00				
Subtract year 0 debt	-54436.74				
Total equity Value	133159.81				
Number of share (mn)	31.50				
Intrinsic Value/ share	4227.30				
Market price (24/03/25)	2285.40				
So, the stock is undervalued					

4.3.4 Sensitivity Simulation FCFE-Gordon

Based on growth rates between 15 and 19% and a WACC between 16 and 20%, the sensitivity analysis above yields intrinsic values ranging from BDT 2468 to BDT 5458. This range's bottom value is still greater than the BDT 2285.40 market price as of right now.

Table 21. Sensitivity Simulation.

Growth	WACC				
4227	16%	17%	18%	19%	20%
15.0%	2559.00	5548.00	4309.00	5014.00	2468.00
16.0%	3043.00	4546.00	3284.00	5369.00	4248.00
17.0%	3355.00	5271.00	3261.00	4584.00	3594.00
18.0%	3922.00	4175.00	4677.00	5314.00	5133.00
19.0%	5458.00	3440.00	5408.00	3354.00	3991.00

Chapter 5

5.1 Comparative Model Evaluation

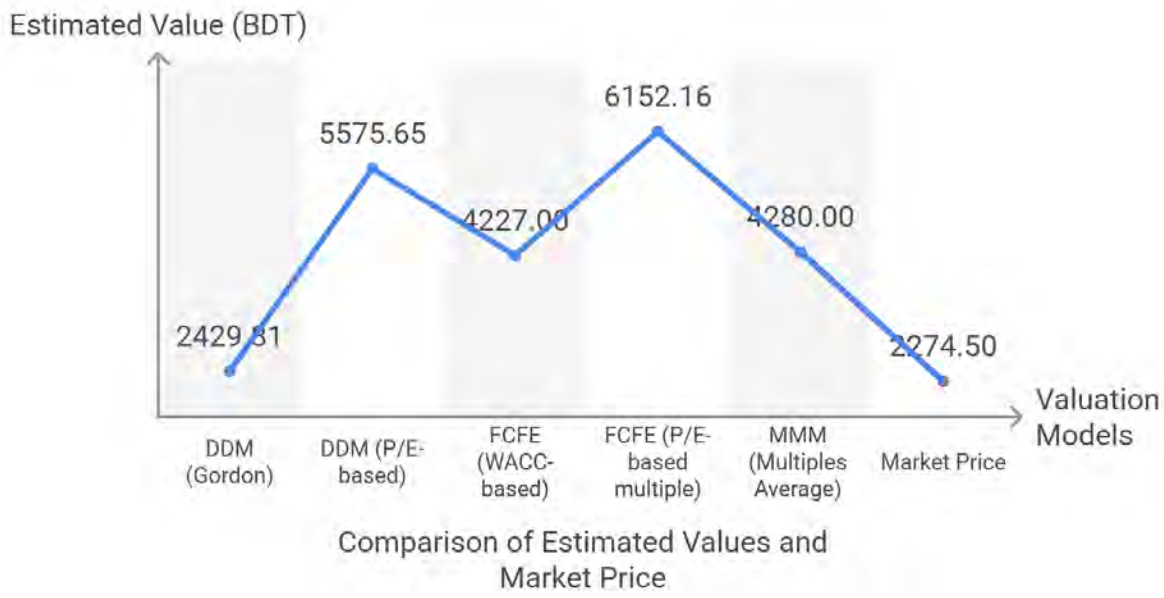

Figure 7. Comparative Model Evaluation.

Marico has been valued highest using the FCFE (P/E multiple) and DDM (P/E-based) approaches, according to the analysis displayed in the valuation comparison graph. Interestingly, this suggests that earnings multiples and growth assumptions influence valuation methods more than the generally more conservative intrinsic values suggested by Gordon-based DDM Models. This merely serves to reiterate that FCFE is superior to DDM, at least for growing companies and markets. Similarly, speculative market conditions reduce MMM's reliability.

