STUDY OF VARIOUS FACTORS AFFECTING THE CHANGE IN STOCK PRICE OF MRF LTD

SNEHA RASTOGI

Master Of Business Administration, K.J Somaiya Institute Of Management

Email Id : Rastogi.Sneha@Gmail.Com

ABSTRACT

This study examines the factors affecting the stock price fluctuations of MRF Ltd., a prominent tyre producer in India. The research employs financial statement analysis, technical charting, and macroeconomic trends to illustrate a contradiction where diminishing profitability and liquidity ratios combine with a substantial rise in valuation metrics and stock price. The results highlight the essential influence of sales performance, market sentiment, and institutional investments on stock price appreciation. Notwithstanding these advancements, difficulties in operational efficiency and liquidity management endure, requiring strategic interventions. This report addresses deficiencies in current literature by delivering a thorough analysis of MRF's financial and market performance, presenting actionable ideas for enduring success.

1. INTRODUCTION

The Indian automobile sector is among the largest and most rapidly expanding globally, significantly contributing to the nation's economy. It includes a diverse array of vehicles, such as passenger automobiles, commercial vehicles, motorcycles, and electric vehicles (EVs). Prominent entities include Tata Motors, Maruti Suzuki, Mahindra & Mahindra, alongside global leaders such as Hyundai and Toyota, propel the industry. India serves as a global center for compact automobiles due to its economical manufacturing and proficient labour force(Ghosh, 2016). In recent years, there has been a notable advancement in green mobility, accompanied by heightened governmental endorsement for electric vehicles via projects such as the FAME (Faster Adoption and Manufacturing of Hybrid and Electric Vehicles) scheme.

The industry substantially contributes to GDP and jobs, with robust backward connections to industries such as steel, rubber, and plastics. Notwithstanding hurdles like as volatile fuel prices and regulatory modifications, the Indian automobile sector is positioned for sustained expansion, propelled by increasing incomes, urbanisation, and technological innovations(Kaluge et al 2019). The Indian automotive industry is poised to become the world's third-largest by 2032, with significant growth expected in vehicle production and sales. This growth will have a profound impact on the Indian tyre industry, which is closely tied to the automotive sector. Currently dominated by replacement tyre demand, the industry is driven primarily by two- and three-wheeler tyres, followed by passenger cars and commercial vehicles.

MRF Ltd (Madras Rubber Factory) is a prominent tyre producer in India and a worldwide acknowledged name in the automotive sector. Established in 1946 as a modest balloon manufacturing enterprise in Chennai, Tamil Nadu, MRF has evolved into a multi-billion-dollar corporation. It specialises in manufacturing tires for passenger vehicles, motorcycles, lorries, buses, and off-road vehicles, in addition to conveyor belts, paints, and coatings.

MRF is distinguished for its superior products and is a market leader in India, exporting to more than 65 countries. The corporation manages several advanced manufacturing plants around India and invests significantly in research and development to improve performance, durability, and sustainability. It is recognised for its participation in motorsport, sponsoring rallies and races to advocate for automotive excellence. The brand's slogan, "Tyres with Muscle," signifies its emphasis on durability and dependability.

MRF's stock is among the priciest in India, frequently trading in lakhs per share on the Bombay Stock Exchange (BSE) and the National Stock Exchange (NSE). This elevated valuation signifies its robust financial performance, market supremacy, and unwavering investor trust. Recognized for its commitment to quality and innovation, MRF has expanded its product portfolio to include a diverse range of rubber products, paints, and even sports

goods. The company's association with sports, particularly cricket, further enhances its brand identity. Through constant innovation and a focus on social responsibility, MRF has established itself as a leader in the Indian market and beyond, promising an exciting journey ahead. Limited inquire about ruins our understanding of the Indian tire industry(Ghosh, 2016). The effect of financial variables and past embarrassments remains covered in secret. Economical hones and inventive reusing strategies merit closer examination. Conventional investigation strategies exist but progressed procedures like machine learning hold guarantee. A more nuanced understanding of industry classification's part in company valuation is crucial. Thus, the objective of the study are:

- To evaluate the financial performance of MRF Ltd. by analyzing key profitability, liquidity, and valuation metrics over the past decade.
- To investigate the influence of technical factors and price trends through technical chart analysis on the stock price movement of MRF Ltd.
- To identify and analyze the macroeconomic and market-specific factors contributing to the fluctuations in MRF's stock price.
- To provide actionable insights and recommendations for enhancing operational efficiency, liquidity management, and long-term sustainability.

