Soaring PE Ratios of Indian Stocks and Price Surges: A Study on Earnings Correlation

Vignesh Suryadevara

Alumini of Chaitanya Bharati, Institute of technology

Abstract **This research article investigates the correlation between soaring Price-to-Earnings (PE) ratios, stock price rallies, and EBIDT growth within the Indian market. Utilizing a dataset of stocks whose PE ratio grew rapidly in the previous 3 years between 25th May 2021 to 16th June 2024 for which the time of study upfront done during mid 2024, we are going to study how the sudden rise in PE drive the stock price and consequently check whether it is supported by the company earnings.**

Index Terms— **Soaring PE Ratios, Price Rally, Earnings, Pearson Correlation**

I. INTRODUCTION

The stock market has long been a barometer of economic health and investor sentiment, with price movements often reflecting underlying business performance and broader economic trends. One of the key metrics used to assess stock valuations is the Price-to-Earnings (PE) ratio, which compares a company's current share price to its per-share earnings. A soaring PE ratio can indicate high investor expectations for future growth but may also signal overvaluation if not supported by fundamental earnings performance.

In recent years, the Indian stock market has experienced significant volatility, with various stocks showing remarkable price rallies. This study aims to explore whether these price increases are underpinned by a corresponding growth in earnings or if they are primarily driven by speculative market behavior. By focusing on a sample of 272 Indian stocks screened for market capitalization and historical PE ratios, we seek to draw a comprehensive correlation between PE ratios, price rallies, and earnings performance.

1.1 Why Does the PE Ratio Soar High?
The PE ratio can soar for several reasons, often reflecting complex dynamics between market expectations, investor behavior, and macroeconomic factors. High PE ratios typically occur in anticipation of strong future earnings growth, driven by factors such as technological advancements, strategic corporate initiatives, or favorable industry trends. Moreover, market sentiment plays a crucial role; heightened investor optimism can lead to speculative trading, driving up stock prices and, consequently, PE ratios. Economic conditions, including low-interest rates and abundant liquidity, also contribute by making equities more attractive relative to other asset classes. However, not all high PE ratios are justified by fundamentals, as evidenced by historical market bubbles where prices were inflated beyond reasonable expectations of earnings growth.

1.2 Market Dynamics and Investor Sentiment
Investor sentiment and market dynamics are critical in influencing PE ratios. Positive news, industry trends, and broader economic indicators can lead to heightened investor confidence, resulting in increased demand for stocks and elevated PE ratios. Conversely, negative news or economic downturns can dampen sentiment and compress PE ratios, even if earnings remain stable.

1.3 Impact of Macroeconomic Factors
Macroeconomic factors, such as interest rates, inflation, and government policies, play a significant role in shaping market conditions. Low interest rates, for instance, lower the cost of capital, encouraging investment in equities and driving up stock prices relative to earnings. Additionally, inflation expectations and fiscal policies can influence corporate earnings forecasts and, by extension, PE ratios.

1.4 Role of Speculation and Market Bubbles
Speculation can significantly distort stock valuations, leading to inflated PE ratios that are not supported by fundamental earnings growth. Historical market bubbles, such as the dot-com bubble, illustrate how

speculative behavior can drive stock prices to unsustainable levels. This study examines whether current price rallies in the Indian market exhibit similar speculative characteristics, potentially signaling the formation of bubbles.

II. RESEARCH OBJECTIVES

This research aims to:
1. Analyze the correlation between soaring PE ratios and stock price rallies in the Indian market.
2. Investigate the role of earnings performance in supporting or contradicting these price increases.

In the following sections, we will detail our methodology, present the data and results, and discuss the implications of our findings in the context of the Indian stock market.

III. COLLECTION OF DATA SET

The selection criteria for filtering stocks in this study were meticulously designed to ensure the analysis focused on companies with significant market presence and robust financial data. By setting a threshold for market capitalization, we aimed to exclude extremely small and potentially volatile companies, thus concentrating on stocks that are more likely to exhibit stable performance trends. Additionally, the requirement for positive historical PE ratios ensured that only companies with a consistent record of profitability were included. EBIDT (Earnings Before Interest, Depreciation, and Taxes) was chosen as a proxy for earnings due to its ability to provide a clearer picture of a company's operational performance, excluding the effects of financial structure and accounting practices. This metric is particularly useful in comparing companies across different industries and sizes, as it highlights core earnings power without the distortions introduced by interest, depreciation, and tax variations. The parameters that have been considered for filtering out the stocks are:
• Market Capitalization: Above 2000cr
• Soar in PE: More than 2 times (25%)
• Timeline: 25/05/2021 - 16/06/2024

