

RESEARCH ARTICLE

Stock Price Movement of Information Technology Sector through Technical Analysis

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Abstract

Technical analysis is the process of analyzing a security's historical prices in efforts to determine a probable future price of the same by using certain charts. The technical tools like chart patterns and Relative Stock Index (RSI) are useful in taking the investment decisions whether to buy or sell the stock of IT sector and statistical tools like coefficient of variation and beta are used to analysis the risk and return relationship of security with the market. This study attempts to apply technical analysis on five selected stocks i.e. Tata Consultancy Services (TCS), Infosys Limited, Wipro, Hindustan Computers Technologies Limited (HCL), Satyam Computers Limited (now Mahindra Satyam) of IT sector from the period Jan-Dec 2012. This study will help the investors to identify the current trends and risks associated with the market. This study is based on the secondary data that has been collected from NSE websites and journals.

Keywords: Technical analysis, chart patterns, relative stock index, investment decisions, secondary data.

Introduction

Technical analysis is a method of predicting future prices of a share based on its past performance (Sowmya, 2012). 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. Rajan Sabari and Parimala (2013) examined in their research work that the 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. Sulistiawan and Hartono (2013) examined in their study that using technical analysis signals, retail investors (uninformed investors) can detect preannouncements reaction. Technical analysis signals before earnings announcements are reliable signals, because the signals are able to produce profit. This study is an attempt to provide technical analysis of IT companies stock thus, the CNX IT index is used as it provides investors and market intermediaries with an appropriate benchmark that captures the performance of the Indian IT companies. Keeping the above facts in mind, this study was aimed with the following objectives:

1. To study the various chart patterns on the historical data of the selected IT companies.
2. To analyze the relation and relative strength index of IT stocks.
3. To analyze the risk and return of IT stocks with relation to CNX IT index through Beta.

Materials and methods

Experimental design: The research design is analytical in nature. For the study, five companies namely, Tata Consultancy Services (TCS), Infosys Limited, Wipro, HCL Technologies Limited, Mahindra Satyam Computers Services Limited are selected on the basis of highest Net Profit during the year 2012. The data for the research has been collected from NSE (National Stock Exchange) site, money control and text books for a period of 251 d on which trading has been done during Jan 1, 2012 to Dec 31, 2012 (Pandian Punithavathy, 2009; Kevin, 2011; Jain and Aggarwal, 2012). Three technical tools namely, chart patterns, technical indicators and oscillators are being used to find the results whereby chart patterns are used to draw a concise picture by consolidating the buying and selling (trading) of shares for a given period so as to make short-term or long-term forecasts (RSI, 2013). The technical indicators are used to generate squiggly lines found above, below and on-top-of the price information on a technical chart and oscillators i.e. Relative Strength Index (RSI) has been calculated to measure the speed and change of price movements. RSI oscillates between zero and 100. This is a powerful indicator that signals buying and selling opportunities ahead of the market.
$$RSI = 100 - [100 / (1 + RS)]$$

Where, RS = Average gain per day/Average loss per day. Average gain = Sum of gains over the past 14 periods/14. Average loss = Sum of losses over the past 14 periods/14. If RSI is >70, it states overbought condition and if RSI is <30 it states oversold condition of the share.

Fig. 1. Yearly chart of Tata Consultancy Services (2011–2012).



Source: Based on NSE data Computation.

Fig. 2. Yearly chart of Infosys Limited (2011–2012).



Fig. 3. Yearly chart of Wipro (2011–2012).



Statistical analysis: Statistical tools namely, mean, standard deviation, Coefficient of variation (C.V.), Beta (β) are used to analyze the available data in detail. The Beta (β) has been calculated to determine the correlated volatility of an asset in relation to the volatility of the benchmark that said asset is being compared to, i.e. for this study it is $\text{Beta} = \frac{\text{Covariance of returns of particular stock with relation to return of CNXIT}^*}{\text{Variance of returns of CNXIT}^*}$.

Results

It is clear that there is bullish trend and a continuation pattern is formed in the shape of Ascending Triangle (Fig. 1). From Oct to Dec there is a brief pause in a fast moving market that forms the shape of Flag pattern. From Fig. 2, it is inferred that, there is a mixed trend during the whole year. The flagpole is formed in mid April resulting of high volume and sharp move in the prices.

From July to Dec there is a trend reversal in form of Multi Bottom. In the Fig. 3, there is a bullish trend till July. From July to Dec there is reversal pattern in form in shape of Inverse Head and Shoulders formed where volume is highest during this pattern. Generally it indicates the upcoming bullish phase. Figure 4 clearly indicates that there is a bullish trend during the whole year. Moreover, there is a pattern of Double bottom in Dec. And after breaking the resistance level, there is a sign of incoming bullish phase.

