



**Research Paper** **Management**

**A Study on The Use Mathematical Indicators for Predicting Share Price Movements of Select Companies in Fmcg Industry**

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<b>ABSTRACT</b>	<p>“A STUDY ON THE USE OF MATHEMATICAL INDICATORS FOR PREDICTING SHARE PRICE MOVEMENTS OF SELECT COMPANIES IN FMCG INDUSTRY”. This study attempts to apply technical analysis on seven selected scrips from FMCG industry from September 2015 to March 2016. The study is purely based on secondary data. The most preferred tools such as Simple Moving Average, Exponential moving average, Rate of Change, Relative Strength Index, Bollinger Bands, Williams %R, Commodity Channel Index, On Balance Volume, Average True Range and Pivot Points were used to take a decision on buy or sell as well as the degree of influence of each tools has been studied. This research on Technical analysis is more useful for the broking firms and traders to reap the benefits arising out of the day to day price fluctuations prevailing among the stock markets across the globe.</p>
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<b>KEYWORDS</b>	Technical analysis, Fast Moving Consumer Goods
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**INTRODUCTION**

The investors should have information of price movements for making their decision of buying and selling of Securities. Security price movements is the vital part of stock market analysis. Technical analysis is the study of the market data in terms of factors affecting supply and demand schedules, namely prices, volume of trading, etc. A study of the historical trends of the market behavior shows the cycles and trends in prices which may repeat as the present is the reflection of the past and the future of the present. This is the basis for forecasting the future trends which are used for deciding buy or sell signals. For forecasting, analyst use diagram and charts to depict the past trends and project the future. But these methods are rough and ready methods and there are no foolproof methods of forecasting the stock prices. Technical analysis does not claim cent percent chance of success in predictions that are made for investment. The technical approach to investment is an essential reflection of trends in prices movements which are determined by the changing attitudes of the market participants towards a various conditions of economics, industry, monetary, political and psychological forces. It can be defined as “The process of identifying trend changes is to reap the benefit of trend prediction in advance and creating the trading exposure depends upon the trend reversal pattern.

The field of technical analysis is based on three assumptions:

- The market discounts everything
- Price moves in trends
- History tends to repeat itself

**OBJECTIVES OF THE STUDY**

The main aim of the study is to predict the trend of share price movements of select companies in FMCG Sector

To find out the overbought and oversold positions in the selected scrips

To identify the success percentage of the selected technical in-

dicators for the study period

To suggest the investor to have timely buy or sell.

To identify the technical indicators which influences the most on market price and rank them

**SCOPE OF THE STUDY**

The research process will bring visibility of the price movements for the selected companies and facilitate investors to make informed investment and trading decisions. The study covered the selected scrips from FMCG sector listed on the National Stock Exchange (NSE) of India Limited.

**RESEARCH METHODOLOGY**

Research design chosen for the study is analytical by nature where the researcher has used the facts or the information already available, and analyzed these to make a critical evaluation for decision making. Regarding sampling technique, convenient sampling method is applied for the study. Here companies were chosen based on their Net Profit.

**DATA COLLETION**

The secondary data is collected for a period of six months on a daily basis starting from 01/09/2015 to 01/03/2016.

**REVIEW OF LITERATURE**

According to Achelis “Technical analysis is the process of analyzing a security’s historical prices in an effort to determine probable future prices.”

According to Edwards, Magee and Bassetti “It refers to the study of the action of the market itself as opposed to the study of the goods in which the market deals. Technical Analysis is the science of recording, usually in graphic form, the actual history of trading (price changes, volume of transactions, etc.) in a certain stock or in “the Averages” and then deducing from that pictured history the probable future trend.”

According to Murphy “Technical analysis is the study of market action, primarily through the use of charts, for the pur-

pose of forecasting future price trends. The term “market action” includes the three principal sources of information available to the technician—price, volume, and open interest.”

