



STEPHEN D. CUTLER
CENTER FOR INVESTMENTS
AND FINANCE

Technical Analysis: Getting Started

Basic Introduction and Beginner's Guide

Created by: Aditya Agarwal '22

Introduction

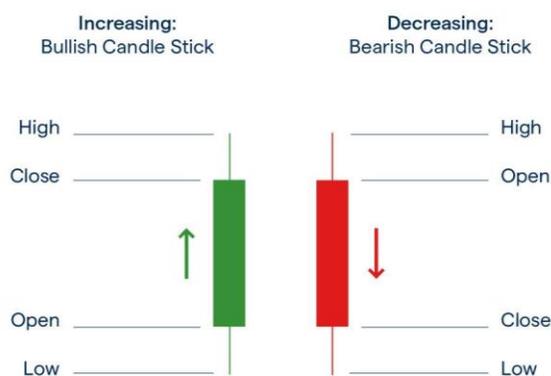
In this tutorial, we will be exploring what technical analysis is, how to read candlestick charts, and common patterns that traders look for.

What is Technical Analysis?

Technical analysis is the practice of using historical data and current price action to predict future price movements. Technical analysis uses price charts to identify signals and patterns that provide a lens into market psychology. Technical traders aim to benefit from this analysis by catching trend reversals and riding price momentum.

This analysis is significantly different from fundamental analysis, which is a longer-term analysis evaluating the financial strength and growth prospects of a company. While fundamental analysis can be more beneficial for long-term investing, technical analysis is helpful for timing entries, exits, and shorter-term trades. Together, technical and fundamental analysis can be coupled to create a trading strategy geared towards providing alpha.

How to Read a Candlestick Chart

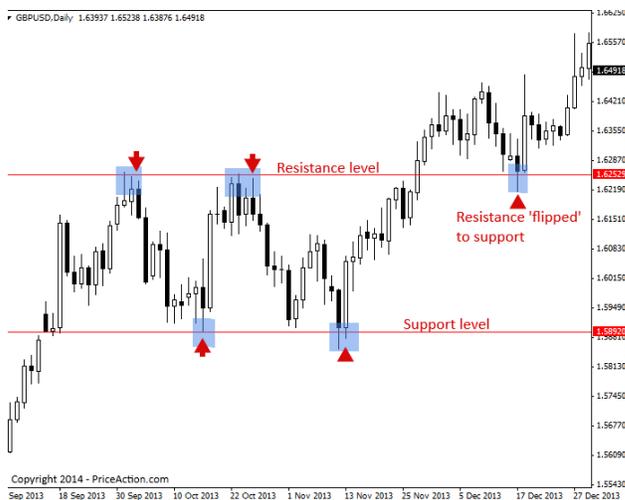


One of the fundamental understandings necessary to learning technical analysis is reading candlestick charts. If you have never studied technical analysis, chances are you have only used a line chart. Line charts only provide one data point, the closing price of a stock, but candlestick charts provide five: open, close, low of day (LOD), high of day (HOD), and direction of movement. A visualization of how a candlestick chart provides this information is illustrated on the left.

Each candle can represent anywhere from 1 minute to 1 year depending on the settings. Longer time frame charts are more likely to provide reliable long-term trends.

I highly recommend using tradingview.com to view candlestick charts. They are one of the best online platforms to view candlestick charts and conduct technical analysis for free.

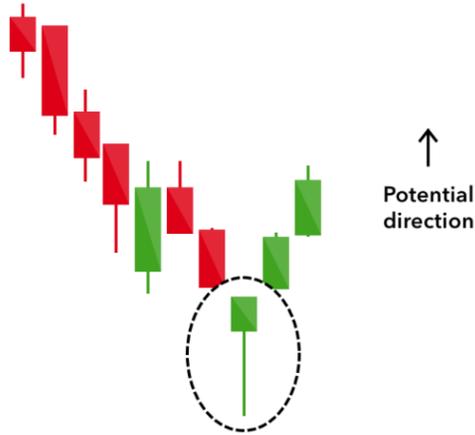
Support and Resistance



One of the most basic technical indicators consist of support and resistance. As the words indicate, support is typically a price level at which there have historically been buyers. Resistance consists of price level where there have historically been sellers. As a result, price tends to bounce at support and pullback at resistance. However, these price levels change based off of catalysts. When resistance is broken, it acts as support in the future, and when support breaks, it acts as resistance in the future. An example of this can be seen on the left.

