图片包含 物体, 时钟

已生成极高可信度的说明

|  |  |
| --- | --- |
| Name: | Junhui Liao (jl2512) |
| Title: | Description of Common Patterns and Indicators in Technical Analysis |
| Course: | 16:332:568 SE II – Web Applications |
| Professor: | Shiyu Zhou |
| Date: | Feb. 16, 2020 |

**1 Introduction**

Fundamental analysis and technical analysis are the two primary methods often used to forecast the asset’ price and make investment decisions. Fundamental analysis assumes that markets may incorrectly price a security in the short run but that the "correct" price will eventually be reached, while technical analysis focus on forecasting the direction of prices through the study of past market data, primarily price and volume.

The technical analysts believe that all the information to analyze the stock price is included in the stock charts. So, they use many patterns and indicators to help us understand what is happening to the price of a stock. In this essay, I will introduce trend lines and channels, support and resistance, several channel patterns and indicators in technical analysis.

**2 Trend Lines and Channels1,2**

A trendline is a line drawn over pivot highs or under pivot lows to show the prevailing direction of price. Trendlines are a visual representation of support and resistance in any time frame. They show direction and speed of price, and also describe patterns during periods of price contraction.

There are three types of trends: uptrend, downtrend, and sideways / horizontal trends. When there is no obvious uptrend or downtrend, we say that there is a sideways trend. It means the movements of the trend is so little that we cannot say it’s uptrend or downtrend.

Because of the complexity of prices movements, it’s not that easy to draw the trends. In another word, prices tend to go up or go down all the time. To draw the trend, we define the general direction of the peaks and troughs as trends. To be more specific, the direction of an uptrend contains the higher peaks and troughs while a downtrend includes the lower ones.

We should draw the trend line of an uptrend below the troughs of prices while drawing the lines of a downtrend above the peaks of the price. To determine the direction, we need at least two peaks or troughs for downtrends or uptrends, respectively.

Figure 1 is the stock price of SNP real price from 04/2018 to 02/2020. I draw an uptrend line and a downtrend line. It shows clearly that the volumes tend to go down during 08/2019 to 12/2019

January 2018 because the stock price of Google increases steadily. On 2/1/2018, the volumes go up suddenly because the price of Google goes down a lot, which means the stockholders want to sell them to stop their loss.

Figure 2 shows a price channel of Google stock. A channel will appear when we get two parallel trendlines. A channel consists of two trendlines that act as strong areas of support and resistance with the price bouncing around between them. The upper trendline consists of a series of highs, while the lower trendline consists of a series of lows. A channel can slope upward, downward, or sideways, but regardless of the direction, the interpretation is always the same. Traders expect the price to trade between the support and resistance trendlines until it breaks out beyond one of the two levels, in which case traders can expect a sharp move in the direction of the breakout. Along with clearly displaying the trend, channels are used to illustrate important areas of support and resistance for the stock price.



Figure 1 – Examples of an uptrend (left one) and a downtrend (right one)4

Figure 2 illustrates a nearly sideways channel where the upper trendline connects a series of highs and the lower trendline connects a series of lows. When the price breaks out from the upper trendline, the upper trendline becomes a new support level as the stock moves higher.

As we can see in figure 2, the volumes don’t change that much during the channel. It is almost the same during those days. We can safely conclude that during the uptrend the traders often want to hold their stocks to earn more profits while sell them during the downtrend to stop loss. At the same time, nothing special will happen in a channel.



Figure 2 – Examples of channels (between the red lines)4

**3 Support and Resistance4**

In stock market technical analysis, support and resistance are certain predetermined levels of the price of a security at which it is thought that the price will tend to stop and reverse. These levels are denoted by multiple touches of price without a breakthrough of the level.

A support level is a level where the price tends to find support as it falls. This means that the price is more likely to "bounce" off this level rather than break through it. However, once the price has breached this level, by an amount exceeding some noise, it is likely to continue falling until meeting another support level.

A resistance level is the opposite of a support level. It is where the price tends to find resistance as it rises. Again, this means that the price is more likely to "bounce" off this level rather than break through it. However, once the price has breached this level, by an amount exceeding some noise, it is likely to continue rising until meeting another resistance level.

In the figure 3, we can see that there exist an support level as well as an resistance, the price of the share can hardly break these two levels.

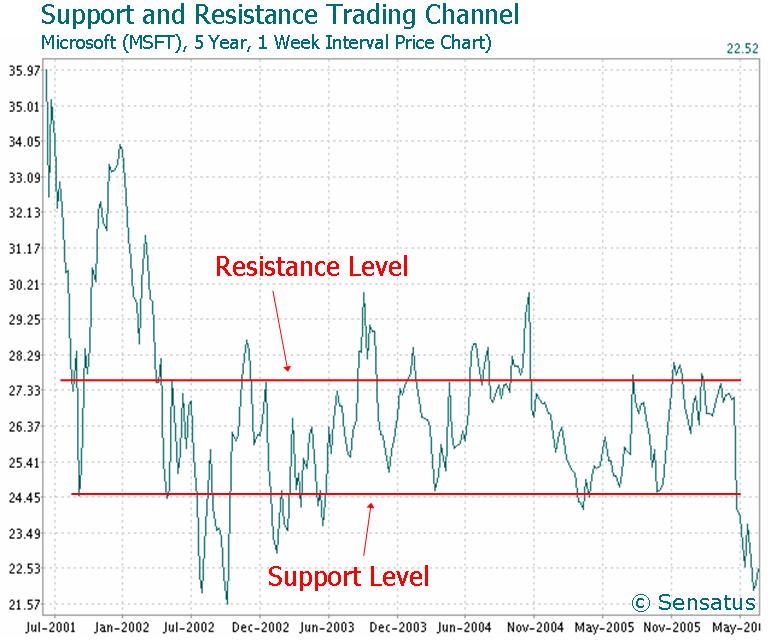
[](https://en.wikipedia.org/wiki/File:MicrosoftSupportResistanceTradingChannelChart.JPG)

Figure 2 – Examples of resistance and support level

**4 Patterns****6**

Chart patterns have an established definition and criteria, but there are no patterns that tell you with 100% certainty where a security is headed. After all, the richest man in the world would be a trader in that case rather than an investor! The process of identifying chart patterns based on these criteria can be subjective in nature, which is why charting is often seen as more of an art than a science. Here are some popular chart patterns.