According to Sowmya “Technical analysis is a method of predicting future prices of a share based on its past performance. It is the method of evaluating securities by analyzing statistics generated through market activity such as past prices and volume. Technical analysts use charts and other tools to identify patterns that can suggest future price movement of the share as they believe that the historical performance of stocks and markets are indications of future performance.”

According to Rajan Sabari and Parimala “Technical analysis helps investors to analyze the financial strength of corporate, growth of earnings and profitability. Investors need to calculate the risk and return ratio before taking any trade.”

**TECHNICAL TOOLS USED FOR ANALYSIS**

1. Simple Moving Average (SMA)
2. Exponential Moving Average (EMA)
3. Rate of Change (ROC)
4. Moving Average Convergence and Divergence (MACD)
5. Williams %R (%R)
6. On Balance Volume (OBV)
7. Relative Strength Index (RSI)
8. Bollinger Bands (BB)
9. Pivot Points (PP)
10. Average True Range (ATR)
11. Commodity Channel Index (CCI)

**ANALYSIS AND INTERPRETATION**

In this study, the following companies such as Hindustan Unilever, Dabur, Godrej Consumer Products, Marico, Emami, P and G and Bajaj Corp were chosen based on its net profit for the year ended 31<sup>st</sup> March 2015. The various technical indicators value were computed and buy/ sell signals were generated for the study period. The number of instances where the buy/ sell signals generated by the various technical indicators exactly matched with the changes in next day closing price of selected scrips were noted as matched counts and those instances generated by various technical indicators that never matched with the changes in next day closing price were noted as non-matched counts and they are tabulated for every company. The total number of days taken for the study was 97 days. The success percentage for each technical indicator was tabulated and is shown in the Annexure -I, based on which individual ranks were also given to each indicators company wise and as a whole. The success percentage (%) for each technical indicators was computed using the following formula:

$$\text{Success (\%)} = (\text{matched counts/ total no of days}) * 100$$

**TABLE-1**  
**TABLE SHOWING COMPANY WISE RANKING OF REFLECTED TECHNICAL INDICATORS**

COMPANY / INDICATOR	HUL	DABUR	GCP	MARICO	EMAMI	PGHH	BAJAJ CORP
MACD	5	4	4	9	2	7	3
EMA	2	5	2	2	7	2	8
SMA	6	3	5	1	6	4	5
WILLIAMS %R	1	1	1	8	5	1	1
BOLLINGER BANDS	8	11	11	11	11	9	10
ROC	11	8	9	7	9	10	7
CCI	3	7	8	5	8	6	4
ATR	10	10	10	10	10	11	11
OBV	4	2	3	3	1	3	2
PIVOT POINTS	7	6	6	6	4	5	6
RSI	9	9	7	4	3	8	9

**INTERPRETATION**

From the table-1, it is clear that companies are listed horizontally column wise and technical indicators are listed vertically row wise and ranking is given in the respective cells for every technical indicators company wise. From the above table-1, it was concluded that for all the companies, share price movements were best reflected by Williams %R followed by Exponential Moving Average and On Balance Volume indicators. The least reflecting indicator was Average True Range.

**TABLE-2**  
**TABLE SHOWING RANKING OF REFLECTED TECHNICAL INDICATORS FOR SELECTED COMPANIES**

INDICATOR	GARRETT'-S TOTAL	GARRETT'S RANKING
MACD	389	5
EMA	427	3
SMA	415	4
WILLIAMS %R	509	1
BOLLINGER BANDS	171	11
ROC	245	9
CCI	353	7
ATR	174	10
OBV	481	2
PIVOT POINTS	358	6
RSI	314	8

**INTERPRETATION**

From the table-2, technical indicators are ranked based on its reflection for all the selected companies. Based on Garrett's ranking method it was found that Williams %R, On Balance Volume, Exponential Moving Average, Simple Moving Average indicators best reflected on the share price movements of selected companies representing the FMCG sector as a whole.

**FINDINGS AND SUGGESTIONS**

While arranging the best reflective indicator, it was found that Williams %R , On Balance Volume , Simple Moving Average , Moving Average Convergence and Divergence indicators are reflecting first, second, third and fourth respectively which can be used by traders and investors for better prediction of share price movements of companies because they are the best reflectors.