From the battery chart visualization, one can note the following:

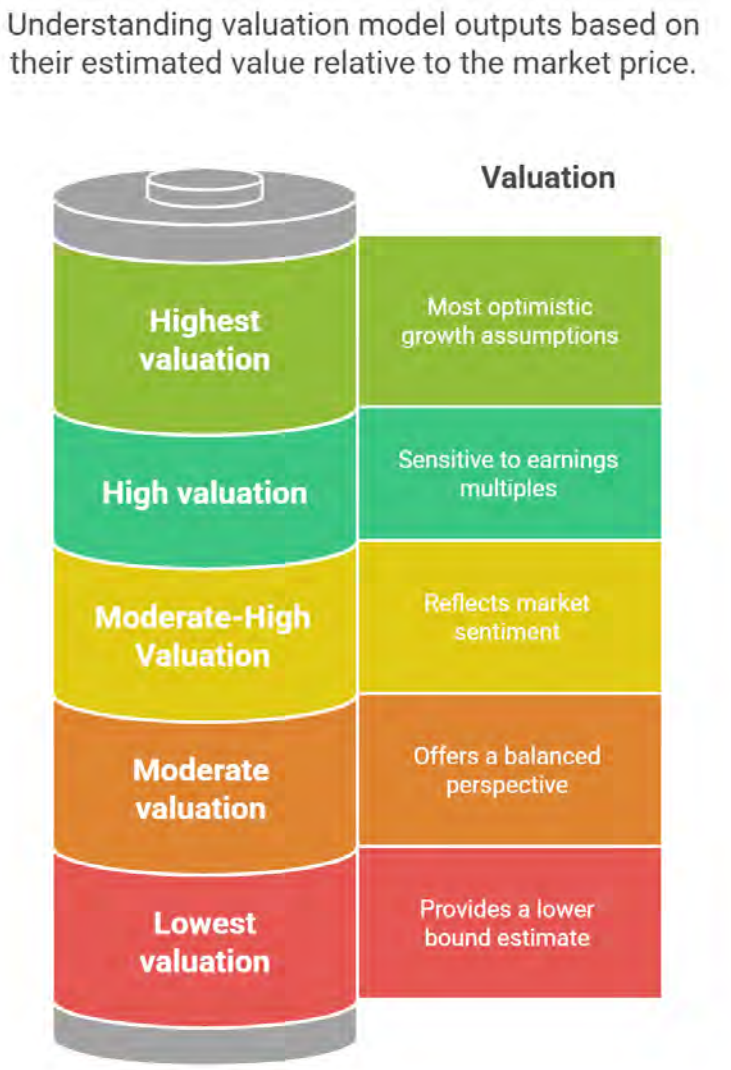

Figure 8. Valuation Model Outputs Analysis.

Highest valuations (FCFE and DDM P/E-based) rely on optimistic growth and market sentiment.

Moderate to high valuations (MMM) reflect market averages but can be distorted by speculation.

Moderate valuations (FCFE using Gordon) offer a balanced perspective grounded in operational performance.

Lowest valuations (DDM using Gordon) provide a lower bound estimate due to rigid assumptions around dividend stability.

An investor's strategy in valuation may also vary according to the risk appetite and market outlook it propagates.

5.2 Role of the Dhaka Stock Exchange as the Market.

While the FCFE model better captures the value of retained earnings and reinvestment, especially for Marico, the DDM assumptions are undermined by inefficiencies on the DSE, dividend irregularities (Hossain et al., 2023), and behavioral biases (Mobarek, 2009). The Football Field Chart also shows that valuation ranges are widely distributed, confirming that no single model should be relied upon in isolation, which could lead to investor error. For instance, the dividend discount model shows the widest variation in valuations due to payout uncertainty, while the Gordon growth model and price-earnings method converge closely for FCFE, demonstrating relative certainty in Marico's case.

