

## Technical Analysis: Price Behavior of Select Indian Equities

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**Abstract:** Technical Analysis is the forecasting of future financial price movements based on an examination of past price movements. Technical Analysis doesn't result in absolute predictions about the future with regards to forecasting. Instead, Technical Analysis helps the investors anticipate the possibility of price movements over a period of time. The objective of the study is to predict the future price and to interpret on whether to buy or sell the selected equities. The study focused 13 Indian listed Equities from each sector in NSE Nifty for the period of one year. The secondary data collected from NSE Website and various sources. The Purposive Sampling Technique is used and the Research Design is Descriptive in nature. MACD and RSI tools are used to identify the Buy and Sell signals in the Candlestick Chart. It concludes that there is a Buy signal for 9 Scrips, Sell signal for 2 Scrips and Neutral signal for 2 Scrips. Moreover, Strong Buy signal for Bharti Airtel Ltd, I T C Ltd, Adani Ports and Special Economic Zone Ltd, Ambuja Cements Ltd, Sun Pharmaceutical Industries Ltd and Zee Entertainment Enterprises Ltd. And Strong Sell signal for Infosys Ltd.

**Keywords:** Candlestick Chart, MACD, Price Behavior, RSI, Technical Analysis

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### I. INTRODUCTION

Identifying the best return scrips are the biggest challenge to every investor or trader among the listed in the respective stock exchange. That's why the present paper is going to select the equities of index companies from benchmark NSE, which have the highest market capitalization. But many of the investors may be in dilemma to choose the right company which gives the highest returns among the available various alternatives.

To solve the above cited problem, this paper identifies some of the companies based on their market capitalization. Fundamental and Technical Analysis are the main concepts to be studied to identify the price behavior of select equity. Technical Analysis is defined as the art and science of forecasting future prices based on observation of the past price moments. It involves the analysis of stock by including Price, Volume and Open Interest of that particular equity by adopting some required technical indicators in order to assess the future price.

As an approach to investment analysis, technical analysis is drastically different from Fundamental Analysis. While the Fundamental Analyst believes that the market is 90% logical and 10% psychological, the technical analysts assume that 90% psychological and 10% logical. Technical Analysts do not evaluate a large number of fundamental factors relating to the company, industry and the economy. Instead, they analyze internal market data with the help of charts and graphs. The Technical Analysis involves a study of market generated data like price and volumes to determine the future direction of price movement. It uses the variety of charting techniques. The present study aims the important technical indicators like Moving Average Convergence and Divergence (MACD) and Relative Strength Index (RSI).

The assumptions of Technical Analysis are Market Fluctuations Discount Everything else, Price Movements can often be Charted and Predicted and History Repeats Itself.

### II. LITERATURE REVIEW

MassoudMetghalchi, Jianjun Du, YixiNing (2009) observed two moving average technical trading rules for four Asian markets. They identified that moving average rules do indeed have foretelling power and can separate recurring price patterns for profitable trading. It supports the hypothesis that technical trading rules can outperform the buy-and-hold strategy. Break-even one-way trading costs are predictable to be high for all 4 markets. They concluded from the statistical results that moving average rules are valid and indeed have predictive power. It is implied that the trading rules may be used to design a trading strategy that will beat the buy-and-hold strategy in the Hong Kong, Singapore, South Korea, and Taiwan markets.

**Jenni L., Bettman, Stephen. J. Sault, Emma J. Schultz (2008)**, proposes an equity valuation model containing Fundamental and Technical analysis, they tend to recognize their potential as complements rather than as substitutes. Testing confirms the complementary nature of Fundamental and Technical analysis by showing that in spite of each performing in isolation models integrating both have superior explanatory power.

**Muhannad A. Atmeh, Ian M. Dobbs (2006)** analyses the performance of moving average trading rules in Jordanian stock market. The conditional returns on buy or sell signals from actual data are examined for a wide range of trading rules. These are compared with conditional returns from simulated series generated by a range of models (random walk with a drift, AR (1), and GARCH-(M)) and the consistency of the general index series with these processes is examined. The empirical results show that technical trading rules can help to predict market movements, and that there is some evidence that (short) rules may be profitable after allowing for transactions costs, although there are some cautions on this.

**Kavajecz and Odders-White (2004)** show that support and resistance levels coincide with peaks in depth on the limit order book 1 and moving average forecasts reveal information about the relative position of depth on the book. They also show that these relationships stem from technical rules locating depth already in place on the limit order book.

