Technical Analysis Tutorial

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Introduction

There are two major types of analysis for predicting the performance of a company's stock - fundamental and technical. The latter looks for peaks, bottoms, trends, patterns, and other factors affecting a stock's price movement and then making a buy/sell decision based on those factors. It is a technique many people attempt, though very few are truly successful.

Today, the world of technical analysis is huge. There are literally hundreds of different patterns and indicators investors claim to be successful. Trying to keep this tutorial short was not an easy task, but we will try our best to scratch the surface and introduce you to the different types of stock charts and the various technical analysis tools.

If you are new to the market and don't have a solid understanding of the various securities, we'd recommend you check out our tutorials on stock basics, bond basics and mutual funds.

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What is Technical Analysis?

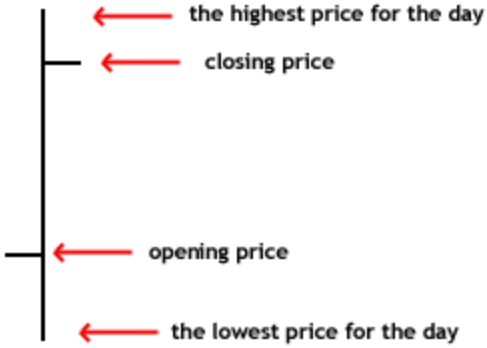
Technical analysis is a method of evaluating securities by analyzing statistics generated by market activity, past prices, and volume. Technical analysts do not attempt to measure a security's intrinsic value; instead they look for patterns and indicators on stock charts that will determine a stocks future performance.

Technical analysis has become popular over the past several years, as more and more people believe that the historical performance of a stock is a strong indication of future performance. The use of past performance should not come as a big surprise. People using fundamental analysis have always looked at the past performance by comparing fiscal data from previous quarters and years to determine future growth. The difference lies in the technical analyst's belief that securities move with very predictable trends and patterns. These trends continue until something happens to change the trend, and until this change occurs, price levels are predictable.

Some technical analysts claim they can be extremely accurate a majority of the time. There are many instances of investors successfully trading securities with only the knowledge of its chart and without even understanding what the company does. Technical analysis is a terrific tool, but most agree that it is much more effective when combined with fundamental analysis.

Let's now look at some of the major indicators technical analysts use.

The Bar Chart



Bar charts are some of the most popular type of charts used in technical analysis. As illustrated on the left, the top of the vertical line indicates the highest price a security traded at during the day, and the bottom represents the lowest price. The closing price is displayed on the right side of the bar and the opening price is shown on the left side of the bar. A single bar like the one to the left represents one day of trading.

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The chart below is an example of a bar chart for AT&T (T):

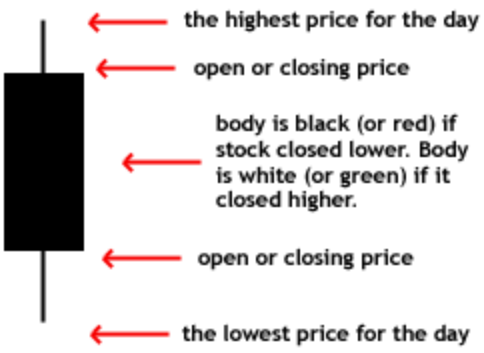


This chart was supplied by Barchart.com

The advantage of using a bar chart over a straight-line graph is that it shows the high, low, open and close for each particular day. This is the type of chart we will be using to display various indicators throughout this tutorial.

There are two more types of charts that are also frequently used for technical analysis that are similar to the bar chart. The first we will look at is called "Candlestick Charting".

Candle Stick Charting



Candlestick charts have been around for hundreds of years. They are often referred to as "Japanese Candles" because the Japanese would use them to analyze the price of rice contracts.

Similar to a bar chart, candlestick charts also display the open, close, daily high, and daily low. A difference is the use of color to show if the stock was up or down over the day.

The chart below is an example of a candlestick chart for AT&T (T), green bars indicate the stock price rose, red indicates a decline:

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Candlestick charts have a "love or leave" relationship with investors. People either love candlesticks and use them frequently, or are completely turned off by them.

There are several patterns people look for with candlestick charts, here are a few of the popular ones and what they mean:

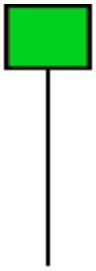


This is a **bullish** pattern, the stock opened at (or near) its low and closed near its high.



The opposite of the pattern above, this is a **bearish** pattern. This indicates that the stock opened at (or near) its high and dropped substantially to close near its low.

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Called "The Hammer", this is a **bullish** pattern only if it occurs after the stock price has dropped for several days. A Hammer is identified by a small body along with a large range. The theory is that this pattern can indicate a reversal in the downtrend is in the works.