The investors should be trained to use the technical analysis tools because it helps them in day to day market to multiple their money.

It is suggested to brokerage firm to conduct special session for the investors and the traders which will be useful for at least placing stop loss by using technical indicators.

**CONCLUSION**

The study is about technical analysis of selected companies listed on the National Stock Exchange from FMCG sector. It was found that the buy/sell signals generated out of this study by using the selected technical indicators reflected the right timing of buying and selling of scrips in majority of the cases. Ranking of best reflecting technical indicators on the basis of its success ratio was also done for both company-wise and sector as a whole. Besides Sector wise ranking of best reflecting indicators reveals that Williams %R, On Balance Volume, Exponential Moving Average, and Simple Moving Average indicators gives the best prediction of share price movements. Hence broking firms and traders should make use of these right technical indicators for the right timing of buy/sell opportunities, which leads to better multiplication of their in-

vestments because emerging countries like India is subject to volatility as Indian economy is coupled with other nations and having ripple impact which will lead to volatility on the Indian bourses.

**ANNEXURE - I  
TABLE SHOWING MATCHED, NON MATCHED COUNTS  
AND SUCCESS PERCENTAGE OF VARIOUS TECHNICAL IN-  
DICATORS COMPANY WISE**

GODREJCP	DABUR						HUL HUL					
	TND	NMC	MC	S. (%)	TND	NMC	MC	S. (%)	TND	NMC	MC	Indicator
46.39	97	52	45	47.42	97	51	46	43.29	97	55	42	MACD
58.76	97	40	57	47.42	97	51	46	60.82	97	38	59	SMA
46.39	97	52	45	49.48	97	49	48	43.29	97	55	42	EMA
65.98	97	33	64	61.86	97	37	60	69.07	97	30	67	%R
34.02	97	64	33	32.99	97	65	32	40.20	97	58	39	BB
37.11	97	61	36	42.27	97	56	41	34.02	97	64	33	ROC
44.33	97	54	43	46.39	97	52	45	50.51	97	48	49	CCI
35.05	97	63	34	36.08	97	62	35	35.05	97	63	34	ATR
50.52	97	48	49	52.58	97	46	51	48.45	97	50	47	OBV
46.39	97	52	45	47.42	97	51	46	43.29	97	55	42	PP
46.39	97	52	45	38.14	97	60	37	39.17	97	59	38	RSI

PGHH	EMAMI						MARICO					
	TND	NMC	MC	S. (%)	TND	NMC	MC	S. (%)	TND	NMC	MC	
41.24	97	57	40	52.58	97	46	51	31.96	97	66	31	
54.64	97	44	53	46.39	97	52	45	45.36	97	53	44	
50.52	97	48	49	48.45	97	50	47	47.42	97	51	46	
55.67	97	43	54	50.52	97	48	49	34.02	97	64	33	
37.11	97	61	36	35.05	97	63	34	28.87	97	69	28	
37.11	97	61	36	38.14	97	60	37	35.05	97	63	34	
44.33	97	54	43	42.27	97	56	41	37.11	97	61	36	
34.02	97	64	33	37.11	97	61	36	31.96	97	66	31	
52.58	97	46	51	55.67	97	43	54	43.30	97	55	42	
49.48	97	49	48	51.55	97	47	50	37.11	97	61	36	
38.14	97	60	37	52.58	97	46	51	39.18	97	59	38	

BAJAJ CORP				
S. (%)	TND	NMC	MC	
43.30	97	55	42	
34.02	97	64	33	
42.27	97	56	41	
45.36	97	53	44	
28.87	97	69	28	
40.21	97	58	39	
43.30	97	55	42	
27.84	97	70	27	
44.33	97	54	43	
42.27	97	56	41	
32.99	97	65	32	

**Note:** MC-Matched Counts, NMC- Non Matched Counts, TND- Total No of Days, S. (%) - Success (%)

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