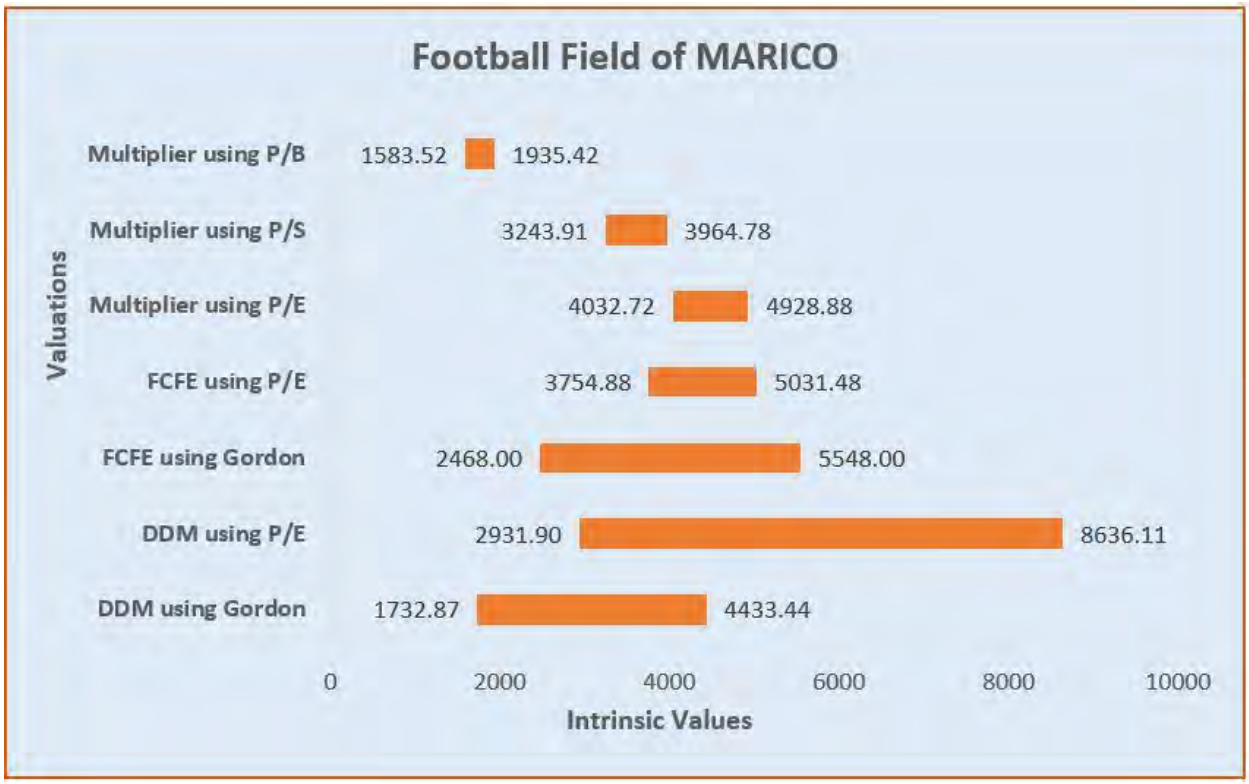

Figure 9. Football field chart showing Valuation outputs.

5.3 Behavioral Effects and Accuracy of Valuations

According to several studies, including Mamun et al. (2013), the DSE overreacts to dividend news, compromising the market's semi-strong efficiency. These are consistent with the observed inflated DDM range. Once more, Marico's fundamentals are fairly strong, but the market consistently undervalues it. Therefore, there is evidence of market pricing inefficiency.

During bull markets, market multiples, like the upward skew of P/E-based outputs, would also be overvalued. These findings highlight the importance of both market sentiment measures (MMM) and firm-specific cash flow analysis (FCFE) in the triangulation of fair value.

5.4 Practical Application for Investors

Bangladeshi investors should think about hybrid strategies, such as FCFE combined with industry-adjusted multiples.

DDM Gordon estimates that places of conservative entry are likely to be preferred by risk-averse investors.

Growth-oriented investors may favor FCFE and P/E-based valuations since they represent future earning potential.

Chapter 6.

6.1 Conclusion.

This study assessed the applicability of three conventional equity models, the Dividend Discount Model (DDM), Free Cash Flow to Equity (FCFE), and Market Multiples Model (MMM), in the context of a frontier emerging economy, using Marico Bangladesh Ltd. as a case company. The study found that while all the models recorded the same undervaluation of Marico's share, the FCFE approach, especially when coupled with P/E-based assumptions, was closest to the financial dynamics and the policy of reinvestment of the company.