### **III. RESEARCH METHODOLOGY**

The objective of the study is to predict the future price and to interpret on whether to buy or sell the selected equities. The present study aims at analyzing the price movements of selected Indian Equities. So, the study focused 13 Indian listed Equities which have the large market capitalization from each sector listed in National Stock Exchange (NSE) Nifty.

The companies are 1. Oil & Natural Gas Corporation Ltd – Energy 2. Coal India Ltd - Metal 3. Bharti Airtel Ltd - Telecom 4. I T C Ltd - Cigarettes 5. ICICI Bank Ltd – Financial Services 6. Infosys Ltd – Information Technology 7. Tata Motors Ltd - Automobiles 8. Adani Ports and Special Economic Zone Ltd - Shipping 9. Ambuja Cements Ltd – Cement and Cement Products 10. Sun Pharmaceutical Industries Ltd – Pharmaceuticals 11. Larsen & Toubro Ltd - Construction 12. Zee Entertainment Enterprises Ltd – Media and Entertainment and 13. Asian Paints Ltd – Consumer Goods.

The analysis is based on Secondary Data collected from NSE Website and prepared Technical Charts based on the past daily prices for the period of one year i.e., from 01/07/2016 to 30/06/2017, which follows the descriptive study as the research design and Purposive Sampling Technique as Sampling Method. Two tools like Moving Average Convergence Divergence (MACD) and Relative Strength Index (RSI) are adopted for this particular study. Candlestick charts are utilized for the study to observe the trends and patterns.

#### **Tools (Indicators) adopted for the study**

**Moving Average Convergence and Divergence (MACD)** is one of the most well known and used indicators in Technical Analysis. It is used to signal both the trend and momentum behind a security. A variation of the moving average is the moving average convergence and divergence, or MACD. It involves comparing a short term moving average, say a 50 day moving average, with a long term moving average, say a 200 day moving average. If the short term moving average is consistently higher than the long term moving average, it is a bullish signal; If the short term moving average is consistently lower than the long term moving average, it is a bearish signal.

In general, the MACD is a trend following momentum indicator that shows the relationship between two moving averages of prices. To calculate MACD, this paper used 26 day Exponential Moving Average (EMA) by subtracting from a 12 day Exponential Moving Average (EMA). A 9 day dotted EMA of the MACD called the signal line is then plotted on top of the MACD.

The most commonly used moving average values are 26 day and 12 day EMAs for the MACD calculation and a 9 day EMA of the MACD for the signal line. For more volatile securities shorter term averages are used while less volatile longer averages.

**Relative Strength Index (RSI)** is another one of the most frequently used and well known momentum indicators in Technical Analysis. It is used to signal overbought and oversold conditions in a security. The indicator is plotted between a range of 0 to 100, where 100 is the highest overbought condition and zero is the oversold condition. The RSI measure the strength of security's recent up moves compared to the strength of its recent down moves. This helps to indicate whether a security has seen more buying or selling pressure over the trading period. Like most indicators there are two general ways in which the indicator is used to generate signals crossovers and divergence. In the case of the RSI, the indicator uses crossovers of its overbought, oversold and centerline. The first technique is to use overbought and sold lines to generate buy-and-sell signals. In the RSI, the overbought line is typically set at 70 and when the RSI is above this level the security is

considered to be overbought. The security is seen as oversold when the RSI is below 30. These values can be adjusted to either increase or decrease the amount of signals that are formed by the RSI.