Common Candlestick Signals

Assume each candle represents one day for each of the following examples.



1. Hammer Candle

Pictured to the left is a hammer candle. This type of candle typically consists of a green body with little to no upper wick, and a long lower wick. This signifies that price action during the day was down trending, but buyers came in to retrace the price all the way back to opening price, and then some more.

This candle is usually a sign of a reversal, or at least a dead cat bounce in a downtrend. An example of this signal being used can be observed on ticker CRL on March 5th, 2021.



2. Shooting Star

This candle structure is opposite to the hammer candle, and is a bearish signal. It typically consists of a red body with little to no lower wick, and a long upper wick. Logically speaking, this shows price action increasing after open, followed by sellers pushing the price back down all the way to the opening price, and then some more.

This candle is usually a sign of a reversal, or at least a pullback in an uptrend. An example of this signal being used can be observed on ticker SPOT on November 2nd, 2021.



3. Bullish Engulfing

This is a bullish signal that occurs when one day's range completely covers the previous day's range. Typically, the first day is a bearish red candle, covered by the following day's bullish green candle that opens lower than the previous day and closes above the previous day's range. The buyers regain control and push the price up, indicating a bullish signal.

An example of this signal being used can be observed on ticker SPY on June 21st, 2021.



4. Bearish Engulfing

This candle structure is the opposite of the bullish engulfing, and is a bearish signal. It typically consists of one day's bearish range completely engulfing the previous day's range. The sellers take control and push the price down, indicating a bearish signal.

An example of this signal being used can be observed on ticker NCLH on June 9th, 2021.

There are many more signals that you can learn about here: <https://www.ig.com/us/trading-strategies/16-candlestick-patterns-every-trader-should-know-180615>

Common Chart Patterns

Assume each candle represents one day for each of the following examples.



1. Head and Shoulders

The head and shoulders pattern is one of the strongest indicators of an uptrend reversing to a downtrend. In this pattern, there is one large peak, or high, with two slightly lower highs on each side. The peak is referred to as the head, and the two lower highs are considered the shoulders. Once the third peak falls below the neckline, or the support level from the previous two lows, it is likely that the stock will enter a downtrend. This is because the

stock was previously creating higher highs and higher lows in an uptrend, but a break of the neckline after a lower high signifies that the stock is now creating lower highs and lower lows. An example of this pattern can be observed on ticker TSLA from Jan 7th to Jan 22nd, 2021. After breaking the neckline, TSLA continued on its downtrend until March 8th, 2021, resulting in almost a 25% depreciation in price from Jan 22nd.

The opposite of this pattern is known as the **Inverse Head and Shoulders**. This pattern has one low bottom with two slightly lower lows on each side. If the neckline breaks, it is likely that the stock will reverse from an uptrend to a downtrend. An example of this pattern can be observed on ticker ADSK from September 8th to October 9th, 2021. After breaking the neckline, ADSK continued its uptrend until Jan 8th, 2021, resulting in an approximately 40% appreciation in stock price.



2. Double Top

The double top pattern is another pattern that signifies a trend reversal from an uptrend to a downtrend. In this pattern, a stock's price will peak and retrace to a support level before pushing back up to retest the peak. Once rejected, the stock will push back down and break its known support level. This confirms similar highs and lower lows, indicating the start of a downtrend.