Conversely, the DDM's reliance on dividend constancy made it less relevant to firms like Marico, whose dividend policies, though frequent, are not the sole drivers of shareholder value. The findings highlight that the appropriateness of a valuation model within an emerging market context is not solely a matter of theoretical soundness but also of the firm's capital structure, attitudes towards reinvestment, and market conditions.

Overall, the study sees value in the use of context-sensitive and hybrid valuation methods, particularly for firms operating in structurally inefficient or behaviorally affected markets like the Dhaka Stock Exchange.

6.2 Limitations of the Study.

Focus on a Single Company: The case study design restricts the findings' applicability to other markets or industries.

Data Availability: Making deductive conclusions based on assumptions and historical data that do not account for future volatility, strategic shifts, or macroeconomic shocks would be detrimental.

Static Assumptions: The models assume that growth and risk parameters will remain constant, but in practice, variables like currency devaluation and political Unpredictability can lead to significant swings.

Restricted Market Multiples: The market multiple approach might not fairly represent industry-wide valuation benchmarks due to the limited number of comparables available on the DSE.

6.3 Recommendations/Proposed Solutions.

1. Establish a Contextual Valuation Framework Tailored to Frontier Markets

Issue:

Conventional Models like DDM rely heavily on consistent dividend policies, which are not the case in Bangladesh. P/E multiples can also distort value via speculative investor behavior in the DSE.

Suggested Change:

Adopt a contextual valuation framework with both intrinsic (e.g., FCFE) and relative (e.g., sector-adjusted P/E) methodologies, which involve:

- Risk-adjusted growth rates
- Behavior-adjusted market sentiment filters
- Liquidity and governance variables

Rationale:

The FCFE model (P/E-based) consistently outperformed default DDM estimates. Also, the reality that low R^2 (7.09%) in the regression implies that firm-specific factors dominate market patterns supports tailored model selection over mass application.

2. Require More Transparent and Forward-Looking Corporate Disclosures

Problem:

Limited transparency of earnings estimates, capex plans, and dividend strategies limits reliable input assumptions for valuation.

Proposed Change

The DSE and BSEC should introduce a forward-looking disclosure requirement, wherein listed firms would be required to publish projected earnings, dividend strategies, and reinvestment policies.

Rationale:

Models like FCFE are based on reinvestment and cash flow assumptions. The analysis indicates that uncertainty around Marico's future payout policy undermines DDM accuracy. Enhancing clarity would improve model accuracy and lessen investor uncertainty.

3. **Foster Hybrid Analyst Training of Investors and Fund Managers**

Issue:

Market participants over-rely on oversimplified ratios (e.g., P/E) with no understanding of underlying business models or cash flow dynamics.

Proposed Change:

Develop certified analyst training workshops on:

- Advanced valuation techniques
- Model triangulation techniques
- Scenario-based stress testing

Justification:

Research suggests that no single model is always accurate. Training investors to cross-validate models will lead to more accurate decisions and less mispricing in the DSE.

4. **Strengthen Dividend Governance through Policy Incentives**

Problem:

Announcements of dividends are self-contradictory and, at times, politically driven. This detracts from the forecasting value of models like DDM.

Recommended Change:

Adopt a corporate governance scorecard tied to tax relief for those firms which have:

- Transparency and consistent dividend policies
- Independent board-level oversight of capital utilization

Reasoning:

The literature shows that only 40% of firms make regular dividend payments. Firms with consistent payout behavior will enable more accurate valuation fidelity and investor confidence.

5. **Incorporate Behavioral and Sentiment Measures in Valuation Adjustments**

Problem:

Dominance of retail investors (~80% trading) generates behavioral biases, speculation, and momentum-driven mispricing.

Proposed Change:

Incorporate investor sentiment indexes (e.g., volatility in trading volume, news sentiment, Google trends) into valuation output adjustments.