#### IV. DATA ANALYSIS & INTERPRETATION

**Table No 1:** Historical Data for Equity Scrips of Selected Indian Companies for the period (July 2016- June 2017)

	OPEN	HIGH	LOW	CLOSE	S1	S2	R1	R2
<b>Oil &amp; Natural Gas Corporation Ltd</b>	216.9	312	157.3	157.8	106.07	54.33	160.77	363.73
<b>Coal India Ltd</b>	310.1	347.8	244.25	244.25	209.73	175.22	313.28	382.32
<b>Bharti Airtel Ltd</b>	368.35	382.5	292.25	379.7	320.48	361.27	410.68	441.67
<b>I T C Ltd</b>	252.35	323.7	223.5	323.65	256.88	190.12	357.03	390.42
<b>ICICI Bank Ltd</b>	240.35	326.5	239.35	290.15	244.18	198.22	331.28	372.42
<b>Infosys Ltd</b>	1172.4	1194	911.1	935.55	833.17	730.78	1115.9	1296.2
<b>Tata Motors Ltd</b>	457.9	588.7	419.6	432.55	371.87	311.18	540.97	649.38
<b>Adani Ports and Special Economic Zone Ltd</b>	205.84	374.9	205.84	363.05	254.31	145.56	423.33	483.6
<b>Ambuja Cements Ltd</b>	252.95	278	193.6	246.55	200.78	155.02	285.13	323.72
<b>Sun Pharmaceutical Industries Ltd</b>	763.35	848.6	501.6	555.7	422.02	288.33	768.97	982.33
<b>Larsen &amp; Toubro Ltd</b>	1542.7	1805	1314.7	1687.6	1399.9	1112.1	1890.1	2092.6
<b>Zee Entertainment Enterprises Ltd</b>	452.3	578.9	431.8	491.35	422.48	353.62	569.53	467.72
<b>Asian Paints Ltd</b>	1002.5	1217	865.55	1103	906.8	710.65	1257.9	1214.8

Source: Compiled & Calculated by the Author

##### 1. Oil & Natural Gas Corporation Ltd.



ONGC Ltd., established in the year 1993, is a Large Cap company, which has the market cap of ₹ 204882.60 Cr. operating in Petroleum sector. For the quarter ended 31-03-2017, the company has reported a Standalone sales of ₹ 21714.02 Cr., up 8.93 from last quarter Sales of ₹ 19933.78 Cr. and up 33.73 from last year same quarter Sales of ₹ 6237.17 Cr. Company has reported net profit after tax of ₹ 4340.18 Cr. in latest quarter. Closing Price of ONGC as on 30<sup>th</sup> June, 2017 is 157.3, which is the lowest for 52 week. But there is short term

buy signal appeared due to oversold position and the present status of the Petroleum Industry. From the table no 1, Support and Resistance Levels of Oil & Natural Gas Corporation Ltd are as follows SL1 is 106.07, SL2 is 54.33 and RL1 is 160.77, RL2 is 363.73.

##### 2. Coal India Ltd.



Coal India Ltd., incorporated in the year 1973, is a Large Cap company which has having a market cap of ₹ 155837.01 Cr. in Mining sector. At the end of 31-03-2017, the company has reported a Consolidated sales of ₹ 22423.92 Cr., up 13.80 from last quarter Sales of ₹ 19704.45 Cr. and up 8.18 from last year same quarter Sales of ₹ 20728.69 Cr. Company has reported net profit after tax of ₹ 2717.85 Cr. in latest quarter. Closing Price of Coal India Ltd as on 30<sup>th</sup> June, 2017 is 245.35. There is a short buy signal for this share. From the table no 1, Support and Resistance Levels of Coal India Ltd are as follows SL1 is 209.73, SL2 is 209.73 and RL1 is 313.28, RL2 is 382.32.

### 3. Bharti Airtel Ltd.



Bharti Airtel Ltd., established in the year 1995, having a market cap of ₹ 153759.99 Cr. operating in Telecommunications sector. For the quarter ended 31-03-2017, the company has reported a Consolidated sales of ₹ 21934.60 Cr., down -6.00 from last quarter Sales of ₹ 23335.70 Cr. and down -12.12 from last year same quarter Sales of ₹ 24959.60 Cr. Company has reported net profit after tax of ₹ 219.80 Cr. in latest quarter. Bharti Airtel Technical chart shows strong buy for the long time. But

precaution to be taken due to it is reaching over bought position. MACD also shows the strong buy signal for this stock. From the table no 1, Support and Resistance Levels of Bharti Airtel Ltd are as follows SL1 is 320.48, SL2 is 361.27 and RL1 is 410.68, RL2 is 441.67.

### 4. ITC Ltd.



ITC Ltd., incorporated in the year 1910, is a Large Cap company (having a market cap of ₹ 405844.07 Cr.) operating in Tobacco sector. For the quarter ended 31-03-2017, the company has reported a Standalone sales of ₹ 11125.54 Cr., up 21.60 from last quarter Sales of ₹ 9149.31 Cr. and up 14.03 from last year same quarter Sales of ₹ 9756.70 Cr. Company has reported net profit after tax of ₹ 2669.47 Cr. in latest quarter. As we observe from the table no 1, Support and Resistance Levels of I T C Ltd are as follows SL1 is 256.88, SL2

is 190.12 and RL1 is 357.03, RL2 is 390.42. Both Moving Averages and RSI trends show the strong signal of buying the stock. This stock's RSI indicates nearer to little bit over bought stage, so there is a chance of decrease the price of ITC Stock.

