

Review Article

Analysis of Stocks in Pharmaceutical Sector Listed on NSE

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Abstract - The most alluring place today to make money for those who understand finance is the stock market. The most important aspect while making investments in stocks is to predict the future price trends, the variability of volumes, and the volatility or risk that is involved. Thus, technical analysis plays a very important role in predicting future price ups and downs and thus aiding the investors to collect maximum benefits from their investments.

Various methods like beta calculations, relative strength index, exponential moving averages, and forecasting future price trends using mean and standard deviation can be used for conducting technical analysis. This paper focuses on performing technical analysis of major pharmaceutical companies listed on the National Stock Exchange(NSE). The change of prices of the shares undergoes a pattern that is cyclic and repeats itself over different intervals. Therefore, this study uses past data to calculate concerned indices and predict future price trends.

Keywords - Beta calculations, Relative Strength Index, Exponential moving averages, and Moving Average Convergence and Divergence.

I. INTRODUCTION

India is the largest provider of generic medication globally. Around 50 per cent of global demand for various vaccines, 40 per cent of generic demand in the US, and 25 per cent of all medicine in the UK is supplied by industries in the Indian pharmaceutical sector. The Indian pharmaceutical sector is expected to grow to US\$ 100 billion, and the medical device market is expected to grow US\$ 25 billion by 2025. Pharmaceutical exports from India stood at US\$ 19.14 billion in FY19 and US\$ 13.69 billion in FY20 (up to January 2020). Pharmaceutical exports include drug formulations, biologicals, bulk drugs, intermediates, Ayush & herbal products, and surgical. India's domestic pharmaceutical market turnover reached Rs 1.4 lakh crore (US\$ 20.03 billion) in 2019, growing 9.8 per cent year-on-year (in Rs) from Rs 129,015 crore (US\$ 18.12 billion) in 2018.

Pharmaceutical industries have been topmost players in the health care segment in a time and era of ageing populations, the ongoing development of new and

extremely profitable medicines, and rising health care costs. This is the reason the investment in securities and shares of pharmaceutical companies seems to be cost-effective. Estimation of the real worth of a stock is done by considering the earning potential of the company, which depends on the investment environment and factors relating to specific industries, quality of management, competitiveness, operational efficiency, capital structure, profitability, and dividend policy. Many people prefer fundamental analysis to select a company to invest in and technical analysis to help make their buy and sell decisions.

II. LITERATURE REVIEW

- Nikhil Kaushik & Dr Madhur Raj Jai (2015) examined the top 6 pharmaceutical companies in the Indian market and used technical analysis tools like MACD, ROC, RSI, etc., to examine these stocks. The conclusion put equal emphasis on technical analysis to be conducted along with fundamental analysis.
- Suresh A.S. (2015) tried to maintain a balance between both fundamental and technical analysis by stating their importance. In fundamental analysis, the author focused on candlesticks, bar charts, moving averages, etc., to reach buying and sell criteria.
- Sakshi Varshney (2014) studied the aims of extracting and analyzing the price movements of selected company's stocks. The author emphasized two indicators to portray the technical analysis of the selected companies.
- Shirur S. (2013) focused the study on the reasons which were responsible for events that bring systemic risk like a subprime crisis. The risk was studied based on various parameters used in fundamental and technical studies. It states that the problems faced are concerned with fundamental analysis, and technical analysis tools are used to address them.
- Thomas Asha E. (2014) studied technical analysis from an Indian perspective and used statistical methods and analysis to find its usefulness in the Indian market.



III. RESEARCH OBJECTIVES

- To study the performance of top 5 pharmaceutical companies listed on the National Stock Exchange using Technical analysis
- To understand the future price trend using various technical indicators like Relative Strength Index (RSI), MACD, Exponential Moving Average, and Beta value

IV. RESEARCH METHODOLOGY

The data being considered for analysis is extracted from the official website of NSE. All data collected and analyzed is the secondary data. The data was extracted on 27/05/2020, and the weekly chart was analyzed. The various methods used for technical analysis are the methods prescribed by different textbooks, analytical websites, and software. The closing price of the stock is considered for evaluation to estimate the future behaviour of the price of selected companies. The stocks which are studied include:

- Dr Reddys Labs
- Cipla
- Glenmark
- Cadila Health
- Lupin

A. Beta

Beta indicates the way in which a security's returns change systematically with the changes in the market returns. By calculating beta, the volatility of the stock and systematic risk can be judged.

$$\text{Beta} = \text{Cov}(x,y) / \text{Var}(x)$$

Where,

x – Nifty's Market Value ; y – Stock's Market Value

Following rules are used to interpret beta:

If the beta value is 1, The share's movement will be along with the market.

If the beta value is >1, The share's movement will be more volatile than the market.

If the beta value is <1, The share's movement will be less volatile than the market.

