

A Comparative Study of Fundamental and Technical Analysis for Predicting Stock Prices in the Indian Market

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Abstract

The Indian stock market is a dynamic and ever-evolving environment where investors continuously seek strategies that improve their ability to predict future price movements. Among the many tools and methods available for analyzing securities, fundamental and technical analysis stand out as two of the most commonly used approaches. Both aim to provide investors with valuable insights that assist in making informed decisions, yet they operate through fundamentally different mechanisms. While fundamental analysis emphasizes a company's financial strength and long-term growth potential, technical analysis is focused on identifying patterns and trends in historical price data to forecast future price behavior.

This research undertakes a comparative study of fundamental and technical analysis to evaluate their effectiveness in predicting stock prices in the Indian market. The study is based exclusively on secondary data obtained from a carefully selected sample of twenty companies representing diverse sectors such as Information Technology, Finance, Consumer Goods, and Manufacturing. Data covering a three-year period from 2021 to 2023 has been collected and analyzed using statistical tools including correlation, regression, and backtesting.

The fundamental indicators studied include Earnings Per Share (EPS), Price-to-Earnings Ratio (P/E), Return on Equity (ROE), and Debt-to-Equity Ratio. These metrics offer a deep understanding of a company's financial health, efficiency, and valuation. In contrast, the technical analysis component of the study uses indicators such as Moving Averages, Relative Strength Index (RSI), Moving Average Convergence Divergence (MACD), and Bollinger Bands.

The findings of the study reveal that fundamental analysis proves to be a more reliable method for long-term investment decisions. On the other hand, technical analysis offers superior performance in short-term trading scenarios, providing timely signals for price reversals and market trends. Most importantly, the research finds that a combined approach — utilizing both fundamental and technical analysis — results in higher prediction accuracy and better risk-adjusted returns.

This paper aims to provide a practical framework for investors, financial analysts, and portfolio managers to apply these tools effectively, based on their investment goals and time horizons. The study also contributes to academic literature by offering a structured comparison of these two widely debated methods within the context of Indian equity markets.



1. Introduction

1.1 Background and Rationale

Analytical tools that can provide clarity and foresight are of immense importance. Among these, two methods — fundamental analysis and technical analysis — are perhaps the most widely used frameworks for making investment decisions.

Fundamental analysis involves examining income statements, balance sheets, cash flow statements, and financial ratios to assess whether a company is undervalued or overvalued. Investors who rely on fundamental analysis typically look for long-term value and aim to invest in companies that have strong earnings, healthy profit margins, efficient capital use, and low debt levels. Ratios like EPS, P/E, ROE, and the Debt-to-Equity Ratio are central to this approach.

Technical analysis studies historical price data, trading volumes, and chart patterns to predict future movements. Technical analysts believe that all known information is already reflected in the stock price, and that market trends, once established, are likely to continue. Indicators such as Moving Averages, RSI, MACD, and Bollinger Bands help identify trends, momentum, and potential price reversals.

While both methods have their own strengths, they cater to different types of investors. Fundamental analysis is best suited for those with a long-term horizon who wish to invest in quality businesses and hold them for years. Technical analysis, on the other hand, appeals to short-term traders who aim to profit from price fluctuations by entering and exiting positions frequently. Yet, despite their distinct nature, both approaches serve the common objective of improving investment outcomes.

In India, the growing participation of retail investors, the rapid digitization of trading platforms, and increased access to financial information have heightened the need for analytical frameworks that can guide investment decisions. The Indian stock market, while maturing, still displays characteristics of inefficiency, such as delayed price reactions, behavioral biases, and information asymmetry. This creates opportunities for analysis-based prediction strategies.

This study seeks to explore how effective fundamental and technical analysis are in the Indian market, both individually and when used together. It aims to identify whether these tools, when applied to selected companies from various sectors, can provide reliable predictions about stock price movements. By comparing the predictive accuracy and usefulness of both methods, this research contributes practical insights that can benefit investors, analysts, and scholars.

1.2 Scope of the Study

The scope of this study is limited to listed Indian companies from four prominent sectors: Information Technology, Financial Services, Consumer Goods, and Manufacturing. A total of twenty companies have been selected based on criteria such as data availability, market capitalization, and representation across sectors. The time frame for data collection spans from 2021 to 2023, ensuring that the findings reflect recent market behavior and conditions.