### 5. ICICI Bank Ltd.



ICICI Bank Ltd., incorporated in the year 1994, is a banking company (having a market cap of ₹ 185822.09 Cr.). For the quarter ended 31-03-2017, the company has reported a Consolidated Interest Income of ₹ 10585.33 Cr., up 1.12 % from last quarter Interest Income of ₹ 10467.73 Cr. and down -1.13 % from last year same quarter Interest Income of ₹ 10706.35 Cr. The bank has reported net profit after tax of ₹ 2398.04 Cr. in latest quarter. As we observe from the table no 1, Support

and Resistance Levels of ICICI Bank Ltd are as follows SL1 is 244.18, SL2 is 198.22 and RL1 is 331.28, RL2 is 372.42. MACD doesn't show the buy or sell position. But the Equity stock is in positive range.

### 6. Infosys Ltd.



Infosys Ltd., incorporated in the year 1981, is a Large Cap company (having a market cap of ₹ 214994.02 Cr.) operating in Information Technology sector. For the quarter ended 31-03-2017, the company has reported a Consolidated sales of ₹ 17120.00 Cr., down -.89 from last quarter Sales of ₹ 17273.00 Cr. and up 3.44 from last year same quarter Sales of ₹ 16550.00 Cr. Company has reported net profit after tax of Rs. 3628.00 Cr. in latest quarter. As we observe from the table no 1, Support and Resistance

Levels of Infosys Ltd are as follows SL1 is 833.17, SL2 is 730.78 and RL1 is 1115.9, RL2 is 1296.2. There is no positive signal for Infosys stock. So, minor correction would be occurring in a few days once it slips to 833.17. Strong sell signal is showing here.

### 7. Tata Motors Ltd.



Tata Motors Ltd., incorporated in the year 1945, is a Large Cap company (having a market cap of ₹ 148330.76 Cr.) operating in Auto sector. For the quarter ended 31-03-2017, the company has reported a Consolidated sales of ₹ 77217.19 Cr., up 15.50 from last quarter Sales of ₹ 66855.18 Cr. and down -2.88 from last year same quarter Sales of ₹ 79509.89 Cr. Company has reported net profit after tax of Rs. 3925.88 Cr. in latest quarter. As we observe from the table no 1, Support and Resistance

Levels of Tata Motors Ltd are as follows SL1 is 371.87, SL2 is 311.18 and RL1 is 540.97, RL2 is 649.38. MACD and RSI show the strong sell signal.

### 8. Adani Ports and Special Economic Zone Ltd.



Adani Ports & Special Economic Zone Ltd., incorporated in the year 1998, is a Large Cap company (having a market cap of ₹ 76801.25 Cr.) operating in Miscellaneous sector. For the quarter ended 31-03-2017, the company has reported a Consolidated sales of ₹ 2231.46 Cr., up .22 from last quarter Sales of ₹ 2226.62 Cr. and up 17.53 from last year same quarter Sales of ₹ 1898.71 Cr. Company has reported net profit after tax of ₹ 1161.32 Cr. in latest quarter. As we observe from the table no 1, Support and Resistance

Levels of Adani Ports and Special Economic Zone Ltd are as follows SL1 is 254.31, SL2 is 145.56 and RL1 is 423.33, RL2 is 483.6. There is a strong buy signal for this stock.

### 9. Ambuja Cements Ltd.



Ambuja Cements Ltd., incorporated in the year 1981, is a Large Cap company (having a market cap of ₹ 50087.90 Cr.) operating in Cement sector. For the quarter ended 31-03-2017, the company has reported a Consolidated sales of ₹ 5631.90 Cr., up 15.86 from last quarter Sales of ₹ . 4861.04 Cr. and up 6.83 from last year same quarter Sales of ₹ 5271.97 Cr. Company has reported net profit after tax of ₹ 394.31 Cr. in latest quarter. As we observe from the table no 1, Support and Resistance Levels of Ambuja Cements Ltd are as follows SL1 is 200.78, SL2 is 155.02 and RL1 is 285.13, RL2 is 323.72. There is strong buy signal in this equity for a long term position.

