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## UNDERSTANDING TECHNICAL ANALYSIS: A CONCEPTUAL FRAMEWORK

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**Abstract:** *Technical Analysis is a study of the stock market relating to factors such as short term and long term trend. These stock market indicators would help the investor to identify major market turning points. Moving averages and moving averages crossover is a significant technical analysis tool on any index or stock which helps to understand the price behavior of the shares, the signals given by them and the major turning points of the market price. Any investor or trader must certainly consider technical analysis as a tool whether to buy the stock at a particular point of time though it is fundamentally strong. This module studies application of technical analysis tools on selected index/stocks and interpret on whether to buy or sell them. This in turn would help investors to identify the current trend and risks involved with the scrip on par with market. The study is purely based on secondary sources which includes the historical data available from the website. For the purpose of analysis, Simple Moving average, moving average crossover is used for the analysis to know if the index/stock trend.*

**Keywords:** *Technical Analysis, stock market, market efficiency, India*

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## **INTRODUCTION**

Technical analysis is the study of past price and volume patterns from charts in order to predict future price movements. The art of technical analysis is to identify patterns in price movements that will then anticipate in which direction prices will move in the future. The stock market indicators would help the investor to identify major market turning points. This is a significant technical analysis of selected companies which helps to understand the price behavior of the shares, the signals given by them and the major turning points of the market price. , technical analysis does not result in absolute predictions about the future. Instead, technical analysis can help investors anticipate what is likely to happen to prices over time. Technical analysis uses a wide variety of charts that show price over time.

Price movements more or less constant and tends to react to similar situations in consistent ways. By studying the nature of previous market trends, it is possible to identify future price pattern to develop an understanding of where the market is going to move in the future. Technical analysis therefore is based on the assumption that price movement patterns repeat. Technical analysis helps identify this patterns with the help of technical analysis tools and help market watchers to identify major junction, or turning points.

## **BACKGROUND**

It is probably reasonable to assume that where commerce has flourished in civilizations so have the traders who have paid close attention to prices and their movements. However, rather than dwell upon the wonders of the Phoenician market for olive oil forwards, or the ancient Japanese and Chinese history of rice trading, our story starts with one Charles Dow, inventor of the first stock market index in 1884.

Charles Dow invented point and figure charting after he noticed that by the time important corporate news entered the public domain, the share price had already moved, due not least to insider trading. Therefore he watched the open outcry 'curb market', writing down prices in a notebook, looking for clues to trending market action. Finding a page of price changes confusing, not surprisingly, he decided to plot price action in graphic form.

Mr. Dow also wrote a series of articles for the Wall Street Journal in the latter years of the 19th century. This body of work became known as "Dow Theory" and formed the initial basis for what we know as technical analysis today. While we will not dwell on the finer details of Dow Theory in this section, the most important concepts that Mr. Dow recognized



were that prices reflect the current balance of supply and demand (i.e. the hopes and fears of investor). And most importantly, an imbalance of supply and demand causes prices to form recognisable trends, up and down.

Certainly, the concept of studying price action was fairly well established by the early 20th century. By the 1940s to 1950s additional pioneers of technical analysis such as Bill Jiler, Robert Edwares, John Magee, Alexander Wheelan and Abe Cohen were making steady progress, not only in the types of charts used to depict trends, but also techniques for analyzing price action.

However the acceleration in technical research techniques commenced in the late 1970s with the introduction of computers. This made it possible for hypotheses and indicators to be calculated and back tested as to their efficacy. While this has greatly expanded the body of theoretical work available on price studies, many seasoned chart readers maintain that at least 90 percent of what they need to know about prices is revealed by the price action alone.

