TRENDS, INDICATORS AND PATTERNS IN TECHNICAL ANALYSIS

SOFTWARE ENGINEERING FOR WEB APPLICATIONS

NAME: PRANAV SHIVKUMAR

RUID: 194007405

02/21/2020

HOMEWORK 2

This essay introduces the notions of technical analysis by discussing about the basic idea of trend analysis. This is followed by the definition of indicators and some examples. Finally, we delve into the nuances of patterns and discuss a few examples, along with the relative trading volume and time scale.

I. TREND ANALYSIS

A trend is basically the general direction the market is taking during a specified period of time. The trend analysis aims at predicting the trend, which is helpful because the investment will be profitable if it runs with the trends and not against them. It can be formally defined as the process of observing the current trends in order to predict future trends. There are generally three types of trends – short, intermediate and long-term.

In order to attempt to extract profits from the trends, many trading strategies are used which make use of indicators which are explained in the succeeding section.

II. INDICATORS IN TECHNICAL ANALYSIS

Indicators are statistics that are used to forecast financial and economical trends as well as measure the current conditions. Various types of indicators are used in technical analysis, which are explained below:

a. ***Moving Averages***
These involve entering long positions when a short-term moving average crosses over a long-term moving average, and short positions when a short-term average crosses below a long-term moving average.

b. ***Momentum Indicators***
This involves entering long positions when a security is trending with strong momentum and exiting long positions when a security loses momentum.

c. ***Trendlines and Chart Patterns***
These strategies involve entering long positions when a security is trending higher and placing a stop-loss below key trendline support levels. If the stock starts to reverse, the position is exited for a profit.

III. PATTERNS IN TECHNICAL ANALYSIS

a. Chart Patterns

A chart pattern is generally used in technical analysis to determine the action of a stock's price based on the shape its corresponding price chart creates. Trading using this method is based on the fact that once the chart forms a pattern, the price action is predictable to some extent, at least in the short term. Based on the rules of each pattern, different trading strategies can be applied, the most popular of which is trendlines, described below:

Trendlines are the most basic yet most popular chart pattern that is used by technical traders. It can be simply defined as the local highs (resistance) or lows (support) that form a straight line.

Support denotes the price level at which the demand is thought to prevent the price from further declination. Simply put, as the price of the stock becomes cheaper, the buyers are more inclined to buy, and the sellers are less inclined to sell. By the time the price reaches this level, the demand will overcome supply, thus preventing the price from falling any further. Support levels are usually established below the current price of the stock.

Resistance is the price level at which selling the stock is strong enough to prevent the price from increasing any further. This basically means that, as the price advances towards this level, the buyers are less inclined to buy, and the sellers are more inclined to sell their stocks. Resistance levels are typically situated above the current price of the stock, in contrast to the support levels.

The basic outline of a trendline resistance and support levels is shown in the figure below:

Fig 1: Trendline Resistance

Fig 2: Trendline Support

The basic rule of the trend line is that at a trend line's 'support', the stock price bounces upwards and at a trend line's 'resistance', it bounces downwards. If the trend line is broken, at a high volume, the momentum gained during the transaction pushes the stock significantly above/below the broken trend line.

Trend lines can offer great insight, but, if used improperly, can also produce false signals. Other items - such as horizontal support and resistance levels or peak-and-trough analysis - should be employed to validate trend line breaks.

Trendlines are typically time-scale independent. To create a trendline, an analyst must have at least two points on a price chart. Some analysts like to use different time frames such as one minute or five minutes. Others look at daily charts or weekly charts. Some analysts put aside time altogether, choosing to view trends based on tick intervals rather than intervals of time.

Coming to the trading volume, the volume of the stock increases when a trend line is broken with increased volume.

b. WEDGE AND TRIANGLE PATTERNS

Wedge patterns are typically composed of converging trendline support and resistances.

In these patterns, the corresponding rule is:

1. If the price is in the same direction of the previous trend, then it is called a "continuation".

2. If the price is in the opposite direction of the previous trend, then it is called a "reversal".

The wedge pattern is shown in the figure below:

Fig 3: Wedge Pattern

The triangle pattern is similar to a wedge pattern, which also consists of converging trendline support and resistance in such a way that one of the trendlines is horizontal. A "Triangle Ascending" denotes an upward trendline support and a horizontal trendline resistance, while a "Triangle Descending" denotes horizontal trendline resistance and downward trendline support. The triangle pattern is shown in the figure below:

Fig 4: Triangle Pattern

There is another type of triangle pattern, namely the symmetrical triangle pattern, which occurs when two trend lines converge towards each other and signal that a breakout is going to happen but not the direction of the breakout.

Wedge and triangle patterns typically have a diminishing volume and as for the time scale, the trend of the continuation pattern should be a few months old; the symmetrical triangle can extend for a few weeks or many months.

c. CHANNEL PATTERNS

The channel is a very powerful yet overlooked pattern. They are composed of parallel trendline support and trendline resistance. In the case of a channel up, both support and resistance slope upwards, while in the case of a channel down, both support and resistance slope downwards. In other words, a channel is when the price of an asset is moving between two parallel trendlines. The upper trendline connects the swing highs in price, while the lower trendline connects the swing lows. A typical channel pattern is shown below:

Fig 5: Channel Pattern

There are three types of channels:

1. ***Ascending Channels –*** These denote channels that are angled upwards.
2. ***Descending Channels*** – These denote channels that are angled downwards.
3. ***Rectangle***s – These denote channels in which the trendlines are horizontal.

These patterns are typically time scale independent and the trading volume also increases and then decreases.

CONCLUSION

This report basically talks about the trends and the related indicators, in addition to the patterns that are used in technical analysis. An explanation of what exactly each pattern represented was discussed to some amount of detail and the associated trading volume and time scales were discussed. This proves that technical analysis is a very valuable asset in financial applications – to predict the price of a stock by utilizing the previous stock market data.

REFERENCES

1. https://www.ece.rutgers.edu/~marsic/books/SE/book-SE_marsic.pdf
2. https://en.wikipedia.org/wiki/Technical_analysis#Charting_terms_and_indicators
3. https://www.investopedia.com/terms/t/trendanalysis.asp
4. https://www.investopedia.com/terms/i/indicator.asp
5. https://finviz.com/help/technical-analysis/charts-patterns.ashx
6. https://school.stockcharts.com/doku.php?id=chart_analysis:trend_lines
7. https://www.investopedia.com/trading/channeling-charting-path-to-success/