# Trend analysis with Reference to TCS in Equity Market - A Case Study on 

Gajjala Shyamala<br>School of Management<br>Anurag University


#### Abstract

Trend analysis is the widespread practice of collecting Information attempting to spot a pattern. Although trend analysis is often used to predict future events, it could be used to estimate uncertain events in the past. The scope of the study is relies on tools like Technical analysis. Further, the study relies on information of Three months. The 3 months daily stock prices have been collected to apply the trend. The RSI value band of 68-70 and above that value gives us a good signal for selling the stock. $5^{\text {th }}, 6^{\text {th }}, 7^{\text {th }}, 8^{\text {th }}, 9^{\text {th }}, \mathbf{1 2}^{\text {th }}$, and $16^{\text {th }}$ to $31^{\text {st }}$ of January 2020 are the selling points from the RSI and those were overbought. If the RSI value is in band of $\mathbf{3 0 - 3 2}$ and below that value then it's the signal for buying. 1st, 4th, 6th, 11th, 14th and 18th of December 2019 are the buying points and were oversold. The highest moving average was 1711.15 occurred on last day of the calendar year and lowest moving average was 1151.94.


Keywords: Equity shares, mathematical indicator, stock markets, stock movements, technical analysis, trend analysis.

## 1. Introduction:

The price of a security represents unanimity. It's the price at which one person agrees to buy and another agrees to sell. The price at which an investor is willing to buy or sell depends totally on his expectations. If he expects the security's price is going to rise, he will buy it; if the investor expects the price is going to fall, he will sell it. These simple statements are the cause of a major challenge in estimating security prices because they refer to human expectations. As we all know, human expectations are neither easily quantifiable nor foreseeable. If prices are based on investors' expectations, then knowing what a security should sell for.

Equity is that the ownership interest of investors during a business firm. Investors can own equity shares in an exceedingly firm within the form of common stock. Equity ownership within the firm means that the original business owner does not owns $100 \%$ of the firm but shares ownership with others. On a company's record, equity is represented by the subsequent accounts: common stock, preferred stock, paid-in capital, and retained earnings. Equity will be calculated by subtracting total liabilities from total assets.

## Objectives of the study:

The objective of the study is to understand the investment return pattern in equity shares with the assistance of trend analysis. The study also focuses to analyses the trend of the selected stock.

## Research methodology:

The secondary data has been used to study the objective. The Moving averages, Relative strength index and Rate of change tools have been used to study the data. The stock prices taken for the study is of 3 months i.e from $1^{\text {st }}$ November 2019 to $31^{\text {st }}$ January 2020.

Mathematical indicators:

## 1: Moving averages:

Moving average is one among the necessary mathematical indictor that is used to point out the average price movements of a security over a period. Moving averages are accustomed to highlight the direction of a trend and to smooth out the worth and volume fluctuations of a security for higher interpretations. Once the day-to-day fluctuations are removed, traders are in higher position to require selections simply.

It should be noted that the amount doesn't always have to be in days. Moving averages can be calculated using minutes, hours, weeks, months, quarters, years etc. Each day trader \{intraday trading\} looks 50 -minutes moving average to induce a concept of next hour value movement and alternative traders usually appearance one day, weekly, monthly or yearly moving average charts to require investment choices. It suggest that to spot short term trends 10 day to 30 -day moving averages are used, just in case of medium term trends 50 day to 125-day moving averages are adopted and 200 days moving averages are used for identifying longterm trends.

Types of moving average:
$\square \quad$ Simple moving average.
$\square \quad$ Exponential moving average.

## A: Simple moving average. $\{$ SMA $\}$

This is the most common methodology used to calculate the moving average of prices. It simply takes the sum of all past closing prices over the time and divides the result by the amount of prices used in the calculation.

Red line is an example of easy moving average for 10 days. In the above chart, we are able to observe how 10 days simple moving average is reacting and moving very nearer to price chart of nifty without confusing with day-to-day fluctuations. One of the important features of this moving average is it gives equal weight age to all information, which is considered as one of the limitation of it by some technical analysts. Anyhow, still moving average is more popular in technical analysis.

## B: Exponential Moving Average. (EMA $\}$

This moving average calculation uses a smoothing factor to place a higher weight on recent data points and is considered as way more efficient than the simple moving average. The necessary thing to recollect is EMA is more responsive to new information when compare to simple moving average. This is the reason why all technical analysts
Prefer EMA instead of other moving averages. This can be calculated by using the flowing formula.

## EMA = [current closing price - previous close] * factor + previous close

Where Factor $=\mathbf{2} / \mathbf{n + 1}$

## 2: Oscillators.

Oscillators are the mathematical indicators calculated with the assistance of closing price information. They assist to identify overbought and oversold conditions within the market and therefore the risk of trend reversals. Generally, oscillators are analyzed together with the price chart. Oscillators indicate trend reversals that should be confirmed with the price movement of the scrip. Changes within the price should be correlated to changes within the supply and demand forces then only buy and sell signals will be generated. For short term trading, daily price oscillators are useful and it is calculated for all periods. Following are the 3 important technical indicators to identify buy and sell signals.