From Fig. 5, it is inferred that, there is a bullish trend during the whole year. From Oct to Dec, there is a brief pause in a fast moving market that forms the shape of Flag pattern. After this brief pause period the previous trend is expected to continue. In the Fig. 6, the comparative analysis of returns of all the selected IT companies and CNX IT index has been done.

Fig. 4. Yearly chart of HCL Technologies (2011–2012).



Fig. 5. Yearly chart of Mahindra Satyam Computers (2011–2012).



Fig. 6. Returns of companies with CNX IT index (2011–2012).



Fig. 7. RSI chart of Tata Consultancy Services (2011–2012).



Fig. 8. RSI chart of Infosys Limited (2011-2012).

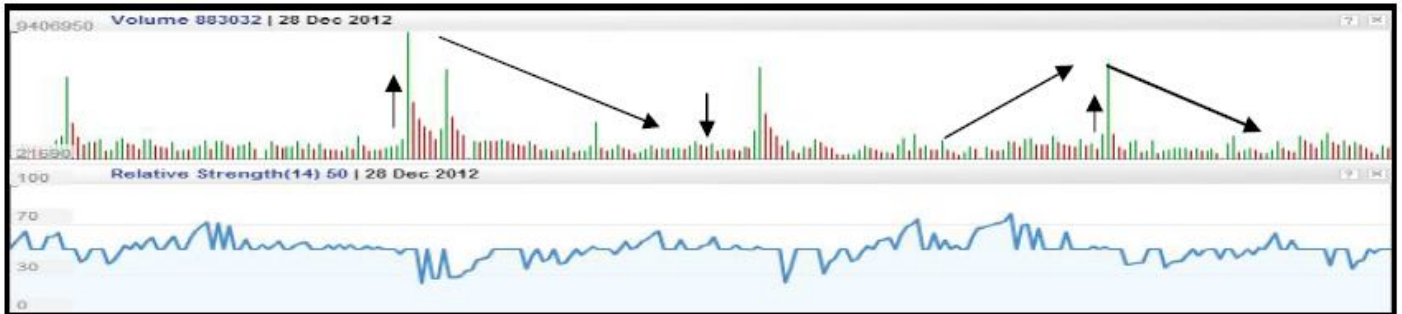


Fig. 9. RSI chart of Wipro (2011-2012).



Fig. 10. RSI chart of HCL Technologies (2011-2012).

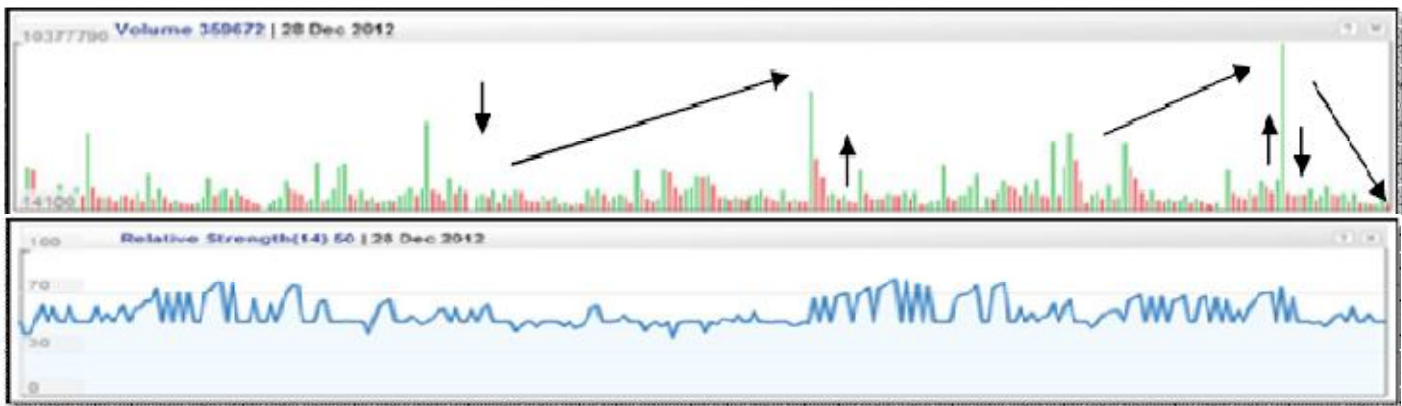


Fig. 11. RSI chart of Mahindra Satyam Computers (2011-2012).



Table 1. Statistical results.

| Tools | TCS | Infosys | Wipro | HCL Technologies | Mahindra Satyam Computers |
|-------|--------|---------|--------|------------------|---------------------------|
| Mean | 1255.1 | 2511.54 | 393.62 | 535.17 | 88.18 |
| S.D. | 61.08 | 212.6 | 30.67 | 66.63 | 15.34 |
| C.V. | 4.87 | 8.46 | 7.79 | 12.45 | 17.40 |

Source: Computation based on NSE data.