**4.1 Head and Shoulders**

The Head and Shoulders is a reversal chart pattern that indicates a likely reversal of the trend once it’s completed. A Head and Shoulder Top is characterized by three peaks with the middle peak being the highest peak (head) and the two others being lower and roughly equal (shoulders). The lows between these peaks relate to a trend line (neckline) that represents the key support level to watch for a breakdown and trend reversal. A Head and Shoulder Bottom – or Inverse Head and Shoulders – is simply the inverse of the Head and Shoulders Top with the neckline being a resistance level to watch for a breakout higher.



Figure 3 – Head and Shoulders Top6

There are two little peaks in the volumes in figure 3, which are corresponding to the two shoulders respectively, and the trough of volumes is corresponding to the head.

**4.2 Triangles6**

Triangles can be best described as horizontal trading patterns. At the start of its formation, the triangle is at its widest point. As the market continues to trade in a sideways pattern, the range of trading narrows and the point of the triangle is formed. In its simplest form, the triangle shows losing interest in an issue, both from the buy-side as well as the sell-side: the supply line diminishes to meet the demand. The three most common types of triangles are symmetrical triangles, ascending triangles, and descending triangles. These chart patterns can last anywhere from a couple weeks to several months.

Look at figure 4, a symmetrical triangle example. With the extension of the symmetrical triangle and contraction of the trading range, we can see that the volumes start to decrease. And the consequence turn out that the sell side finally defeat buy side in this case.



Figure 4 – Symmetrical Triangle Example6

**5 Indicators7**

Indicators represent a statistical approach to technical analysis as opposed to a subjective approach. By looking at money flow, trends, volatility, and momentum, they provide a secondary measure to actual price movements and help traders confirm the quality of chart patterns or form their own buy or sell signals.

**5.1 Accumulation/Distribution Line**

The accumulation/distribution line is one of the most popular volume indicators that measures money flow in a security. The indicator attempts to measure the ratio of buying and selling by comparing the price movement of a period to the volume for that period.

The calculation is:

*Acc/Dist = ((Close – Low) – (High – Close)) / (High – Low) \* Period’s Volume*

Traders use the indicator to gain insight into the amount of buying compared to selling in a given security. If the accumulation/distribution line is trending upward, it’s a sign that there is more buying than selling and vice versa.

**5.2 Aroon**

The Aroon indicator, developed by Tushar Chande, indicates if a price is trending or is in a trading range. It can also reveal the beginning of a new trend, its strength and can help anticipate changes from trading ranges to trends. AroonDown and the AroonUp indicators are used together and combined are called the Aroon indicator.

The indicator is comprised of the ‘Aroon Up’ green line and the ‘Aroon Down’ red line. The Aroon Up line measures the amount of time that has passed since the highest price during the time period. The Aroon Down line, on the other hand, measures the time that has passed since the lowest price during the time period. The number of periods used in the calculation depends on the timeframe that the trader wants to analyze.

Figure 6 shows a clear ‘Aroon Up’ line as well as a ‘Aroon Down’ line. Apparently, after the ‘Aroon Up’ line, the price of the share increase steadily and ‘Aroon Down’ line in the other way around.

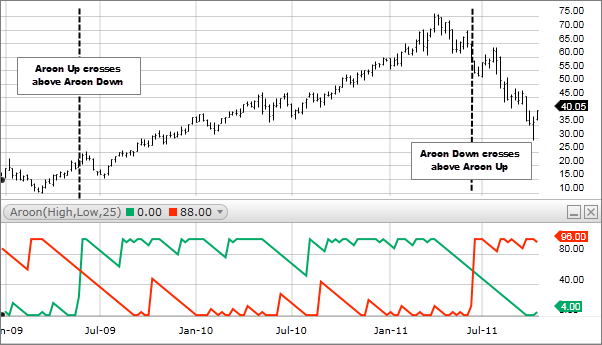


Figure 6 – Aroon Indicator7

**6 Conclusion**

After seeking these normal indictors of the share market, we can easily find that these indictors can truly help us to understand what is going on in the share market. And we can consider some investment strategy through technical analysis. just like the chaos theory saying, seemingly random processes may, in fact, have been generated by a deterministic function that is not random. Before the machine learning project begin, it is important for me to understand the meaning of the data in the share market. So these pattern can truly help me when I do my further work in the data analysis in the investment.

**7 References:**

[1]: Technical Analysis: The Use Of Trend,

https://www.investopedia.com/university/technical/techanalysis3.asp

[2]: Trend Lines, https://learn.tradimo.com/technical-analysis/trend-lines

[3]: Yahoo Finance, GOOGLE stock, https://finance.yahoo.com/chart/GOOG

[4]: Support and resistance

https://en.wikipedia.org/wiki/Support\_and\_resistance

[6]: Technical Analysis: Chart Patterns,

https://www.investopedia.com/university/technical/techanalysis8.asp

[7]: Triangles: A Short Study in Continuation Patterns

https://www.investopedia.com/articles/technical/03/091003.asp

[6]: Technical Analysis: Indicators And Oscillators,

https://www.investopedia.com/university/technical/techanalysis10.asp