An example of this pattern can be observed on ticker NKE from November 5th to December 13th, 2021. Prices hit resistance around \$177.5 on November 5th and November 22nd before breaking the support level of \$167

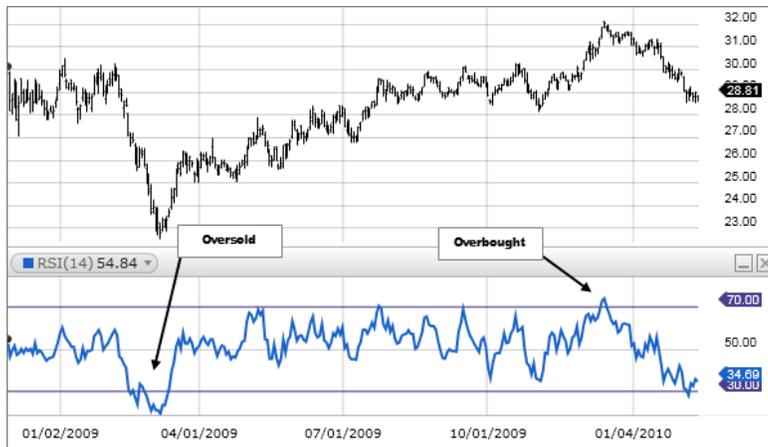
on December 14th. As of today, December 20th, 2021, NKE has continued falling.

The opposite of this pattern is known as the **Double Bottom**. This pattern has two bottoms that act as support near a similar price level. The stock then breaks through resistance to begin a new uptrend. An example of this pattern can be observed on ticker MSFT from May 12th to June 4th, 2021. MSFT had a double bottom around \$239, and entered an uptrend until September 24th since it broke the resistance level of \$247.

There are many more chart patterns that you can learn about here: <https://www.ig.com/us/trading-strategies/10-chart-patterns-every-trader-needs-to-know-190514>

Common Technical Indicators

1. Relative Strength Index (RSI)



The Relative Strength Index, or RSI is a momentum indicator that uses recent price action to determine if a stock is overbought or oversold. RSI is displayed as an oscillator between 0-100. Typically, an RSI above 70 indicates strength, and a potential scenario where a stock may be overbought. Similarly, an RSI below 30 indicates weakness, and a potential scenario where a stock may be oversold.

RSI divergences occur when RSI changes do not align with price action. For example, if price

action continues to create lower lows and lower highs, but RSI has reversed into an uptrend, this would be considered a bullish divergence and a technical trader would expect price to reverse into an uptrend. The same is true vice versa to create a bearish RSI divergence. An example of a bearish RSI divergence can be observed on ticker DISCA from January 27th, 2021 to March 22nd, 2021.

2. Moving Average Convergence Divergence (MACD)



The Moving Average Convergence Divergence, or MACD, is a technical indicator that tracks momentum. MACD follows the trend by subtracting the 26-period exponential moving average (EMA) from the 12-period EMA. Additionally, the 9 day EMA of the MACD is then plotted on top of the MACD line, acting as a buy or sell signal. As seen on the image on the left, when the MACD crosses from negative to positive, the stock appreciated, and vice versa. While this indicator is great for identifying trends and momentum, it should be used with caution because it uses historical prices for its calculation and is not a strong independent leading indicator.

3. Bollinger Bands



Bollinger Bands consists of 3 lines: a simple moving average (SMA) as the middle band, and 2 standard deviations in addition and less than the 20-day SMA acting as the upper and lower band. The bands contract during periods of low volatility since the standard deviation decreases, and they expand during periods of high volatility. It is important to note that while 90% of price action occurs between the bands, price does

breakout above or below the bands, and that is not a signal to enter a trade in the opposite direction. For example, if a company reports stellar earnings and breaks above the upper Bollinger band, this is not an indicator to go short. Instead, use Bollinger bands to identify periods of low volatility, also known as a squeeze. This is when the bands contract and price action is limited. This period is usually followed by increased volatility and the bands expanding. The Bollinger bands should be used in conjunction with other indicators and not as a sole indicator.

Final Notes

1. There are many more technical indicators. The ones introduced in this guide are the basics for anyone who is new to technical analysis and does not know where to begin.
2. Remember that no pattern or indicator will always be right. Set stop losses appropriately to prevent extensive losses if a trade goes sideways.
3. When using technical analysis, try to find multiple indicators that align. Often, setups with 3-5 indicators that confirm an entry are more successful than setups that only confirm an entry with 1-2 indicators.

I hope this introductory guide to technical analysis was helpful! If you have any further questions or would like to discuss possible trade ideas, feel free to reach out to me at aagarwal7@babson.edu.