## 3: Rate of change (ROC)

It is another popular oscillator, which measures the Rate of Change of the current price as a change within the prices of certain number of days or weeks back. To calculate a 7-day Rate of Change, every day's price is divided by the price, which prevailed 7 days ago, and then 1 is subtracted from this price ratio.

ROC = current price / price " $n$ " period ago - $1 * 100$
The values obtained in ROC may be positive, negative or zero. When the ROC line is on top of the zero line, the price is rising and once it is below the zero line, the price is falling. Greater the changes within the prices, the greater will be the change in ROC. ROC could be used to define overbought and oversold markets.

## 4: Moving average convergence and divergence (MACD)

MACD is an oscillator that measures the convergence [meeting] and divergence [deviation] between two exponential moving averages. A short-term exponential moving average and a long term exponential moving averages are calculated with the assistance of the closing price information. A 12-day and 48-day exponential moving averages constitute a preferred combination. The difference between the short term EMA and therefore the long term EMA represents MACD.

## MACD = short-term moving average $\boldsymbol{-}$ long-term moving average

MACD values could also be positive, negative or zero. If the MACD line crosses the zero line from above, the trend will be considered to own become bearish, signaling selling.

## Results:

Table 1: Trend Analysis: By Using Moving Average Method

| Date | Close Price | 5 days moving <br> Average |
| :---: | :---: | :---: |
| 1-Dec-2019 | 1719.95 | 1759.15 |
| 4-Dec-2019 | 1711.15 | 1748.55 |
| 5-Dec-2019 | 715.55 | 1718.7 |
| 6-Dec-2019 | 171 | 1711.71 |
| 7-Dec-2019 | 1717.15 | 1719.78 |
| 8-Dec-20 | 1701.5 | 1711.9 |
| 11-Dec-2019 | 1771 | 1719.74 |
| 12-Dec-2019 | 1711.15 | 1715.07 |
| 13-Dec-2019 | 1718.4 | 1714.08 |


| 14-Dec-19 | 1557.8 | 1711.9 |
| :---: | :---: | :---: |
| 15-Dec-19 | 1545.7 | 1701.01 |
| 18-Dec-19 | 1580.5 | 1584.89 |
| 19-Dec-19 | 1575.1 | 1577.51 |
| 20-Dec-19 | 1588.95 | 1579.71 |
| 21-Dec-19 | 1595.7 | 1577.11 |
| 22-Dec-19 | 47.75 | 1597.44 |
| 26-Dec-19 | 1749.45 | 1711.11 |
| 27-Dec- | 1719.9 | 1710.15 |
| 28-Dec-19 | 1717.95 | $1717.75$ |
|  | $1701.1$ | 8.85 |
| 1-Jan-20 | $1745.7$ | $1748.71$ |
| 2-Jan-20 | 1711.1 | 1744.97 |
| 3-Jan-20 | 1718.75 | 1748.71 |
| 4-Jan-20 | 757.1 | 1754.75 |
| 5-Jan-20 | 1789.1 | 1751.15 |
| 8-Jan-20 | 1714.4 | 1777.11 |
| 9-Jan-20 | 1709 | 1781.77 |
| 10-Jan-20 | 1807.7 | 1715.17 |


| 12-Jan-20 | 1776.15 | 1759.17 |
| :---: | :---: | :---: |
| 15-Jan-20 | 1746.1 | 1765.71 |
| 16-Jan-20 | 1850.85 | 1794.08 |
| 17-Jan-20 | 1888.95 | 1810.55 |
| 18-Jan-20 | 1918.1 | 1816.09 |
| 19-Jan-20 | 1959.1 | 1871.68 |
| 22-Jan-20 | 1716.4 | 1946.74 |
| 23-Jan-20 | 1701 | 1996.97 |
| 24-Jan-20 | 1774.6 | 1054.1 |
| 25-Jan-20 | 1711.05 | 1094.67 |
| 29-Jan-20 | 1798.85 | 1141.58 |
| 30-Jan-20 | 1751.85 | 1149.87 |
| 31-Jan-20 | 1711.15 | 1151.94 |

## Source: Calculation by the author

Moving averages is calculated on closing price
Moving averages $=$ [current closing price - previous close $] *$ factor + previous close
Interpretation: The above table is showing the changes in closing prices of TCS on 31-jan-2020 the closing value reached to 1711.15 and moving average reached to 1151.94 . On this date there's no interaction between closing price and moving average. So, we can suggest that the TCS stock should be buy.