2. LITERATURE REVIEW

The relationship between macroeconomic variables and stock market performance has been extensively studied in various contexts, including India. Researchers have explored the impact of factors such as inflation, industrial production, money supply, and exchange rates on stock prices. Early studies by Sharma and Kennedy (1977) and Sharma (1983) evaluated the efficiency of the Bombay Stock Exchange (BSE) and found evidence of random-walk behavior, indicating weak-form market efficiency. Poterba and Summers (1988) identified mean reversion in Indian stock prices, suggesting departures from this behavior in the long run. Darrat and Mukherjee (1987) employed a vector autoregression (VAR) model to establish a causal relationship between stock returns and macroeconomic variables. Later studies, such as those using Johansen's Vector Error Correction Model (VECM), refined these analyses by addressing potential misspecification issues in earlier models. These studies underscored the significance of long-term equilibrium relationships among variables like inflation, output growth, and interest rates, which remain key determinants of stock market dynamics.

Recent advancements in financial modelling have introduced multi-factor models to assess asset pricing and stock behavior. Techniques like principal component analysis and machine learning have gained prominence, offering deeper insights into the interplay of macroeconomic indicators and stock market trends. Despite these developments, gaps remain, particularly in the context of industry-specific analyses and post-reform Indian markets. In the case of the Indian tyre industry, limited research has addressed the financial and technical factors influencing stock prices (Singh et al, 2022). MRF Ltd., a market leader, provides an intriguing case study due to its high stock valuation and unique market dynamics. Existing literature has primarily focused on broader market trends, leaving a gap in understanding sector-specific influences such as raw material costs, regulatory changes, and

technological advancements. This study aims to bridge these gaps by integrating financial statement analysis, technical charting, and macroeconomic trends to comprehensively examine the factors influencing MRF's stock performance. Past studies analysed the interrelations of specific macroeconomic variables and the Indian stock market using a vector error correction model in the Indian setting. It was reported that three long-term equilibrium relationships exist among these variables. Their findings indicated that domestic inflation is the primary impediment to Indian stock market performance, while domestic output growth serves as its main catalyst. Existing studies on the time-series behaviour of the BSE do not encompass the post-reform years. Sharma and Kennedy (1977) and Sharma (1983) evaluate the weak-form efficiency of the BSE. Both studies, the first examining the 1963-1973 period and the second spanning 1973-1978, found that Indian stocks predominantly exhibited random-walk behaviour. Poterba and Summers (1988) identify evidence of mean reversion in Indian stock prices based on quarterly data, indicating a departure from random-walk behaviour. Darrat and Mukherjee (1987) employ a vector autoregression model (VAR) in conjunction with Akaike's final-prediction-error on Indian data from 1948 to 1984, revealing a significant causal association (Granger, 1969) between stock returns and specific macroeconomic variables. Johansen's VECM, a typical method for analysing cointegrating connections among financial variables, circumvents any misspecification issues associated with the VAR methodology utilised in the Darrat and Mukherjee (1987) study. If the variables in their article are cointegrated, the model may be misspecified since it omits an extra channel of influence stemming from a long-term equilibrium relationship among these variables (Engle and Granger, 1987). Progress in this area for the Indian economy has been minimal.

Researchers have analysed the correlations between stock prices and significant macroeconomic factors, namely, the rupee's exchange rate against the dollar, the prime lending rate, narrow money supply, and the index of industrial production. The literature review indicates that asset pricing theories fail to identify the fundamental macroeconomic factors or systematic risk factors influencing stock prices (Mahtani and Garg, 2018). The empirical analysis employs specific software and relies on the availability of data as well as statistical criteria commonly utilised in variable selection. The APT methodology aims to quantify the risk premium associated with different risk indicators and assesses their significance and incorporation into stock market outcomes. Numerous methodologies exist for examining security-pricing behaviour, including standard factor analysis, cross-sectional regression analysis, principal component analysis, maximum likelihood analysis, multivariate analysis, and the generalised technique of moments. In recent years, multi-factor modelling has emerged as a prevalent instrument for asset price research. Numerous factor models seek to elucidate asset returns and their correlation matrix based on a finite range of risk characteristics.