After filtering based on our specified parameters, our investigation focuses on a dataset comprising 191

stocks. Given the impracticality of presenting a table listing all 191 stocks, below is an overview of the dataset:

Soar in PE %	25 to 70	70 to 120	120 to 170	170 to 200	Above 200
Frequency	159	24	5	2	1

Table 3.1: data set of soar in PE
(Range: 25% to 222.17%)

EBIDT Variation%	-50 to 0	0 to 50	50 to 100	100 to 200	above 200
Frequency	38	126	26	4	3

Table 3.2: Data set of EBIDT Variation
(Range: -37.9 to 367.4)

Return on Stock %	-20 to 0	0 to 50	50 to 100	100 to 200	above 200
Frequency	9	80	67	25	8

Table 3.3: Data set of Return on Stock Price
(Range: -15.28 to 368.78)

IV. METHODOLOGY

To examine the correlation between soaring Price-to-Earnings (PE) ratios and stock price rallies, as well as the corresponding earnings performance, we conducted an empirical analysis using a dataset of 191 Indian stocks. The selection criteria for these stocks included a market capitalization exceeding ₹2000 crores and soar in PE ratio over the last three years, ranging from 2 (26%) times to 33 (222%) times which is the utmost value, ensuring that only significant and relevant stocks were considered. Initially the study is taken forward through visual representation of the data set and later through statistical methods.

4.1 Generating Scatter Plot
Two scatter plots were generated to visually represent these relationships: the first plot fig 4.1 illustrated the correlation between the soar in PE ratios and the variation in stock prices over the same period, while the second plot 4.2 depicted the relationship between the soar in PE ratios and the growth in Earnings Before Interest, Depreciation, and Tax (EBIDT). These visualizations were created using Microsoft Excel to facilitate a straightforward analysis of the data trends and patterns.
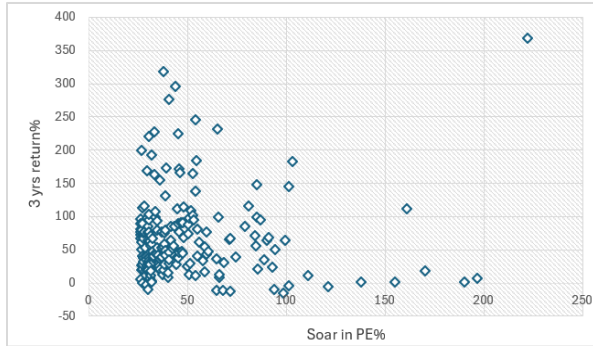
Fig 4.1: Scatter plot representing the variation of price return% versus soar in PE% in 3 years
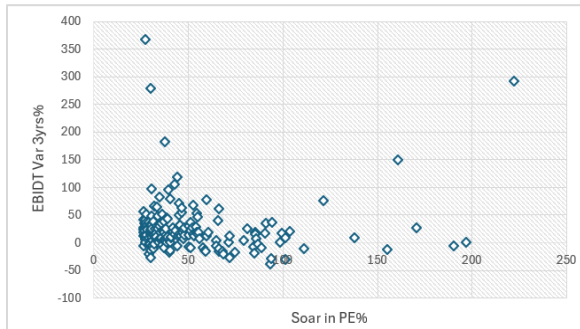

Fig 4.2: Scatter plot representing the variation of company EBIDT% versus soar in PE in 3 years%

4.2 Statistical Investigation

To delve deeper into the relationship between the soar in PE ratios and key financial metrics over a three-year period, we conducted a statistical investigation focusing on covariance and the pearson correlation coefficient. Covariance provides insight into how two variables change together, offering a preliminary understanding of their relationship's direction, and pearson coefficient in determining the strength of correlation between two parameters. The mean and median of the data set are represented in the following table:

	Soar in PE (PE)	Variation in Earnings (EBIDT)	Variation in Stock Price (SP)
Mean	50.464	24.929	68.925
Median	38.627	16.135	55.1

The empirical formulas to find out the covariance of the data set is given as:

$$cov(x, y) = \frac{\sum_{i=1}^{N}(xi - X)(yi - Y)}{N - 1}$$

Where,
xi= the values of the X- variable
yi = the values of the Y- variable

X = Mean or the average of the X variable
Y = Mean or the average of the Y variable
N = Number of datapoints