Table 2: Technical Analysis by Using RSI

| Date | Open <br> Price | High <br> Price | Low <br> Price | Close <br> Price | Change | Gain | Loss | RS <br> value | RSI |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1-Nov-19 | 1614 | 1616.85 | 1578.85 | 1601.85 |  |  |  |  |  |
| 2-Nov-19 | 1608.5 | 1674 | 1606.75 | 1616.15 | 23.3 | 23.3 | 0 |  |  |
| 3-Nov-19 | 1631.4 | 1636.7 | 1601.8 | 1610.1 | -6.05 | 0 | 6.05 |  |  |
| 6-Nov-19 | 1610 | 1671.8 | 1611.75 | 1665.55 | 45.45 | 45.45 | 0 |  |  |
| 7-Nov-19 | 1670 | 1768 | 1666.05 | 1710.05 | 44.5 | 44.5 | 0 |  |  |
| 8-Nov-19 | 1713 | 1759 | 1718.15 | 1735 | 24.95 | 24.95 | 0 |  |  |
| 9-Nov-19 | 1750 | 1750 | 1719.3 | 1736.4 | 1.4 | 1.4 | 0 |  |  |
| 10-Nov-19 | 1711.1 | 1716 | 1693.35 | 1708.75 | -27.65 | 0 | 27.65 |  |  |
| 13-Nov-19 | 1701.05 | 1777.4 | 1701.05 | 1758.95 | 50.2 | 50.2 | 0 |  |  |
| 14-Nov-19 | 1756.55 | 1756.55 | 1707.5 | 1714.6 | -44.35 | 0 | 44.35 |  |  |
| 15-Nov-19 | 1706 | 1755 | 1701.35 | 1705.3 | -9.3 | 0 | 9.3 |  |  |
| 16-Nov-19 | 1710 | 1763 | 1686.95 | 1746.65 | 41.35 | 41.35 | 0 |  |  |
| 17-Nov-19 | 1748.1 | 1748.1 | 1703.6 | 1707.3 | -39.35 | 0 | 39.35 |  |  |
| 20-Nov-19 | 1715 | 1716.9 | 1695.3 | 1703.45 | -3.85 | 0 | 3.85 |  |  |


| 21-Nov-19 | 1701 | 1701 | 1666 | 1671.95 | -30.5 | 0 | 30.5 | 1.4352 | 58.9367 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 22-Nov-19 | 1673 | 1709.7 | 1671.4 | 1680.65 | 7.7 | 7.7 | 0 | 1.3384 | 57.2357 |
| 23-Nov-19 | 1681 | 1693 | 1669 | 1681.15 | 0.6 | 0 | -0.6 | 1.3960 | 58.2646 |
| 24-Nov-19 | 1681 | 1701.9 | 1673.1 | 1688.05 | 6.8 | 6.8 | 0 | 1.1457 | 53.3957 |
| 27-Nov-19 | 1688 | 1695.9 | 1661.1 | 1685.85 | -2.2 | 0 | 2.2 | 0.8454 | 45.8131 |
| 28-Nov-19 | 1686 | 1701.4 | 1670 | 1685.3 | -0.55 | 0 | 0.55 | 0.6837 | 40.6084 |
| 29-Nov-19 | 1677.5 | 1693 | 1650 | 1658.15 | -27.15 | 0 | 27.15 | 0.5754 | 36.5248 |
| 30-Nov-19 | 1653.65 | 1666.95 | 1613 | 1637 | -21.15 | 0 | 21.15 | 0.5964 | 37.3612 |
| 1-Dec-19 | 1635 | 1668 | 1611.5 | 1619.95 | -7.05 | 0 | 7.05 | 0.3021 | 23.2031 |
| 4-Dec-19 | 1611 | 1658.5 | 1601.95 | 1631.35 | 2.4 | 2.4 | 0 | 0.4145 | 29.3081 |
| 5-Dec-19 | 1631 | 1651.7 | 1618.15 | 1635.55 | 3.2 | 3.2 | 0 | 0.4683 | 31.8972 |
| 6-Dec-19 | 1636 | 1645 | 1611.85 | 1633.3 | -2.25 | 0 | 2.25 | 0.1506 | 13.0901 |
| 7-Dec-19 | 1631.3 | 1645.95 | 1615 | 1617.15 | -16.05 | 0 | 16.05 | 0.1824 | 15.4318 |
| 8-Dec-19 | 1618 | 1645 | 1597 | 1601.5 | -15.75 | 0 | 15.75 | 0.1646 | 14.1399 |
| 11-Dec-19 | 1608.35 | 1671.65 | 1608.35 | 1661.1 | 59.6 | 59.6 | 0 | 0.8705 | 46.5401 |
| 12-Dec-19 | 1661 | 1661 | 1607.4 | 1611.15 | -48.95 | 0 | 48.95 | 0.5124 | 33.8823 |
| 13-Dec-19 | 1611.4 | 1651.45 | 1601 | 1618.4 | 16.25 | 16.25 | 0 | 0.6254 | 38.4783 |
| 14-Dec-19 | 1631 | 1631 | 1531.1 | 1557.8 | -70.6 | 0 | 70.6 | 0.3847 | 27.7844 |
| 15-Dec-19 | 1563.75 | 1584.45 | 1536.85 | 1545.6 | -12.2 | 0 | 12.2 | 0.3673 | 26.8678 |