B. Strength Index (RSI)

The Relative Strength Index (RSI) is a momentum oscillator that calculates the change and speed of price movements. RSI oscillates between zero and 100. RSI when above 70 is considered overbought, and when below 30 is considered oversold. This RSI calculation is based on 14 periods, which is the default as per texts available on the topic.

$$\text{RSI} = 100 - (100 / (1 + \text{RS}))$$

Where,

RS = Average Gain / Average Loss

Average Gain = (Total Gains/n)

Average Loss = (Total Losses/n)

n = number of RSI periods

C. Moving Average Convergence Divergence (MACD)

MACD is a momentum indicator that follows the trend and shows the relationship between two moving averages of prices. The MACD is calculated by subtracting the 26-day exponential moving average (EMA) from the 12-day EMA. The "signal line" is defined as a nine-day EMA of the MACD.

$$\text{MACD} = 12 \text{ Period EMA} - 26 \text{ Period EMA}$$

Where,

Period = Number of Days

EMA = Exponential Moving Average

There were three common methods used to interpret the MACD:

a) Crossovers:

When the MACD falls below the signal line, it indicates a bearish signal, which implies that it may be time to sell. Conversely, when the MACD rises above the signal line, the indicator provides a bullish signal, which suggests that the price of the asset is likely to experience upward momentum. To avoid getting "faked out" or entering into a position too early, many traders wait for a confirmed cross above the signal line before entering into a position, thus shielding them from potential losses.

b) Divergence:

Whenever the security price diverges away from the MACD, it signals the end of the current trend.

c) Dramatic rise:

When the MACD rises unexpectedly, that is when the shorter moving average pulls away from the longer-term moving average, it is an indication that the security is overbought and will return to normal levels soon enough.

D. Exponential Moving Average (EMA)

An exponential moving average is inclined more towards the weight and significance of the most recent data points. An exponentially weighted moving average responds more significantly to recent price changes than a simple moving average, which applies an equal weight to all observations in the period. The exponential moving average is utilized to understand buy and sell signals based on crossovers and divergences from the historical average. Traders often use several different lengths of exponential moving average to arrive at conclusions in the short term, medium-term and long term. Thus the period of the exponential moving average is important to decide and predict the movement of stocks.

$$\text{EMA}(n) = \text{Price}(n) * k + \text{EMA}(n-1) * (1-k)$$

Where,

n = current day

N = number of days in EMA

k = 2 / (N+1)

V. ANALYSIS AND INTERPRETATION

Table 1. Beta, RSI & MACD Values of Stocks

Stock	Beta	RSI	MACD
Dr Reddys Labs	0.53	65.63	277.72
Cipla	0.46	69.66	40.27
Glenmark	0.73	56.09	-2.50
Cadila Healthcare	0.49	61.44	21.25
Lupin	0.35	63.40	36.53

Table 2. Values of Exponential Moving Averages in the Short Term, Medium-Term and Long Term

Stock	MA 20	MA 50	MA 100
Dr Reddys Labs	3474.14	3127.50	2913.71
Cipla	531.36	509.33	522.05
Glenmark	314.08	360.19	443.84
Cadila Healthcare	302.89	288.18	305.08
Lupin	780.16	766.70	818.51

A. Dr Reddy Labs

The beta value is 0.53; thus, the stock is less volatile than the market. All the exponential moving averages, i.e., 20 days, 50 days, 100 days, are below the price line, thus providing a buy signal in the short term, medium-term and long term. The MACD value is above the signal line and is narrowing, thus giving a signal of change of bearish sentiment. The RSI value is 65.63 and shows a downward trend. The downward trend is because the stock was earlier in the oversold region.



Fig. 1 Technical Chart of Dr Reddy

B. Cipla

The beta value is 0.46, which is less than 1 and implies that the stock is less risky than the market. The EMA 20 day line has crossed 50 day and 100-day lines, thus giving a neutral signal or a standstill. The MACD value is above the signal line and is broadening, thus giving a buy signal. The RSI value is hovering in the

overbought region and thus can see a downfall in the near future due to its cyclical nature.



Fig. 2 Technical Chart of Cipla

C. Glenmark

The beta value of 0.73 indicates that the price change is less volatile than the market. The value for 20 and the 50-day exponential moving average is below the price, thus giving a buy signal in the short term and medium term but not in the long term. The MACD value is above the signal line, indicating a buy signal. The RSI value is around 56.09 implying the current price trend is likely to continue.



Fig. 3 Technical Chart of Glenmark

D. Cadila Healthcare

The beta value of 0.49, which is less than one which indicates the lower volatility of the stock as compared to the market. The EMA 20 day has crossed the 50-day line and is narrowing towards the 100-day line, thus indicating a standstill or a neutral position. The MACD line is above the signal line and is narrowing, thus indicating a weakened bullish sentiment. The RSI value of 61.44 indicates the trend might continue in the future.



Fig. 4 Technical Chart of Cadila Healthcare

E. Lupin

The beta value for the stock is 0.35, thus indicating a very low risk as compared to the market. There is a cross-over between 50 days and 100 days EMA and is likely to cross 20 days EMA as well; thus, past price trend analysis indicates an opportunity to buy with expected considerable returns because of a crossover. The MACD value is above the signal line and thus imparts a buy signal. The RSI value of 63.40 indicates that the price trend will continue until it crosses the overbought line of 70 RSI.



Fig. 5 Technical Chart of Lupin

VI. LIMITATIONS

The analysis in the study is done only for the stocks that are enlisted on the NSE. The study showcases limited technical analysis methodologies to incur a buy or sell selection criterion. The charts taken into consideration are weekly charts, thus portraying information for a limited timeframe.

VII. CONCLUSION

The use of technical analysis varies with change in the timeframe, change in the market, and change in

diversifiable and idiosyncratic risk. The earlier studies emphasized more on fundamental analysis, and the technical analysis was confined to tools like RSI, SMA, and Stochastics. The tools used for analysis are commonly used while trading, but efficient tools are required to interpret the chart and take the right decision to buy or sell a stock.

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