### 10. Sun Pharmaceutical Industries Ltd.



Sun Pharmaceutical Industries Ltd., incorporated in the year 1993, is a Large Cap company (having a market cap of ₹ 131889.86 Cr.) operating in Pharmaceuticals and health care sector. For the quarter ended 31-03-2017, the company has reported a Consolidated sales of ₹ 6825.16 Cr., down -11.17 from last quarter Sales of ₹ 7683.24 Cr. and down -7.97 from last year same quarter Sales of ₹ 7415.98 Cr. Company has reported net profit after tax of ₹ 1344.52 Cr. in latest quarter. As we observe from the table no 1, Support and Resistance Levels of Sun Pharmaceutical Industries Ltd are as follows SL1 is 422.02, SL2 is 288.33 and RL1 is 768.97, RL2 is 982.33. Moving averages and RSI show the buy signal and there is a strong support at 422.02 level.

### 11. Larsen & Toubro Ltd.



Larsen & Toubro Ltd., incorporated in the year 1946, is a Large Cap company (having a market cap of ₹ 159208.18 Cr.) operating in Miscellaneous sector. For the quarter ended 31-03-2017, the company has reported a Consolidated sales of ₹ 36827.99 Cr., up 41.55 from last quarter Sales of ₹ 26018.15 Cr. and up 12.02 from last year same quarter Sales of ₹ 32875.51 Cr. Company has reported net profit after tax of ₹ 3097.02 Cr. in latest quarter. As we observe from the table no 1, Support and Resistance Levels of Larsen & Toubro Ltd are as follows SL1 is 1399.9, SL2 is 1112.1 and RL1 is 1890.1, RL2 is 2092.6. The overall signal may be the neutral eve it is in the positive trend. Because, MACD shows the Sell signal and RSI shows the Buy signal for the stock.

Levels of Sun Pharmaceutical Industries Ltd are as follows SL1 is 422.02, SL2 is 288.33 and RL1 is 768.97, RL2 is 982.33. Moving averages and RSI show the buy signal and there is a strong support at 422.02 level.

## 12. Zee Entertainment Enterprises Ltd.



as follows SL1 is 422.48, SL2 is 353.62 and RL1 is 569.53, RL2 is 467.72. There is a strong buy signal for this stock with the strong support of 422.48.

Zee Entertainment Enterprises Ltd., incorporated in the year 1982, is a Large Cap company (having a market cap of ₹ 48661.13 Cr.) operating in Service sector. For the quarter ended 31-03-2017, the company has reported a Consolidated sales of ₹ 1527.95 Cr., down -6.78 from last quarter Sales of ₹ 1639.12 Cr. and up .40 from last year same quarter Sales of ₹ 1521.84 Cr. Company has reported net profit after tax of ₹ 1503.90 Cr. in latest quarter. As we observe from the table no 1, Support and Resistance Levels of Zee Entertainment Enterprises Ltd are

## 13. Asian Paints Ltd.



906.8, SL2 is 710.65 and RL1 is 1257.9, RL2 is 1214.8. The stock can outperform once it touches the 1257.9 level. It discloses that to be neutral.

Asian Paints Ltd., incorporated in the year 1945, is a Large Cap company (having a market cap of ₹ 107156.78 Cr.) operating in Paints and Pigments sector. For the quarter ended 31-03-2017, the company has reported a Consolidated sales of ₹ 3952.45 Cr., up 1.64 from last quarter Sales of ₹ 3888.73 Cr. and up 7.79 from last year same quarter Sales of ₹ 3666.70 Cr. Company has reported net profit after tax of ₹ 469.02 Cr. in latest quarter. As we observe from the table no 1, Support and Resistance Levels of Asian Paints Ltd are as follows SL1 is

## V. FINDINGS AND CONCLUSION

As we all know all companies have the same pattern in their respective charts. MACD and RSI tools are used to identify the Buy and Sell signals in the Candlestick Chart. It concludes that there is a Buy signal for 9 Scrips, Sell signal for 2 Scrips and Neutral signal for 2 Scrips. Moreover, Strong Buy signal for Bharti Airtel Ltd, I T C Ltd, Adani Ports and Special Economic Zone Ltd, Ambuja Cements Ltd, Sun Pharmaceutical Industries Ltd and Zee Entertainment Enterprises Ltd. And Strong Sell signal for Infosys Ltd. Two scrips have Neutral signal position.

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