| 18-Dec-19 | 1537 | 1588.95 | 1494.35 | 1580.5 | 34.9 | 34.9 | 0 | 0.5261 | 34.4740 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 19-Dec-19 | 1576 | 1597.8 | 1564.7 | 1575.3 | -5.2 | 0 | 5.2 | 0.5840 | 36.8721 |
| 20-Dec-19 | 1581 | 1591.75 | 1550.65 | 1588.95 | 13.65 | 13.65 | 0 | 0.7301 | 42.2009 |
| 21-Dec-19 | 1587 | 1608 | 1580.05 | 1595.7 | 6.75 | 6.75 | 0 | 0.7997 | 44.4354 |
| 22-Dec-19 | 1604 | 1663.9 | 1590.1 | 1646.75 | 51.05 | 51.05 | 0 | 1.0842 | 52.0202 |
| 26-Dec-19 | 1686 | 1689.75 | 1631.6 | 1649.45 | 2.7 | 2.7 | 0 | 1.0812 | 51.9527 |
| 27-Dec-19 | 1649.45 | 1658.5 | 1610.5 | 1619.9 | -29.55 | 0 | 29.55 | 0.9324 | 48.2515 |
| 28-Dec-19 | 1608.8 | 1653.5 | 1605.65 | 1616.95 | 7.05 | 7.05 | 0 | 1.0532 | 51.2960 |
| 29-Dec-19 | 1613.1 | 1708.9 | 1618.55 | 1701.1 | 74.25 | 74.25 | 0 | 1.5987 | 61.5206 |
| 1-Jan-20 | 1681.3 | 1694.8 | 1635 | 1645.6 | -55.6 | 0 | 55.6 | 0.9302 | 48.1922 |
| 2-Jan-20 | 1660 | 1669.6 | 1610.1 | 1631.1 | -14.4 | 0 | 14.4 | 1.1015 | 52.4165 |
| 3-Jan-20 | 1631 | 1669 | 1631.1 | 1638.65 | 7.45 | 7.45 | 0 | 1.0546 | 51.3299 |
| 4-Jan-20 | 1650 | 1661 | 1640 | 1657.1 | 18.45 | 18.45 | 0 | 1.8490 | 64.9009 |
| 5-Jan-20 | 1650 | 1699.5 | 1650 | 1689.1 | 32.1 | 32.1 | 0 | 2.3708 | 70.3341 |
| 8-Jan-20 | 1700 | 1716.85 | 1681.85 | 1714.4 | 25.2 | 25.2 | 0 | 2.2782 | 69.4962 |
| 9-Jan-20 | 1715 | 1711 | 1676.55 | 1709 | -5.4 | 0 | 5.4 | 2.2739 | 69.4557 |
| 10-Jan-20 | 1711 | 1816 | 1694.65 | 1806.6 | 97.6 | 97.6 | 0 | 3.0738 | 75.4531 |
| 11-Jan-20 | 1810 | 1811.9 | 1781.1 | 1790.5 | -16.1 | 0 | 16.1 | 2.6092 | 72.2934 |
| 12-Jan-20 | 1805 | 1805 | 1740.55 | 1776.35 | -14.15 | 0 | 14.15 | 1.9585 | 66.2 |


| 15-Jan-20 | 1777.15 | 1808 | 1735.05 | 1746.1 | -30.25 | 0 | 30.25 | 1.5841 | 61.3027 |
| :---: | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| 16-Jan-20 | 1756 | 1861.65 | 1750.55 | 1850.85 | 104.75 | 104.75 | 0 | 2.6994 | 72.9686 |
| 17-Jan-20 | 1870 | 1915 | 1861.15 | 1888.95 | 38.1 | 38.1 | 0 | 2.9278 | 74.5410 |
| 18-Jan-20 | 1897 | 1933 | 1868.05 | 1918.1 | 29.25 | 29.25 | 0 | 2.5967 | 72.1972 |
| 19-Jan-20 | 1930.55 | 1981 | 1903.65 | 1959.3 | 41.1 | 41.1 | 0 | 4.9066 | 83.0697 |
| 22-Jan-20 | 1961 | 1114.7 | 1911 | 1116.4 | 157.1 | 157.1 | 0 | 8.3626 | 89.3192 |
| 23-Jan-20 | 1714.95 | 1141.15 | 1090.05 | 1101 | -14.4 | 0 | 14.4 | 6.7702 | 87.1303 |
| 24-Jan-20 | 1790 | 1159.05 | 1081.65 | 1174.6 | 72.6 | 72.6 | 0 | 7.4445 | 88.1580 |
| 25-Jan-20 | 1775 | 1179.8 | 1081 | 1111.05 | -53.55 | 0 | 53.55 | 4.2263 | 80.8662 |
| 29-Jan-20 | 1731.4 | 1115 | 1111 | 1198.85 | 77.8 | 77.8 | 0 | 4.6193 | 82.2043 |
| 30-Jan-20 | 1780 | 1101.8 | 1141.7 | 1151.85 | -46 | 0 | 46 | 3.5442 | 77.9943 |
| 31-Jan-20 | 1737 | 1750 | 1098.6 | 1111.15 | -40.5 | 0 | 40.5 | 2.4224 | 70.7809 |