3. RESERCH METHODOLOGY

Secondary data has been collected from December 2013 to December 2023.The evaluation is grounded from the data obtained from the annual reports disseminated by MRF Ltd., together with further enquiries regarding documentation related to the analysis of various other tire industry companies listed on the Indian Stock Market. Various ratios have been computed to analyse trends, including Liquidity Ratios, Profitability Ratios, Valuation Ratios. Further, Comparative Statements, Trend Analysis, and Technical Price Chart Analysis is also studied published in official statement by the MRF Ltd.

4. DATA ANALYSIS

After analyzing the financial records of MRF Ltd. from FY2012-13 to FY2022-23, we have made a comparative sheet for each year and thus have used computed various ratios to find the Financial Health of the firm.

Table I Profitability Ratio

Key Ratios	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23
Profitability Ratios											
PBDIT Margin	14.8	15.1	25.45	23.56	22.05	17.22	16.81	16.59	19.48	12.25	11.45
PBIT Margin	11.72	11.89	21.86	19.86	17.45	12.46	11.72	10.46	12.34	5.93	5.92
Net Profit Margin	6.61	6.8	13.76	12.43	10.95	7.36	6.92	8.72	7.84	3.4	3.61
ROE	22	19.87	15.28	34.54	16.98	11.37	10.29	11.62	9.47	4.69	5.62

From the above data, we can clearly see that the Profit Before Depreciation, Interest and Tax (PBDIT) margin rose from FY2013 to FY2017 and after that kept on declining hitting it's lowest point of 11.45 in FY2023.Profit Before Interest and Tax (PBIT) Margin also acted in a similar manner and was at it it's lowest in FY2023 at 5.92.Similarly, the Net profit Margin also nearly halved from what it was in FY2013 to FY2023 from 6.61 to 3.61.Infact, the Return on Equity (ROE) also decreased from 22 in FY2013 to 5.62 in FY2023. This indicates very poor profitability in the firm.

Table II Liquidity Ratio

Key Ratios	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23
Liquidity Ratios											
Current Ratio	2.01	2.04	2	1.55	1.61	1.69	1.53	1.54	1.41	1.45	1.22
Quick Ratio	1.24	1.35	1.34	1.08	1.07	1.21	0.99	0.99	1.01	0.86	0.67
Inventory Turnover Ratio	6.76	7.33	1.99	10.58	5.54	6.82	5.37	5.61	5.53	3.82	3.83

From the above table, we can clearly see that all the ratios from the past 10 years are changing negatively. The Current Ratio reduced from 2.01 in FY2013 to 1.22 in FY2023.While the Quick ratio reduced from 1.24 in FY2013 to 0.67 in FY2023 and the

Inventory Turnover Ratio reduced from 6.76 in FY2013 to 3.83 in FY2023.This again, indicates poor liquidity within the firm.

Table III Valuation Ratio

Key Ratios	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23
Valuation Ratios											
Price to Book Value	1.55	3.06	2.92	2.27	3.01	3.19	2.31	2.06	2.65	2	2.46
Enterprise Value	6756	14933	18741	18911	27283	32064	26019	24608	35608	29427	37456
Price to Earnings	7.9	11.1	14.5	8.1	17.8	29	22	24.5	20.7	35.8	55.1

From the above data, we can observe that the Price to Book (P/BV) ratio of the firm has been rising. From 1.55 in FY2013 to 2.46 in FY2023.Moreover, the enterprise value has shown a growth of 5x from FY2013 to FY2023. It has risen from 6755Cr. In FY2013 to 37456 Cr. In FY2023.Because of the rise in the enterprise value and the Price to book value and the changes in the earnings of the company as well as its Stock Price, we can observe a significant rise in it's Price to Earnings (PE) ratio as well. It has also shown 6x growth from 7.9 in FY2013 to 55.1 in FY2023.

Figure I Trend Line Chart of MRF Share Price(2013-2014)