The research focuses solely on secondary data. This includes financial statements, stock price histories, and publicly available company data obtained from reliable sources such as company annual reports, stock exchange filings, and financial websites. No primary data such as surveys or interviews have been used, as the objective is to conduct a data-driven, empirical study based on quantitative indicators.

By analysing both fundamental and technical indicators over a uniform period and across comparable companies, this study allows for a fair and objective comparison of the two methods. It also explores the possibility of combining both approaches to enhance the accuracy and usefulness of stock price predictions.

1.3 Structure of the Paper

The research paper is organized into several chapters for clarity and flow. After this introductory section, the second chapter presents a review of existing literature related to fundamental and technical analysis.

2. Literature Review

Kumar, P., & Singh, R. (2017). Fundamental Analysis and Its Impact on Stock Prices: Evidence from Indian Stock Market. Journal of Finance and Economics, 5(3), 127-133.

This study investigates the impact of fundamental analysis on stock prices in the Indian stock market. The researchers use financial ratios such as Price to Earnings (P/E), Earnings Per Share (EPS), and Return on Equity (ROE) to analyze their relationship with stock prices of selected companies listed.

Patel, S., & Shah, R. (2018). The Role of Financial Ratios in Predicting Stock Prices: An Indian Perspective. Journal of Applied Finance & Banking, 8(6), 45-60.

This paper examines the effectiveness of financial ratios, including liquidity ratios, profitability ratios, and leverage ratios, in forecasting stock price movements on the NSE. Using a sample of 100 companies over 2012-2017, multiple regression analysis shows that profitability ratios, especially ROE and net profit margin, significantly influence stock prices, while liquidity ratios have a weaker impact.

Singh, M., & Sharma, L. (2019). Fundamental Analysis and Stock Performance: Evidence from Indian Equity Market. International Journal of Financial Studies, 7(4), 52.

The study analyzes the relationship between fundamental analysis metrics and stock performance across different sectors in India. Results indicate that while fundamental factors have a significant influence, sectoral variations exist, with the technology and finance sectors showing stronger correlations.

Kaur, H., & Kaur, S. (2020). Testing the Efficiency of Technical Analysis Tools: Evidence from Indian Stock Market. Asian Journal of Research in Banking and Finance, 10(3), 1-14.

This study investigates the predictive power of Moving Average Convergence Divergence (MACD)



and Bollinger Bands in the NSE. Findings suggest that MACD has moderate success in predicting bullish and bearish trends, while Bollinger Bands are less reliable for the sample period.

Sharma, A., & Jain, S. (2018). Effectiveness of Technical Analysis in Indian Stock Market: An Empirical Study. International Journal of Economics and Finance, 10(2), 45-53.

This paper explores the effectiveness of popular technical analysis tools such as Moving Averages, Relative Strength Index (RSI), and MACD in forecasting stock price trends in the Indian stock market.

Gupta, N., & Kaur, A. (2019). A Comparative Study of Fundamental and Technical Analysis in Indian Stock Market. International Journal of Business Analytics, 6(1), 22-34.

This research compares the accuracy of fundamental and technical analysis in predicting stock prices in the Indian market. Using data from 2013 to 2018 for a sample of mid-cap companies, the study applies regression models and forecasting accuracy tests.

Rana, P., & Kumar, V. (2020). An Analytical Comparison of Fundamental and Technical Analysis for Stock Price Prediction: Evidence from NSE. International Journal of Financial Research, 11(2), 50-65.

The study analyzes data from 2015-2019 to compare fundamental and technical analysis prediction models on NSE stocks. Results indicate that technical analysis provides better short-term prediction, but fundamental analysis remains more stable and reliable for long-term investments.

Basu, S. (1977). Investment Performance of Common Stocks in Relation to Their Price-Earnings Ratios: A Test of the Efficient Market Hypothesis. Journal of Finance, 32(3), 663– 682.

This seminal paper examines the relationship between P/E ratios and stock returns, finding that stocks with low P/E ratios outperform those with high P/E ratios, challenging the weak form of efficient market hypothesis.

3. Research Objectives

The research is designed to achieve the following specific objectives:

- 1. To analyze the basic principles and techniques of fundamental and technical analysis as practiced in Indian equity markets.
- 2. To examine the impact of key financial ratios (such as EPS, P/E ratio, ROE, and Debt-to-Equity) on stock prices through the lens of fundamental analysis.
- 3. **To study the predictive value of selected technical indicators** (such as Moving Averages, RSI, MACD, and Bollinger Bands) in determining short-term stock price movements.
- 4. To evaluate the performance of both analytical methods individually in the context of different industry sectors including IT, Finance, Consumer Goods, and Manufacturing.
- 5. To assess whether a hybrid approach, integrating both fundamental and technical analysis, improves prediction accuracy and investor decision-making.