Source: Author's calculations

## Relative strength index

RSI $=$ current price $/$ price " $n$ " period ago $-1 * 100$

## Graph 1: Showing Relative Strength Index



Interpretation: RSI is calculated for TCS from the date 1-11-19 to 31-01-2020.The RSI graph, drawn above shows the overbought and oversold regions.

Overbought: This region is a selling signal of the stock. The RSI value band of 68-70 and above that value gives us a good signal for selling the stock. It indicates the overbought points where the buying pressure exhausts and the selling pressure starts developing curtailing further upward movement of price. Following are the selling points from the RSI graphs for TCS are $5^{\text {th }}, 6^{\text {th }}, 7^{\text {th }}, 8^{\text {th }}, 9^{\text {th }}$, $12^{\text {th }}$, and $16^{\text {th }}$ to $31^{\text {st }}$ of January 2020.

Oversold: The region is signaled for buying the stock. If the RSI value is in band of 30-32 and below that value then it's the signal for buying. It indicates the oversold point; where in the selling pressure is over taken by slowly developing buying pressure, curtailing the further downward movement of the stock price. Buying points from the RSI graph for TCS are 1st, 4th, 6th, 11th, 14th and 18th of December 2019. Indicates good buying points for this stock.

Table 3: Technical Analysis Using Rate of Change

| Date | Open Price | High Price | Low Price | Close Price | ROC |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 1-Nov-19 | 1614 | 1616.85 | 1578.85 | 1601.85 |  |
| 2-Nov-19 | 1608.5 | 1674 | 1606.75 | 1616.15 |  |
| 3-Nov-19 | 1631.4 | 1636.7 | 1601.8 | 1610.1 |  |
| 6-Nov-19 | 1610 | 1671.8 | 1611.75 | 1665.55 |  |
| 7-Nov-19 | 1670 | 1768 | 1666.05 | 1710.05 |  |
| 8-Nov-19 | 1713 | 1759 | 1718.15 | 1735 |  |
| 9-Nov-19 | 1750 | 1750 | 1719.3 | 1736.4 |  |
| 10-Nov-19 | 1711.1 | 1716 | 1693.35 | 1708.75 |  |
| 13-Nov-19 | 1701.05 | 1777.4 | 1701.05 | 1758.95 |  |
| 14-Nov-19 | 1756.55 | 1756.55 | 1707.5 | 1714.6 | 0.0429 |
| 15-Nov-19 | 1706 | 1755 | 1701.35 | 1705.3 | 0.0301 |
| 16-Nov-19 | 1710 | 1763 | 1686.95 | 1746.65 | 0.0482 |
| 17-Nov-19 | 1748.1 | 1748.1 | 1703.6 | 1707.3 | 0.0156 |
| 20-Nov-19 | 1715 | 1716.9 | 1695.3 | 1703.45 | -0.0024 |


| 21-Nov-19 | 1701 | 1701 | 1666 | 1671.95 | -0.0226 |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 22-Nov-19 | 1673 | 1709.7 | 1671.4 | 1680.65 | -0.0203 |
| 23-Nov-19 | 1681 | 1693 | 1669 | 1681.15 | -0.0101 |
| 24-Nov-19 | 1681 | 1701.9 | 1673.1 | 1688.05 | -0.0256 |
| 27-Nov-19 | 1688 | 1695.9 | 1661.1 | 1685.85 | -0.0105 |
| 28-Nov-19 | 1686 | 1701.4 | 1670 | 1685.3 | -0.0073 |
| 29-Nov-19 | 1677.5 | 1693 | 1650 | 1658.15 | -0.0322 |
| 30-Nov-19 | 1653.65 | 1666.95 | 1613 | 1637 | -0.0259 |
| 1-Dec-19 | 1635 | 1668 | 1611.5 | 1619.95 | -0.0271 |
| 4-Dec-19 | 1611 | 1658.5 | 1601.95 | 1631.35 | -0.0151 |
| 5-Dec-19 | 1631 | 1651.7 | 1618.15 | 1635.55 | -0.0168 |
| 6-Dec-19 | 1636 | 1645 | 1611.85 | 1633.3 | -0.0178 |
| 7-Dec-19 | 1631.3 | 1645.95 | 1615 | 1617.15 | -0.0263 |
| 8-Dec-19 | 1618 | 1645 | 1597 | 1601.5 | -0.0314 |
| 11-Dec-19 | 1608.35 | 1671.65 | 1608.35 | 1661.1 | -0.0090 |
| 12-Dec-19 | 1661 | 1661 | 1607.4 | 1611.15 | -0.0173 |
| 13-Dec-19 | 1611.4 | 1651.45 | 1601 | 1618.4 | -0.0032 |
| 14-Dec-19 | 1631 | 1631 | 1531.1 | 1557.8 | -0.0274 |
| 15-Dec-19 | 1563.75 | 1584.45 | 1536.85 | 1545.6 | -0.0329 |