Reasoning:

The research highlighted that speculative activity warps market multiples. Sentiment measure-based valuation output adjustments can improve quality of decisions, particularly for large institutional investors.

The above solutions go beyond being purely theoretical recommendations. They are oriented towards structural, informational, and behavioral problems of markets like Bangladesh. They all aim to upgrade equity valuation practices, bridge the gap between theory and practice, and ultimately improve market efficiency in the DSE.

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Appendix

Determining the Required Rate of Return.

Using market cap			
Year	Mkt cap (Tk mn)	Return	
2004	224922		
2005	233542	3.83%	103.83%
2006	323368	38.46%	138.46%
2007	753955	133.16%	233.16%
2008	1059530	40.53%	140.53%
2009	1887177	78.11%	178.11%
2010	3471109	83.93%	183.93%
2011	2327000	-32.96%	67.04%
2012	1933500	-16.91%	83.09%
2013	1977400	2.27%	102.27%
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%
2021	5142800	64.85%	164.85%
2022	5177800	0.68%	100.68%
2023	7702322	48.76%	148.76%

Using DSEX/DGEN			
Year	Index	Return	
2004	1916.73		
2005	1630.91	-14.91%	85.09%
2006	1564.94	-4.04%	95.96%
2007	2933.67	87.46%	187.46%
2008	2717.94	-7.35%	92.65%
2009	4409.94	62.25%	162.25%
2010	8060.85	82.79%	182.79%
2011	5112.03	-36.58%	63.42%
2012	4102.48	-19.75%	80.25%
2013	4266.55	4.00%	104.00%
2014	4864.96	14.03%	114.03%
2015	4629.64	-4.84%	95.16%
2016	5036.05	8.78%	108.78%
2017	6244.5223	24.00%	124.00%
2018	5385.6413	-13.75%	86.25%
2019	4452.9347	-17.32%	82.68%
2020	5402.0659	21.31%	121.31%
2021	6756.6568	25.08%	125.08%
2022	6206.8139	-8.14%	91.86%
2023	6246.4954	0.64%	100.64%

Source: Bangladesh Bank Annual Report				Using Index		Using Market Cap	
Whole Period	Using Market Cap	Using Index	Index Without Outliers	Last 5 Years	Last 10 Years	Last 5 Years	Last 10 Years
R_m Market Return	20.44%	6.42%	-0.52%	3.01%	3.89%	14.89%	14.57%
Expected Market Return	**17.50%**	This will be used for calculating the Required Return					

=AVERAGE(N12,Y12)

Beta	0.3087
Risk-Free Rate	11.95%
Required Rate of Return	
Formula	$r = rf + \{\beta \times (rm - rf)\}$
	11. 96% +{ 0.30872 × (17.50% − 11.96%)
	13.66%
Expected Market Return	**17.50%**

The data used in the valuation models was sourced from several platforms, that is, the DSEX Index, Investing.com, and CEIC Data. Stock returns were approximated with the discrete method and a backtesting window of 20 years. Both market capitalization figures and the DSEX index were initially used in estimating the market return. But in light of structural changes following the 2011 crash of the capital market, which saw substantive index

composition changes, it was deemed more consistent to provide primacy to market capitalization data from the Dhaka Stock Exchange (DSE) in the final calculation.

To estimate the firm's cost of equity, the mean return of both the index-based and market capitalization-based estimates was utilized. The risk-free rate was derived from the Bangladesh 1-Year Treasury Bill that was 11.965% in May 2024 and increased from 11.490% in April 2024. The required rate of return was then calculated with the Capital Asset Pricing Model (CAPM), and the cost of equity was 13.66% for Marico Bangladesh Ltd.

Assumption sheet.