This can be one of the key reasons for the surge in the share price MRF Ltd. Let's move ahead with the trend analysis and analyze the trend for the stock based on the technical as
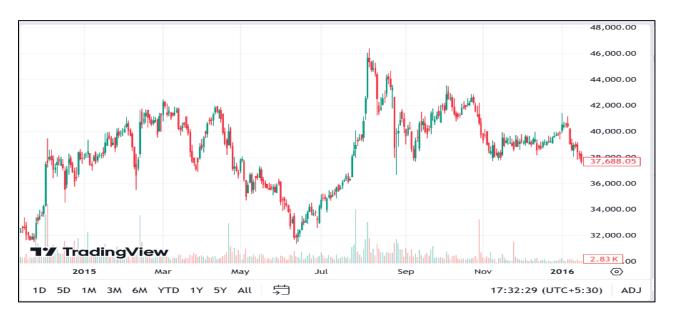
well as the fundamental factors from April 2013 to December 2023.The recorded price for 1 Share of MRF Ltd. was Rs. 13181 on 1st April 2013, while the price for the same 1 Share of MRF on 1st January 2024 was Rs. 142705. That's over 10x of returns in a matter of 10 years. Let's dive into the Technical Analysis and see what made MRF such a multibagger stock. The earnings for FY2013 were released on 25th September 2013 and from that date, we can see an upsurge in the stock which lasted till 20th December 2013 in Figure I.

Figure II Trend Line Chart of MRF Share Price(2014-2015)

Looks like the company's stock price took off after they released their numbers for the 2013 fiscal year. In Figure II there's a clear jump in price in August 2014, right when the results came out. Same thing happened with the 2014 results. After they were released in August 2014, the stock price went up again in September. The increase was somewhere between 10% and 20%.

Figure III Trend Line Chart of MRF Share Price(2015-2016)

After the strong rally in the first 10 Days of September, the stock tends to enter a range of 3000 pts between 30,000 and 33,000.However, by 2015, the stock was trading at around 3x of it's PE Ratio and the P/BV was also very high. Thus, we saw a corrective move in the stock in Figure III

Figure IV Trend Line Chart of MRF Share Price(2016-2017)

Similarly we can notice that this pattern has been followed at various times when the company released their financial statements for the Financial Year. However, the most shocking part is, that MRF Ltd. became the first company in India to cross the share price of Rs. 1 Lakh while also being the company with the largest market capitalization in the Tyre

Industry. Well, this was mainly because MRF has significantly improved their sales. Their sales growth has been increasing ever since FY2016 till FY2023 in Figure IV.

Figure V Trend Line Chart of MRF Share Price(2017-2018)

Figure VI Trend Line Chart of MRF Share Price(2021-2022)

Figure VII Trend Line Chart of MRF Share Price(2022-2023)

This figure has been directly shown from MRF's Financial Records, and as per the data, the company saw a negative growth in 2017 and 2021. While the highest sales growth was seen in 2016 and 2022 which was 50.69% and 19.28%, respectively.

Thus, we can see the rising Prices of the stock in 2016, 2022 and 2023 creating new life-high prices every year. Here we can see that the stock price surged above Rs.1,00,000 in 2023 after a re-rating by several credit rating agencies, increased demand from various Mutual Fund Institutions, Retail buying as well as strong fundamentals. As on date (Feb 15, 2024) the stock has touched it's life-time high of Rs.1,50,000 and still remains the most expensive stock in the Indian Stock Market.

5. FINDINGS

5.1 Financial Statement Analysis

The financial performance of MRF Ltd. from FY2013 to FY2023 reveals critical trends in profitability, liquidity, and valuation. Profitability ratios, including the PBDIT margin, PBIT margin, and net profit margin, have shown a marked decline over the decade. For instance, the PBDIT margin decreased from 14.8% in FY2013 to 11.45% in FY2023, reflecting challenges in maintaining operational efficiency. Similarly, the Return on Equity (ROE) dropped from 22% to 5.62%, highlighting diminished shareholder returns.

Liquidity ratios have also deteriorated, with the current ratio falling from 2.01 in FY2013 to 1.22 in FY2023 and the quick ratio declining from 1.24 to 0.67. These figures indicate a growing inability to meet short-term obligations, raising concerns about the company's

financial stability. Inventory turnover ratios followed a similar trajectory, dropping from 6.76 to 3.83, suggesting inefficiencies in inventory management.

In contrast, valuation ratios paint a different picture. The Price-to-Earnings (P/E) ratio surged from 7.9 in FY2013 to 55.1 in FY2023, driven by a significant increase in enterprise value and investor sentiment. The stock's price-to-book value also rose from 1.55 to 2.46 during the same period. This divergence between declining operational performance and rising valuations underscores the influence of external factors such as market sentiment, improved sales growth, and institutional investments.

5.2 Technical Price Chart Analysis

Technical analysis of MRF's stock price from 2013 to 2023 reveals distinct patterns that align with key financial events. The stock price exhibited a tenfold increase, rising from Rs. 13,181 in April 2013 to Rs. 142,705 in January 2024. Significant price movements often coincided with the release of annual financial results, suggesting a strong reaction to earnings announcements.