The empirical formula to find out the pearson correlation co-efficient of data set is give as:

$$r = \frac{cov(x, y)}{\sigma x * \sigma y}$$

Where,
cov(x,y)= covariance of x,y
σx= Standard Deviation of x
σy= Standard Deviation of y

V.RESULTS

After enumerating the dataset with the formulae, the results are concluded as:
• Covariance between PE & SP: 55.665
• Covariance between PE & EBIDT: 96.814
• Pearson Co-efficient between PE & SP: 0.32
• Pearson Co-efficient between PE& EBIDT: 0.20

VI. DISCUSSIONS

The analysis of the relationship between soaring Price-to-Earnings (PE) ratios and stock performance, as measured by three-year returns and EBIDT variation, yielded several key insights. The majority of data points are concentrated between 0% and 100% on the X-axis (Soar in PE%) and between -50% and 200% on the Y-axis (3 Years Return%). There is a noticeable spread in returns when the soar in PE is low (0% to 50%), indicating that low increases in PE ratio can lead to a wide range of returns, from negative to highly positive. As the soar in PE% increases beyond 100%, the data points become sparse, reflecting that fewer companies experience such high increases in PE ratio. The few points in this range show varied returns, indicating no clear linear correlation and a high variability in returns regardless of the PE% increase. Similar to the first plot, most data points are concentrated between 0% and 100% on the X-axis (Soar in PE%) and between -50% and 150% on the Y-axis (EBIDT Variation%). When the soar in PE is between 0% and 50%, the EBIDT variation shows a wide range, from slightly negative to significantly positive.

→ Positive Correlation: As the PE increases, the returns also tend to increase.

→ Cluster of Data Points: A significant number of stocks are clustered around the lower range of both returns and EBIDT, indicating that most stocks have moderate returns and EBIDT growth.

→ Outliers: Several outliers with very high returns and EBIDT values significantly outperform the median, indicating exceptional performance.

→ Negative and Low Returns: Some stocks show negative or low returns despite having positive EBIDT, suggesting other factors influencing their stock prices negatively.

The covariance between the soar in PE ratio and stock price (SP) over three years was found to be 55.665. This positive covariance indicates that, generally, an increase in the PE ratio tends to be associated with an increase in stock price. Similarly, the covariance between the soar in PE ratio and EBIDT variation over three years was 96.814. This higher positive covariance suggests a stronger relationship between the PE ratio increase and EBIDT growth compared to the relationship between PE ratio and stock price. While the correlation coefficient between the soar in PE ratio and stock price over three years was 0.32 and between the soar in PE ratio and EBIDT variation over three years was 0.20, indicating positive correlation with moderate strength.

VII. INSIGHTS

→ Strong Performers: Stocks far above the median line are likely strong performers, showing significant stock price increases along with their earnings.

→ Potential Overvaluation: Stocks with very high returns but lower EBIDT growth might indicate potential overvaluation, where stock prices have risen due to market speculation rather than fundamental performance.

→ Growth Opportunities: Stocks with high EBIDT but moderate returns could present growth opportunities if the market has not fully recognized their earnings potential.

→ Market Efficiency: The overall positive correlation suggests a degree of market efficiency, where earnings growth is being reflected in stock prices. However, the presence of outliers indicates that other market dynamics, such as investor sentiment and external economic factors, also play significant roles.

VIII. CONCLUSION

Despite slight negative variations in earnings, our analysis revealed that earnings generally support the price rally during periods of soaring PE ratios. This positive relationship indicates that as PE ratios increase, stock prices tend to rise, driven by earnings growth. While other factors may also influence stock performance, the data suggests that rising earnings play a crucial role in supporting price increases during times of elevated PE ratios. This underscores the importance of earnings as a fundamental driver of stock price movements in the context of soaring PE ratios.

IX. ACKNOWLEDGEMENTS

X. REFERENCES

[1] Wan-Ting (Alexandra) Wu (2014), The P/E Ratio And Profitability, *Journal of Business & Economics Research.*

[2] Dr. Ashvinkumar H. Solanki (2014), Relationship between P/E Ratio and Stock Return" with Reference to BSE 100, *GJRA - Global Journal For Research Analysis.*

[3] Pu Shen (2000), The P/E Ratio and Stock Market Performance, *Economic Review*

[4] Funda H. Sezgin (2010), An Empirical Investigation Of The Relationship Among P/E Ratio, Stock Return And Dividend Yiels For Istanbul Stock Exchange, *International Journal Of Economics And Finance Studies.*

[5] https://www.screener.in/ for data collection.