6. **To provide practical insights and recommendations** for investors, traders, and financial professionals regarding the effective application of these methods in the Indian market.

They also reflect the broader purpose of helping market participants make more informed investment decisions based on empirical evidence.

4. Research Methodology

4.1 Research Design

This study adopts a **quantitative**, **comparative**, **and descriptive research design** aimed at evaluating the effectiveness of fundamental and technical analysis in predicting stock prices within the Indian stock market. The research relies exclusively on **secondary data** and uses empirical methods such as statistical correlation, regression analysis, and technical backtesting to compare both analytical approaches.

The purpose of a comparative research design is to assess how two different variables or methods perform when applied to a common subject. In this context, fundamental analysis and technical analysis are tested against real market data from the same companies over the same time period to ensure objectivity. A descriptive approach is employed to explain how each method functions, which indicators are used, and what insights they provide.

The design does not involve any experimental manipulation, as the data analyzed is historical and publicly available. Therefore, the research is both **observational and non-experimental**, focusing on identifying relationships between indicators and price movements rather than establishing causality.

4.2 Sample Selection

The companies chosen for this study were selected using **purposive sampling**, based on specific inclusion criteria. The final sample consists of **20 publicly listed Indian companies**, distributed evenly across four major sectors:

- 1. Information Technology
- 2. Financial Services
- 3. Consumer Goods
- 4. Manufacturing

The criteria for selection included:

- Availability of complete financial data for the period 2021 to 2023.
- Presence of sufficient trading volume and liquidity in stock prices to ensure valid technical analysis.
- Representation of different industry sectors to allow for a more generalizable comparison.

Each company was analyzed for a period of **three consecutive financial years**, ensuring consistency in time-frame and financial reporting standards. The selection of multiple sectors helps in



understanding how the effectiveness of analytical methods may vary across industries with different growth patterns and risk profiles.

4.3 Sources and Nature of Data

The study relies entirely on **secondary data**, which was collected from the following credible sources:

- Official websites of the National Stock Exchange (NSE) and Bombay Stock Exchange (BSE) for historical stock prices.
- Company annual reports and financial statements for data on EPS, ROE, and other ratios.
- **Reputable financial databases** like Moneycontrol, Screener.in, and Yahoo Finance for P/E ratios and other valuation indicators.
- Technical indicators such as Moving Averages, MACD, RSI, and Bollinger Bands were calculated based on historical price data using MS Excel and Python.

The choice of secondary data ensures accuracy, consistency, and accessibility, while allowing the researcher to analyze a larger set of information without the constraints of primary data collection.

4.4 Analytical Tools and Techniques

To assess the predictive effectiveness of the two analysis methods, the following tools and techniques were applied:

For Fundamental Analysis:

- **Descriptive Statistics**: Used to understand the average, range, and variation in financial ratios across different companies and sectors.
- **Correlation Analysis**: Employed to test the relationship between key ratios (such as EPS, P/E, ROE, and Debt-Equity) and stock returns.
- **Regression Analysis**: Helps in measuring the extent to which these ratios can statistically explain variations in stock price movements.

For Technical Analysis:

- Indicator Calculation: Tools such as RSI, MACD, and Moving Averages were calculated using price data over different time intervals (e.g., 14-day RSI, 50-day and 200-day moving averages).
- Trend Analysis: Charts and signals were analyzed to interpret bullish and bearish movements.
- **Backtesting**: Strategies based on technical indicators were applied retrospectively to historical data to assess their effectiveness in identifying profitable trading signals.

Both analytical approaches were tested separately and in combination to evaluate not just their individual predictive power, but also the added benefit of using them together.



4.5 Scope of the Study

This study is limited in its scope to the Indian stock market and focuses only on selected companies from four industries. It does not include stocks from micro-cap or penny stock categories due to concerns over liquidity and volatility. Additionally, the analysis does not incorporate macroeconomic variables such as interest rates, inflation, or GDP, although these are known to impact stock prices. The focus is strictly on stock-specific indicators as per the two analytical frameworks.

The study timeframe of three years ensures that the results are relevant and reflective of recent market trends but may not account for long-term cycles or extraordinary economic events like the COVID-19 pandemic.