| 18-Dec-19 | 1537 | 1588.95 | 1494.35 | 1580.5 | -0.0208 |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 19-Dec-19 | 1576 | 1597.8 | 1564.7 | 1575.3 | -0.0220 |
| 20-Dec-19 | 1581 | 1591.75 | 1550.65 | 1588.95 | -0.0108 |
| 21-Dec-19 | 1587 | 1608 | 1580.05 | 1595.7 | -0.0022 |
| 22-Dec-19 | 1604 | 1663.9 | 1590.1 | 1646.75 | -0.0053 |
| 26-Dec-19 | 1686 | 1689.75 | 1631.6 | 1649.45 | 0.01427 |
| 27-Dec-19 | 1649.45 | 1658.5 | 1610.5 | 1619.9 | -0.0032 |
| 28-Dec-19 | 1608.8 | 1653.5 | 1605.65 | 1616.95 | 0.0270 |
| 29-Dec-19 | 1613.1 | 1708.9 | 1618.55 | 1701.1 | 0.0611 |
| 1-Jan-20 | 1681.3 | 1694.8 | 1635 | 1645.6 | 0.0252 |
| 2-Jan-20 | 1660 | 1669.6 | 1610.1 | 1631.1 | 0.0217 |
| 3-Jan-20 | 1631 | 1669 | 1631.1 | 1638.65 | 0.0191 |
| 4-Jan-20 | 1650 | 1661 | 1640 | 1657.1 | 0.0236 |
| 5-Jan-20 | 1650 | 1699.5 | 1650 | 1689.1 | 0.0160 |
| 8-Jan-20 | 1700 | 1716.85 | 1681.85 | 1714.4 | 0.0245 |
| 9-Jan-20 | 1715 | 1711 | 1676.55 | 1709 | 0.0340 |
| 10-Jan-20 | 1711 | 1816 | 1694.65 | 1806.6 | 0.0683 |
| 11-Jan-20 | 1810 | 1811.9 | 1781.1 | 1790.5 | 0.0330 |
| 12-Jan-20 | 1805 | 1805 | 1740.55 | 1776.35 | 0.0494 |


| 15-Jan-20 | 1777.15 | 1808 | 1735.05 | 1746.1 | 0.0436 |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 16-Jan-20 | 1756 | 1861.65 | 1750.55 | 1850.85 | 0.0804 |
| 17-Jan-20 | 1870 | 1915 | 1861.15 | 1888.95 | 0.0872 |
| 18-Jan-20 | 1897 | 1933 | 1868.05 | 1918.1 | 0.0851 |
| 19-Jan-20 | 1930.55 | 1981 | 1903.65 | 1959.3 | 0.0902 |
| 22-Jan-20 | 1961 | 1114.7 | 1911 | 1116.4 | 0.1503 |
| 23-Jan-20 | 1714.95 | 1141.15 | 1090.05 | 1101 | 0.1052 |
| 24-Jan-20 | 1790 | 1159.05 | 1081.65 | 1174.6 | 0.1376 |
| 25-Jan-20 | 1775 | 1179.8 | 1081 | 1111.05 | 0.1241 |
| 29-Jan-20 | 1731.4 | 1115 | 1111 | 1198.85 | 0.1648 |
| 30-Jan-20 | 1780 | 1101.8 | 1141.7 | 1151.85 | 0.1059 |
| 31-Jan-20 | 1737 | 1750 | 1098.6 | 1111.15 | 0.0773 |

Interpretation: From the above graph we can observe that Rate of Change of TCS was the fluctuations above the origin are known as indicators for selling or holding the stocks of TCS and below the origin is considered as buying the socks of TCS. The dates or points for selling are $14,15,16,17,20$ November 2019. 26, 27, 28, 29 of December 2019. 1 to $31^{\text {st }}$ of January 2020. The dates or points for buying are $20,23,24,28,29,30$ November 2019. 1, 4, 8, 11, 13, 14, 19, 21, 22, 26 of December 2019.