Table 2. Correlation values.

| | CNX IT | TCS | Infosys | Wipro | HCL Tech. | Mahindra Satyam |
|-----------------|--------|------|---------|-------|-----------|-----------------|
| CNX IT | 1 | 0.15 | 0.86 | 0.56 | -0.02 | -0.04 |
| TCS | - | 1 | -0.33 | -0.56 | 0.69 | 0.69 |
| Infosys | - | - | 1 | 0.77 | -0.48 | -0.46 |
| Wipro | - | - | - | 1 | -0.56 | -0.68 |
| HCL Tech. | - | - | - | - | 1 | 0.89 |
| Mahindra Satyam | - | - | - | - | - | 1 |

Table 3. Beta calculation.

| Company | Covar. to CNXIT | Var. of CNXIT | Beta |
|-----------------|-----------------|---------------|------|
| TCS | 1.48 | 1.59 | 0.93 |
| Infosys | 1.96 | 1.59 | 1.23 |
| Wipro | 1.12 | 1.59 | 0.70 |
| HCL Tech. | 0.94 | 1.59 | 0.59 |
| TCS | 0.86 | 1.59 | 0.54 |
| Mahindra Satyam | 1.48 | 1.59 | 0.93 |

In the starting of the year, returns of all the companies and index are almost equal, then after the returns of HCL technologies and mahindra satyam took a lead. CNX IT index is showing the average performance during the whole year. Figure 7 shows that the volume is almost stable during the whole year expect in March and April. The RSI indicates the opportunity to sell in Feb, Aug and Sep as it crossed the upper level of 70 lines that shows the Overbuying position. In the Fig. 8, the volume is almost stable during the whole year. The RSI indicates the opportunity to sell in Aug and Oct due to the Overbuying position and opportunity to buy during April and mid July indicating overselling. From Fig. 9, it is concluded that the volume is full of fluctuations during the whole year but high during the months of Feb, April July and Nov. The RSI indicates the opportunity to sell in Feb and Dec due to the overbuying position and opportunity to buy during July indicating overselling. In the Fig. 10, the volume is almost stable during the whole year but high during the months of Jan, April, July and Nov. The RSI indicates the opportunity to sell in the months of Feb, March, Aug, Sep and Nov due to the overbought position. Figure 11, shows the volume is almost stable during the whole year but high during the months of March, July and Nov. The RSI indicates the opportunity to sell in March, Aug and Sep due to the overbuying position. Mean values and C.V. have been calculated on daily closing prices of the securities (Table 1). From Table 1, it can be concluded that TCS's share price is better and even the security is less risky as its coefficient of variation is least among its peer companies.

Further Infosys is having the highest average share price. From Table 2, it is clear that the stock prices of HCL Tech. and Mahindra Satyam computers are negatively correlated with the CNX IT index and further, it is found that the share price of Infosys and Wipro are positively correlated with the CNX IT Index. There is very low correlation in between TCS and CNXIT index which shows that there is not much significant relationship in the share price movements of both. Beta (a measure of systematic risk) is a constant that tells us about volatility of security's return in relation to market return. From Table 3, the beta value of Infosys is highest i.e. greater than 1 thus, it is a highly risky security. All the other stocks having low beta values are less risky as the returns are not highly variable in relation to market returns.

Discussion

Share market is unpredictable but an estimate can be drawn from the regular study of the share market. As in this study, it is clearly depicted that a bullish trend will come in TCS stock, there were regular selling opportunities as RSI was nearly at 70 many times. As far as coefficient of variance, correlation, CNXIT index and beta is concern they are either negative or neutral which indeed is a positive sign. On the other hand, the scenario of Infosys is not seem to be favorable as the stock is highly volatile, the returns as compared with CNXIT index are negative, the coefficient of variance is not good but the correlation is positive with CNXIT index, thus investor need to be conscious which dealing in the stocks of Infosys.

The case of HCL and Mahindra Satyam Computers are somewhat similar. There are regular selling opportunities available to the investors throughout the year. The returns on both the shares is higher than CNXIT index but as far as correlation with the same index is concerned it is negative and even the coefficient of variance is bad but the beta is stable in both the cases. Lastly, the stocks of Wipro are showing a mix behavior. Though the beta is stable and is positively correlated with CNXIT index but the returns are inversely related with CNXIT index. As the data states there was regular buying opportunity for the stock in the concern period.

Conclusion

Since the RSI of Wipro and Mahindra Satyam computers are in overbought category, investors should exist at this point for accumulated gains. Risk adverse investors are suggested to stay away from the stock of Infosys as it is highly volatile and risky. Investors can look forward to invest in TCS stock as it is less risky and giving returns according to the market returns. The stock of HCL is highly performing during the year and expected to perform much better in the coming period. Investors can invest in this stock so that they can make a considerable amount of profit in the short term.

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