4.6 Limitations of the Study

While every effort has been made to ensure accuracy and validity, the research is subject to certain limitations:

- 1. **Dependence on Secondary Data**: The study does not involve primary data such as investor surveys or interviews, which may have provided deeper insights into behavioral factors.
- 2. **Sample Size Constraint**: Only 20 companies were included, which may not fully capture the diversity of the Indian stock market.
- 3. **Time Period**: The three-year window (2021–2023) may limit generalizability across longer market cycles.
- 4. **Technical Indicators are Historical**: All technical analysis is based on past data and assumes that patterns will repeat, which may not always hold true in volatile or highly news-sensitive markets.
- 5. No Control for External Factors: Broader market trends, government policy changes, or global economic shocks were not isolated or controlled for in this study.

Despite these limitations, the methodology employed offers a strong foundation for meaningful analysis and provides reliable insights for both academic and practical purposes.

5. Data Analysis and Results

The objective of this chapter is to present the outcomes derived from applying both fundamental and technical analysis to the stock data of 20 Indian companies. The results have been organized to show the performance of each approach in terms of predictive accuracy and their potential for guiding investment decisions. The findings are based on quantitative evaluation using descriptive statistics, correlation, regression, and backtesting, applied to secondary data from the financial years 2021 to 2023.

5.1 Overview of the Sample Data

The companies selected for the study represent four sectors of the Indian economy: Information Technology, Financial Services, Consumer Goods, and Manufacturing. Each sector comprises five companies, making a total of 20 companies. The diversity of sectors was chosen deliberately to



ensure that the results are not biased by industry-specific factors and can be generalized across different segments of the Indian stock market.

Sector	No. Companies	of	Avg. Market Cap (₹ Cr)	Avg. Daily Volume (Shares)
Information Technology	5		120,000	8,50,000
Financial Services	5		90,000	10,00,000
Consumer Goods	5		75,000	5,20,000
Manufacturing	5		60,000	6,30,000

Table 6.1: Sector-wise Distribution of Sample Companies

5.2 Results from Fundamental Analysis

Fundamental analysis was applied using key financial ratios: Price-to-Earnings (P/E), Earnings Per Share (EPS), Return on Equity (ROE), and Debt-to-Equity Ratio. The objective was to observe how these variables correlated with stock returns and whether they could be used to explain performance over the 3-year period.

6.2.1 Descriptive Statistics

Table 6.2: Summary of Key Financial Ratios Across Companies

Ratio	Mean	Median	Standard Deviation	Minimum	Maximum
P/E Ratio	18.5	17.2	4.3	10.1	28.6
EPS (₹)	32.4	30.1	8.7	12.5	52.0
ROE (%)	15.8	15.0	4.1	8.0	25.5
Debt-to-Equity Ratio	0.58	0.53	0.2	0.1	1.2

The data shows that companies with higher EPS and ROE tend to deliver superior returns. Low debt levels also appear to contribute to stronger stock price stability, particularly in consumer and manufacturing sectors.

5.2.2 Correlation Analysis

The correlation between financial ratios and average monthly stock returns was measured to evaluate predictive strength.

Table 5.3: Correlation Between Ratios and Returns

Financial Indicator	Correlation with Monthly Returns
EPS	+0.62
ROE	+0.55
P/E Ratio	-0.35
Debt-to-Equity Ratio	-0.48



The results indicate a **positive correlation** between EPS and ROE with stock returns, affirming the relevance of these indicators in identifying long-term value. On the other hand, a **negative correlation** with P/E and Debt-to-Equity suggests that overvalued or heavily leveraged companies may underperform.

5.3 Results from Technical Analysis

For technical analysis, the study used indicators such as Moving Averages, RSI, MACD, and Bollinger Bands. These tools were tested through backtesting methods to evaluate how effectively they could generate profitable signals during the selected period.

5.3.1 Signal Accuracy and Profitability

Indicator	Avg. Accuracy	Avg. Monthly Return	Remarks
	(%)	(%)	
RSI	58	6.3	Best in range-bound markets
MACD	62	8.5	Best in trending market
			conditions
Bollinger Bands	55	5.0	Performs well with volatility
Moving	60	7.2	Consistent for long-term
Averages			trends

Table 6.4: Technical Indicator Accuracy and Profit Metrics

MACD showed the highest effectiveness, especially in upward-trending markets. RSI was more useful in sideways trading environments. Overall, technical indicators demonstrated an average accuracy of 58–62%, which is valuable for short-term traders.

5.3.2 Backtesting of Trading Strategies

Backtesting was applied to measure cumulative returns, drawdowns, and Sharpe ratios of technical strategies.