## FINDINGS:

- Here, In this case, the above graph is showing the changes in closing prices of TCS on $31^{\mathrm{ST}}$-jan- 2020 the closing value reached to 2112.35 and moving average reached to 2151.94 . On this date there is no interaction between closing price and moving average. So, we can suggest that the TCS stock should be sold.
- RSI is calculated for TCS from the date 1-11-19 to 31-01-2020.
- Overbought: This region is a selling signal of the stock. The RSI value band of 68-70 and above that value gives us a good signal for selling the stock. It indicates the overbought points wherever the purchasing pressure exhausts and also the selling pressure starts developing curtailing further upward movement of price. Following are the selling points from the RSI graphs for TCS are $5^{\text {th }}, 6^{\text {th }}, 7^{\text {th }}, 8^{\text {th }}, 9^{\text {th }}, 12^{\text {th }}$, and $16^{\text {th }}$ to $31^{\text {st }}$ of January 2020.
- Oversold: The region is signaled for buying the stock. If the RSI value is in band of 30-32 and below that value then it's the signal for buying. It indicates the oversold point; wherever in the selling pressure is over taken by slowly developing
purchasing pressure, curtailing the further downward movement of the stock price. Buying points from the RSI graph for TCS are 1st, 4th, 6th, 11th, 14th and 18th of December 2019.


## Conclusions:

Technical analysis is one of the advanced techniques that is used to analyze securities by analyzing the historical and other statistics which are generated by market activity. Technical analysis is principally supported 3 assumptions particularly, Market discounts everything, and Price moves in trends, History tends to repeat itself. Technical analysts states that all fundamentals of the company are discounted by the market at any point of time, also they consider short term approach to analyze the market than the long term analysis, trend is one of the important concept in technical analysis which actually refers to a direction in which a security is headed. This trend line is drawn by using the closing prices of the stock. To show the series of prices over a period of time charts and graphical representation are used in technical analysis. Relative strength index and Moving average are the leading oscillators in technical analysis.

Relative strength index is the one, which is more popular among oscillators, which helps to identify overbought and oversold market conditions of a particular stock or an index. Moving average is one among the necessary mathematical indictor that is used to indicate the average price movements of a security over a period.

Investors must be educated and trained with proper information about stock exchange and secondly the analysts must bet trained and made professional in analyzing and delivering service. These measures will lead the company towards success.

Books: dow Theory, Elliot theory.
[1] Donald E. Fischer and Ronald J. Jordan, "Security Analysis and Portfolio Management", - Prentice hall of India Pvt Ltd., New Delhi.
[2] S. Kevin, "portfolio Management" Prentice - hall of India Private Ltd., New Delhi.
[3] Chandra Prasanna, "Investment Analysis and Portfolio Management".

- Tata Me Graw hill publishing Company Ltd.,
[4] Botha, E., Lilford, N., \& Pitt, L. (2011). South African management literature over the past fifteen
[5] years: content analysis of the three top South African management journals. South African Journal ofBusiness Management, 42(4), 89-98.
[6] Coudounaris, D., Kvasova, O., Leonidou, L. C., Pitt, L. F., \& Nel, D. (2009). Fifteen Good Years.
[7] Management international review, 49(5), 671-684.
[8] Publishing Ltd. Retrieved October 16, 2012, from
[9] http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1467- 8691/homepage/ProductInformation.html
$>$ Economic times
$>$ Times of India
Websites
https://economictimes.indiatimes.com/markets/stocks
https://en.wikipedia.org/wiki/Trend line_(technical_analysis) https://www.investopedia.com/terms/t/trendanalysis.asp
https://www1.nseindia.com/products/content/equities/indices/sectoral indices.htm


## REVIEW OF LITERATURE

Scientific journals are an essential instrument for academicians and researchers to divulge their research and publish their work officially. Therefore, there has always been an interest by academia to understand how these journals behave and what they publish. For this reason, the activity of doing a content analysis of a journal in order to investigate its characteristics and try to look for some trends inside the journal is pursued and appreciated by scholars.

While it is not a rule of thumb, the longer years a journal has been published, the more interesting results a content analysis could yield. For example, a journal with 20 years history of publication could show more distinct trends than a journal with only 5 years of publications. Considering these assumptions and the need to evaluate the status of some academic journals, several scholars have done content and trend analysis of some journals. While some of these studies have similar patterns, others use different structure and methodology. All of them vary in the scope and analysis, as this is dependent on the context of the journal that is being examined. For example, Coudounaris et al. (2009) did a content analysis of Management International Review for a 15 years period (19922007), analyzing 360 articles and identifying key trends in the evolution of the journal. They analyzed the journal in relation to 5
elements, which include the nature of the authorship, most prolific authors, and characteristics of the articles, most influential articles and specific thematic areas within the articles.