## **LITERATURE REVIEW**

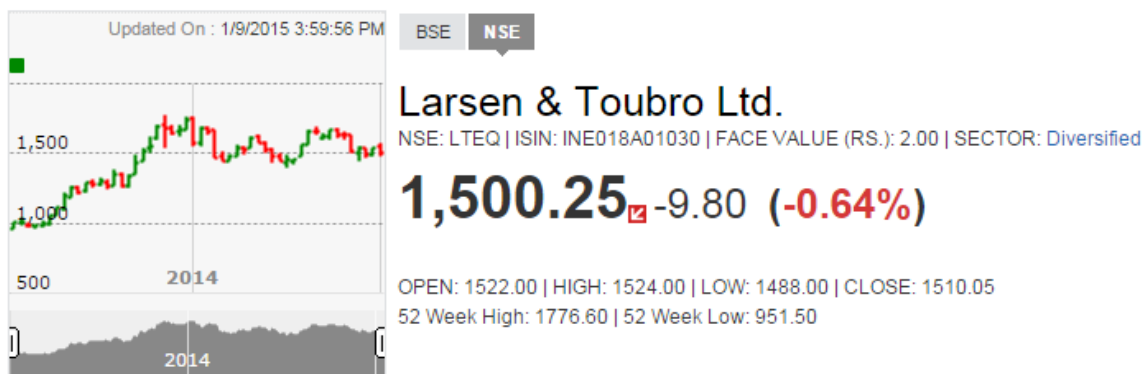
Technical analysis claims the ability to forecast the future trend of the asset prices through study of past market data. Many studies have been conducted on technical analysis applicability on various financial products. Goldberg and Schulmeister (1988) in their study examines the profitability of technical analysis in the foreign exchange market and stock market during 1970s and 1980s. Its purpose is to test whether excess profits are made using technical analysis tools. One major results of this study is that all of the technical rules examined are considerably more profitable with hourly data than they are with daily data. Neely, Paul and Dittmar (1997) in their study use technical analysis rules, to find strong evidence of economically significant out of sample excess returns to those rules for each of six exchanges rated over period 1981-1995. This report also tries to find out price movement patterns that are not captured by statistical models and find out profitability against the risk using bootstrap methodology in foreign exchange market. Bessembinder and Chan (1998) in their study investigate and provide simple forms of technical analysis contain significant forecast power for U.S. equity index returns.



Lo, Mamaysky and Wang (2000) in their study highlight the presence of geometric shapes in historical price charts is often in the eyes of the beholder. Park and Irwin (2004) in their research work reviews the profitability of technical analysis. The report comprehensively reviews survey, theoretical and empirical studies regarding technical trading strategies. The survey literature indicates that technical analysis has been widely used by market participants in futures markets and foreign exchange markets, and that about 30% to 40% of practitioners appear to believe that technical analysis is an important factor in determining price movement at shorter time horizons up to 6 months. Larsen (2010) tried to predict the direction of future stock prices. And developed stock price prediction model and used a novel two-layer reasoning approach that employs domain knowledge from technical analysis in the first layer of reasoning to guide a second layer of reasoning based on machine learning. Based on a number of portfolio simulations with trade signals generated by the model.

Chitra (2011). The objective of this project is to make a study on the technical analysis on selected stocks of energy sector and interpret on whether to buy or sell them by using techniques. This in turn would help investors to identify the current trend and risks involved with the scrip on par with market. The stock market indicators would help the investor to identify major market turning points. This is a significance of technical analysis of selected companies which helps to understand the price behavior of the shares, the signals given by them and the major turning points of the market price. For Technical Analysis, the daily share price movements of the selected companies in NSE were absorbed for the 3 years i.e. 01-April-2007 to 31-March-2010. The closing prices of share prices were taken and the future price movement was analyzed using various tools like beta, RSI, Moving averages.

#### Company Profile Larsen & Toubro Limited (L&T)





Larsen & Toubro Limited (L&T) is a technology, engineering, construction and manufacturing company. It is one of the largest and most respected companies in India's private sector. L&T has seven decades of a strong, customer-focused approach and the continuous quest for world-class quality have enabled it to attain and sustain leadership in all its major lines of business.

L&T has an international presence, with a global spread of offices. A thrust on international business has seen overseas earnings grow significantly. It continues to grow its global footprint, with offices and manufacturing facilities in multiple countries. The company's businesses are supported by a wide marketing and distribution network, and have established a reputation for strong customer support.