For instance, the stock experienced a sharp rally following the FY2013 earnings release in September 2013. Similar trends were observed in subsequent years, with price surges following earnings announcements in 2014 and 2016. However, periods of correction, such as in 2015 and 2016, were marked by bearish chart patterns like descending triangles, signaling investor caution amid high valuations.The stock's ability to consistently break through resistance levels and establish new highs can be attributed to improved sales performance and positive analyst reassessments. Notably, MRF became the first Indian company to cross a stock price of Rs. 1 lakh in 2023, a milestone-driven by strong fundamentals and market re-ratings. Despite declining profitability and liquidity ratios, MRF's stock price has demonstrated remarkable resilience, supported by strong sales growth and favorable market sentiment. However, this divergence raises concerns about long-term sustainability. To address these challenges, MRF should:

- Enhance Operational Efficiency: Focus on cost reduction through automation and supply chain optimization.
- Strengthen Liquidity Management: Improve inventory turnover and streamline receivables to bolster financial stability.
- Invest in Innovation: Allocate resources to R&D to develop sustainable and cost-effective products.
- Monitor Market Trends: Continuously analyze market dynamics to anticipate and adapt to changes.

A comparative analysis with other industry players and examining external factors such as economic conditions and regulatory policies will provide further insights into MRF's performance. By adopting a multi-faceted approach, the company can align its operational strategies with market expectations and ensure sustained growth.

6. CONCLUSION

This study conducts a comprehensive analysis of the financial and market factors affecting MRF Ltd., highlighting a distinctive relationship between diminishing profitability and liquidity and a significant increase in valuation metrics and stock prices. Primary factors contributing to this contradiction encompass substantial sales expansion, favourable market sentiment, and institutional investor assurance. The analysis identifies significant issues, including diminishing operational efficiency and liquidity management, that jeopardise the company's long-term viability despite its remarkable market performance. MRF must prioritize operational efficiency by optimizing costs and using automation, while enhancing liquidity through the streamlining of inventory and receivables management. Moreover, continuous investments in research and development, as well as innovation, are essential for preserving competitive advantage in a swiftly changing sector.

The research underscores the necessity of employing a diverse strategy for financial analysis, incorporating comparative benchmarks alongside industry counterparts and external economic variables. This thorough analysis enhances the comprehension of MRF's performance and provides practical insights for other participants in the Indian tyre sector. The findings emphasize the need for strategic adaptation, ongoing development, and innovation to manage market challenges and secure sustainable growth for MRF Ltd. and comparable entities.

REFERENCE

Ghosh, P. (2016). Analysis of Profitability and Risk: A Case Study of MRF LTD.

Kaluge, D., Tufail, M. S., & Muneer, S. (2019). Multifactor on macroeconomic fundamentals to explain the behavior of sectoral indices in the Indonesian stock exchange. *Entrepreneurship and Sustainability Issues*, *7*(1), 44-51.

Singh, P. R., Manohar, N., & Mahesh, R. (2022, November). Stock Price Prediction System with Improved LSTM. In *2022 IEEE North Karnataka Subsection Flagship International Conference (NKCon)* (pp. 1-6). IEEE.

Mahtani, U. S., & Garg, C. P. (2018). An analysis of key factors of financial distress in airline companies in India using fuzzy AHP framework. *Transportation Research Part A: Policy and Practice*, *117*, 87-102.

Sharma, J. L., & Kennedy, R. E. (1977). A comparative analysis of stock price behavior on the Bombay, London, and New York stock exchanges. *Journal of Financial and Quantitative Analysis*, *12*(3), 391-413.

Sharma, A. D., Saffitz, J. E., Lee, B. I., Sobel, B. E., & Corr, P. B. (1983). Alpha adrenergic-mediated accumulation of calcium in reperfused myocardium. *The Journal of clinical investigation*, *72*(3), 802-818.

Poterba, J. M., & Summers, L. H. (1988). Mean reversion in stock prices: Evidence and implications. *Journal of financial economics*, *22*(1), 27-59.

Granger, C. W. (1969). Investigating causal relations by econometric models and cross-spectral methods. *Econometrica: journal of the Econometric Society*, 424-438.

Engle, R. F., & Granger, C. W. (1987). Co-integration and error correction: representation, estimation, and testing. *Econometrica: journal of the Econometric Society*, 251-276.