	Assumptions					
	2024	2023	2022	2021	2020	Average (2023-2020)
Sales growth	2.75%	8.46%	15.26%	15.42%	11.72%	12.72%
Current assets/Sales	103.37%	141.78%	229.72%	256.98%	244.90%	218.34%
Current liabilities/Sales	58.67%	177.22%	307.65%	282.46%	290.94%	264.57%
Net fixed assets/Sales	13.03%	424.47%	473.72%	405.56%	547.57%	462.83%
Costs of goods sold/Sales	41.99%	207.53%	218.62%	243.06%	237.02%	226.56%
Depreciation rate	12.50%	12.50%	12.50%	12.50%	12.50%	12.50%
Interest rate on debt	12.47%	12.47%	12.47%	12.47%	12.47%	12.47%
Tax rate	22.50%	22.50%	22.50%	22.50%	22.50%	22.50%
Dividend payout ratio	13.70%	61.00%	70.90%	91.20%	113.00%	84.03%

Pro Forma Financial Statements

	Income statement of Marico (All values BDT millions)					
Year	2024	2025	2026	2027	2028	2029
Sales	14524.00	16371.05	18453.00	20799.71	23444.85	26426.39
Costs of goods sold	-32905.17	-37089.80	-41806.59	-47123.23	-53116.01	-59870.89
Interest payments on debt	6788.26	-622.98	-823.73	-1062.91	-1332.52	-1636.41
Depreciation	-272.00	-671.01	-817.83	-991.52	-1196.60	-1438.28
Profit before tax	-11864.91	7822.24	8634.00	9527.88	10526.16	11640.85
Taxes	-2669.60	1760.00	1942.65	2143.77	2368.39	2619.19
Profit after tax	-9195.30	6062.23	6691.35	7384.11	8157.77	9021.66
Dividends	-7726.35	5093.79	5622.41	6204.50	6854.57	7580.45
Retained earnings	-16921.66	11156.03	12313.75	13588.61	15012.34	16602.11
EPS	146.23	192.45	212.42	234.42	258.98	286.40

	Balance sheet of Marico (All values BDT millions)					
	2024	2025	2026	2027	2028	2029
Cash and marketable securities	1887.00	11835.45	22684.56	34622.25	47773.73	62278.32
Current assets	31712.15	35745.06	40290.84	45414.72	51190.22	57700.19
Fixed assets at cost	68871.47	5905.77	7179.49	8684.87	10460.67	12551.82
Accumulated depreciation	-1650.00	-2321.01	-3138.83	-4130.36	-5326.95	-6765.23
Net fixed assets	67221.47	75770.18	85406.05	96267.34	108509.88	122309.34
Total assets	100820.62	23352.50	35666.26	49254.86	64267.20	80869.31
Current liabilities	38425.88	43312.58	48820.75	55029.39	62027.61	69915.81
Debt	54436.74	-2851.98	-3753.69	-4770.07	-5915.71	-7207.04
Stock	315.00	315.00	315.00	315.00	315.00	315.00
Accumulated retained earnings	7643.00	18799.03	31112.78	44701.39	59713.73	76315.84
Total liabilities and equity	100820.62	23352.50	35666.26	49254.86	64267.20	80869.31

Valuing Marico						
Weighted average cost of capital	17.43%					
Long-term free cash flow growth rate	16.18%					
Year	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**
FCF		6045.62	6766.80	7573.34	8475.25	9483.69
Terminal value						881452.3279
Total		6045.62	6766.80	7573.34	8475.25	890936.02
Enterprise value: PV of FCFs and terminal value	$418,169.20					
Add back initial cash	1887.00					
Asset value	$420,056.20					
Subtract year 0 debt	-54437					
Imputed equity value	$365,619.46					
Free Cash Flow Calculation						
Profit after Tax		6,062.23	6,691.35	7,384.11	8,157.77	9,021.66
Add back depreciation		671	818	992	1,197	1,438
Subtract Increase in Current Assets		(4033)	(4546)	(5124)	(5775)	(6510)
Add back increase in current liabilities		4886.71	5508.16	6208.65	6998.22	7888.20
Subtract increase in Fixed assests at cost		-1075.45	-1273.71	-1505.38	-1775.80	-2091.15
Add back net interest after taxes		482.8078381	638.3883378	823.7575384	1032.700573	1268.21538
Free Cash Flow		6045.62	6766.80	7573.34	8475.25	9483.69