### **BASIS FOR SELECTING L&T**

L&T has global presence. It is very diversified company. It's in existence for last 7 decades and has been growing. L&T is very well known company. It is an 'A' group stock listed on both NSE and BSE and traded very actively on both the exchanges. Being a frontline company the stock price factors in all the available information and anticipated future earnings.

Technical analysis has 3 basic assumptions 1. The market discounts everything. 2. Price moves in trends. 3. History tends to repeat itself. And all these assumptions are fulfilled by L&T making it a good choice for this analysis.

### **SIMPLE MOVING AVERAGE**

Moving average is an average price for a security using a specified time period. E.g. most popular 50-day moving average. A 50-day moving average is calculated by taking the closing prices for the last 50 days of a security and adding them together and then result from the addition calculation is divided by 50 days. So as to continue to calculate the moving average on a daily basis, replace the oldest number with the most recent closing price and do the same math. Similarly moving average can be calculated for any period from five-day moving average to 250 day moving average.

It is important to remember that you must have a certain number of closing prices to calculate the moving average. If a security is brand new or only a month old, you will not be able to do a 50-day moving average because you will not have a sufficient number of data points.



## ANALYSIS OF SIMPLE MOVING AVERAGE

For analysis we have taken Larsen & Toubro candle stick chart data for past 3 years.



*LT chart with 200day moving average line*

The red line plotted on the LT chart is the 200 day moving average line. The 200 day moving average shows the long term trend of LT stock. This moving average also acts a trend line or support line for the stock. The stock bounces off once it touches from above. When the moving average line is moving upwards the security is said to be in up-trend. When the trend is moving horizontal with minor ups and down's the trend is side-ways or no-trend. When then trend line is moving down wards the trend is down trend.

The simple moving average helps in visually identifying the trend of any script. A 20day or 50day moving average can be used to identify short term of the script.

### MOVING AVERAGE CROSSOVER

The more intermediate-term trader's traditional use of the moving average is to look for a closing price above or below a moving average as a buy or sell signal. Often, the moving average was a 20-day moving average, which approximates one month of activity. This technique is useful in identifying short term trend. But sideways periods create many false signals and led to losses.

To reduce this problem, trader can incorporate a multiple moving average approach, called the moving average crossover. Up to three moving averages can be used, with the two popular ones using similar lookback periods, five-, 10-, and 20-day moving averages or 20, 50, 200 day moving average



Using three moving averages was the basis for more elaborate rules than just a simple closing price past the moving average concept. For example, if all three moving averages are rising and the 20-day is leading the 50-day, then the market is in a strong uptrend. If all three moving averages are falling, with the 20-day leading the 50-day down, then the market is in a very weak downtrend. But if the 20-day moving average was below the 50-day moving average, and yet both the 20-day and 50-day were above the 200-day moving average, then the market was in congestion with a bullish bias as the long-term moving average was still rising.

## ANALYSIS OF MOVING AVERAGE CROSSOVER

For analysis we have taken Larsen & Toubro candle stick chart data for past 3 years.



*LT chart, Red line 200 day moving average, Blue line 50 day moving average, Green line 20 day moving average.*

In the above chart “A” indicates up-trend on all 3 time frames, “box B” is where the short term trend has reversed to down trend but the long term trend is still up. Now buys can be initiated from point where prices touch the 200day moving average price. Only if it is broken one needs to exit as it would indicated that the long-term trend has also turned negative.

The up arrow on this chart indicated change in the trend one can initiate buys at up-arrow. At this point the short term moving average line has breached the long-term moving average from below and as long as it stays about the 200-day moving average and the 200-day moving average keeps climbing the security will remain in uptrend. The down-arrow shows trend reversal i.e. up-trend is over and its beginning of down trend when the short



term trend line breaches the 200-day moving average from above. At this point one should exit the script or take short position.

## CONCLUSION

The simple moving average helps in visually identifying the trend of any script. A 20day or 50day moving average can be used to identify short term of the script and 200day moving average can help identify the long term trend. Moving averages help identifying the price at which one should enter the stock and at what price one should exit from the stock.

Moving average crossover which uses up to three moving averages can help identify entry and exit point more precisely. The longer time frame average acts as trend and the short term moving averages give entry and exit point with reference to the long term moving average.

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