Table 5.5: Performance of Technical Trading Strategies

Strategy	Cumulative Return (%)	Max Drawdown (%)	Sharpe Ratio
RSI Buy/Sell	38	18	1.10
MACD Crossover	42	15	1.25
Bollinger Band Break	33	20	0.95
50/200 MA Strategy	40	17	1.20

The MACD crossover strategy yielded the highest risk-adjusted return among all methods tested.



6. Discussion of Findings

The results obtained from the analysis validate the premise that both fundamental and technical analysis have significant roles to play in predicting stock price movements, although their effectiveness depends largely.

6.1 Performance of Fundamental Analysis

The data confirmed that fundamental analysis is a strong predictor of long-term price movements. Among the financial indicators tested, **Earnings Per Share (EPS)** and **Return on Equity (ROE)** had the strongest positive correlation with monthly returns, indicating that companies with higher profitability and efficient use of shareholder capital tend to deliver better returns.

The **negative correlation** observed between **Price-to-Earnings (P/E) ratio** and stock returns suggests that stocks with extremely high valuations may underperform in the long term. Similarly, a **higher Debt-to-Equity ratio** appears to be a signal of increased financial risk and volatility, making such stocks less attractive to conservative investors.

Thus, the findings reinforce the utility of fundamental analysis in portfolio construction for investors with a long-term focus. It provides a reliable foundation for identifying undervalued stocks with growth potential and financial stability.

6.2 Performance of Technical Analysis

The technical analysis results demonstrate that momentum indicators like **MACD** and **RSI** can provide effective entry and exit signals for short-term trades. In particular, MACD performed well in identifying trends during bullish phases, while RSI showed reliability in detecting overbought and oversold conditions.

The use of **Moving Averages**, especially the 50-day and 200-day crossovers, provided consistent signals for medium-term trend reversals. **Bollinger Bands**, although more volatile, were helpful in volatile markets to predict mean reversions.

The average signal accuracy ranged between 55% to 62%, which is statistically significant in financial markets. However, it must be noted that technical indicators are sensitive to market conditions and may produce false signals during news events or unexpected price movements.

6.3 Advantage of a Combined Approach

The most noteworthy finding from the study is the improved predictive accuracy achieved by combining both analysis methods. When technically timed trades were executed only on companies that also passed fundamental screening criteria (high EPS, low debt, strong ROE), the outcome showed:

- Higher cumulative returns
- Reduced risk exposure
- Better Sharpe ratios



• Lower maximum drawdown

This confirms the hypothesis that **a hybrid model**—wherein fundamental analysis is used to identify the right stock and technical analysis is used to determine the right time—offers the best of both worlds. It allows investors to avoid poorly managed companies and enter trades when price momentum supports the move.

7. Conclusion

This research paper undertook a comparative analysis of fundamental and technical analysis to evaluate their effectiveness in predicting stock prices in the Indian equity market. Based on the secondary data of 20 companies across four key sectors over a three-year period, the study applied statistical tools to assess the performance of both methods.

The findings clearly show that:

- **Fundamental analysis** is more effective for long-term investments. Indicators like EPS and ROE provide insights into company strength and future growth.
- **Technical analysis** is more useful for short-term decision-making. Momentum indicators such as MACD and RSI offer timely signals that aid in capitalizing on price trends.
- A combined approach validates the hypothesis that integration of both methods leads to superior investment outcomes.

The research supports the notion that no single method is universally better. Instead, the choice depends on the investor's goals, risk tolerance, and time horizon. When used thoughtfully together, fundamental and technical analysis can complement each other and lead to more informed and profitable investment decisions.

8. Recommendations

Based on the analysis and findings, the following practical recommendations are offered for various categories of market participants:

8.1 For Individual Investors

- Use fundamental analysis to shortlist stocks with strong financials.
- Apply technical indicators like RSI and MACD to decide on the timing of purchase or sale.
- Avoid stocks with weak fundamentals, even if technical patterns seem favorable.

8.2 For Traders and Short-Term Investors

- Focus on **technical analysis** to generate quick signals.
- Validate trades by checking basic financial ratios like debt levels and earnings growth.
- Practice **risk management** by using stop-losses based on volatility indicators.



8.3 For Researchers and Students

- Explore hybrid analytical frameworks in more depth.
- Consider sector-specific studies to understand where each method works best.
- Incorporate machine learning or AI techniques in future comparative studies for deeper insights.

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