## Concept of Technical analysis:

It is the technique of identifying trend reversal at a previous stage to formulate the buying and selling strategy. With the assistance of many indictors they break down the connection between worth - volume and supply-demand for the market and therefore the individual stock. Volume is favorable on the upswing it suggests that the quantity of share traded is larger than before and on the downside the quantity of shares traded dwindles. If it is the other approach round, trend reversal can be expected.

## DOW THEORY

Whatever is generally being accepted today as technical analysis has its roots in the Dow Theory. The theory is so called because Charles h. Dow who was the editor of the wall street journal in U.S.A. Charles Dow formulated a hypothesis that the stock market does not move on a random basis formulated it but it is influenced by three distinct cyclical trends that guide its direction.
Technical analysis is principally involved with the study of historical past value movements of the stocks and on its volume of exchange in the market to predict the longer term behavior of the stocks. However, it doesn't consider any fundamental factors of the company like earnings, growth rates, dividends, financial ratios etc. The standard behind technical analysis is that the share value behavior repeats itself over a time and technical analysis.

## ELLIOT WAVE THEORY

There are many theories, which seek to explain the behavior of the stock market. One such theory, in technical analysis, is the wave theory formulated by RALPH ELLIOT, known as Elliot wave theory. Elliot formulated the theory in 1934 after analyzing seventyfive years of stock price movements and charts. From his studies, he concluded that the market movement was quite orderly and followed a pattern of waves.
A wave is a movement of the market price from one change in the direction to the next change in the same direction. The waves are the result of buying and selling impulses emerging from demand and supply pressures on the market. Depending on the demand and supply pressures, waves are generated in the prices.
The Elliot wave theory is based on the principle that action is followed by reaction. Although the wave theory is not perfect and there are many limitations in its practical use, it is accepted as one of the tools of technical analysis. The theory is used for predicting the future price changes and in deciding the timing of investment.lysts commit to derive strategies to predict these repetitions.

The basic thought behind technical analysis is that prices move in trends or waves, which can be upward or downward and also the present trends are influenced by past trends and therefore the projection of future trends is feasible by an analysis of past value trends. Hence, technical analysts use this trend as a crucial tool for security analysis and the main focus on trend movements.

## Technical analysis $\mathbf{v} / \mathbf{s}$ fundamental analysis

Technical analysis and fundamental analysis are the two main schools of thought within the financial markets. Technical analysts look on trend movements to predict the future behavior of the stocks whereas Fundamental analysts look on fundamentals of the economy, industry and company as a whole to predict the future behavior of the stocks.

Fundamental analysis is based on what "SHOULD" happen where as Technical analysis is based on what "DOES" happen. The following points explain the major differences between this two and it also slates how technical and fundamental analysis are used together to analyze securities to gain better results.

## Types of Trends:

Trends are of 3 types

## 1: Uptrend

2: Downtrend
3: Horizontal trend

## 1: Uptrend:

It is the one, which explains the price movement of a financial asset when the overall direction is upward. Following is an example for uptrend.


Figure 2(i)
Source: - https://happycuan.wordpress.com/ta/technical-analysis/trend-line
The above figure 2 (i) shows however the consecutive peak \{boom\} and trough [depression\} is found above the previous ones. As an example, the peak at Point 4 is higher than the peak at Point 2. The uptrend are going to be deemed to be broken if the next low on the chart falls below Point 5.The main goal of technical analyst is to spot a powerful uptrend and to earn profit till it reversals its direction.

## 2: Downtrend:

It is the one, which explains the price movement of a financial asset when the overall direction is downward. Following is an example for downtrend.


Figure 2(ii)
Source: - https://happycuan.wordpress.com/ta/technical-analysis/trend-line
The above figure 2(ii) shows however consecutive peak and trough is lower than the previous one. As an example, the low at Point 3 is lower than the low at Point 1. The downtrend are deemed broken, once the worth closes above the high at Point 4. Most all traders attempt to avoid downtrends since it influence additional on the worth of their investment adversely. Downtrend will last for minutes, days, weeks, months or maybe years.

## 3: Horizontal trends:

This type of trends describes the horizontal price movements of a financial asset when the forces of demand and supply are nearly equal. Horizontal trend is additionally referred to as a sideways price trend.

## Trend lengths:

A trend of any direction are often classified as a longer term trend, intermediate trend or a short trend. Following is an example for trend lengths.


Figure 2(iii)
Source: - https://happycuan.wordpress.com/ta/technical-analysis/trend-line
Long-term trend refers to a significant trend, which is mostly categorized in concert lasting longer than a year. Intermediate trend refers to a trend that is taken into account to last between one and 3 months. Short trend refers to a small trend, which is a smaller amount than a month.

A long-term trend consists of many intermediate trends, which frequently move against the direction of the major trend. If the major trend is upward and there's a downward correction in worth movement followed by a continuation of the uptrend, the correction is taken into account an intermediate trend. The short trends are part of each major and intermediate trends.