Called a "star". This pattern is used in others such as the "doji star". For the most part, stars typically indicate a reversal and or indecision. There is the possibility that after seeing a star there will be a reversal or change in the current trend.

Keep in mind there are over 20 other patterns used by technical analysts for candlestick charting.

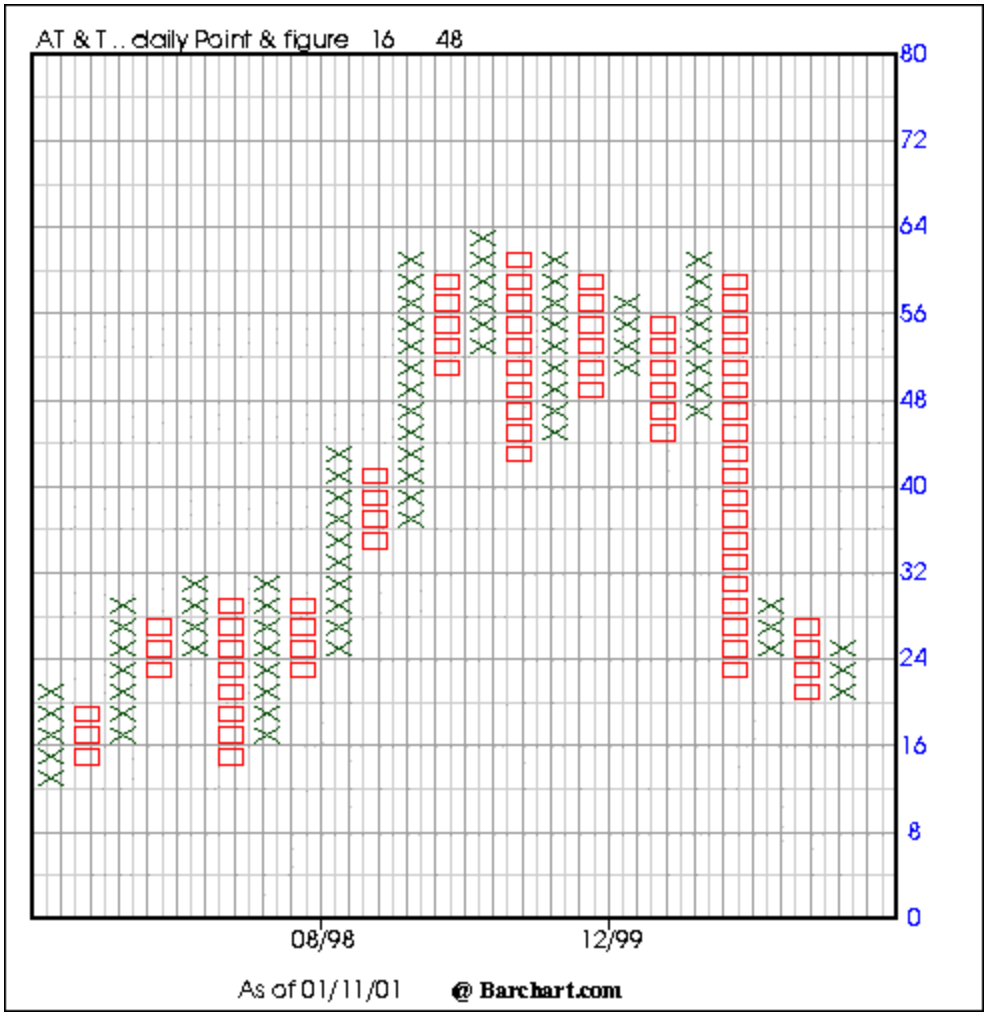
Now, let's take a look at a more traditional style of charting stock price performance called "Point & Figure Charting."

The Point & Figure Chart

This type of chart is somewhat rare, in fact most charting services do not even offer the point and figure chart. This is a chart that plots day-to-day increases and declines in price. A rising stack of X's represents increases while a declining stack of O's represents decreases. These types of charts were traditionally used for intraday charting (a stock chart for just one day), mainly because it can be long and tedious to create P&F charts over a longer period of time manually.

The idea behind P&F charts is that they help you to filter out less-significant price movements and let you focus more on the most important trends. Below is an example of a Point and Figure chart for AT&T (T):

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There are two attributes that affect the appearance of a Point & Figure chart, box size and reversal amount. We won't get into much detail about these factors. If you are looking for more information check out the following link: http://www.equis.com/free/taaz/pointnfigure.html

Now that we've taken a look at three different types of charts used by technical analysts, let's take a tour of various indicators.

Using the Moving Average

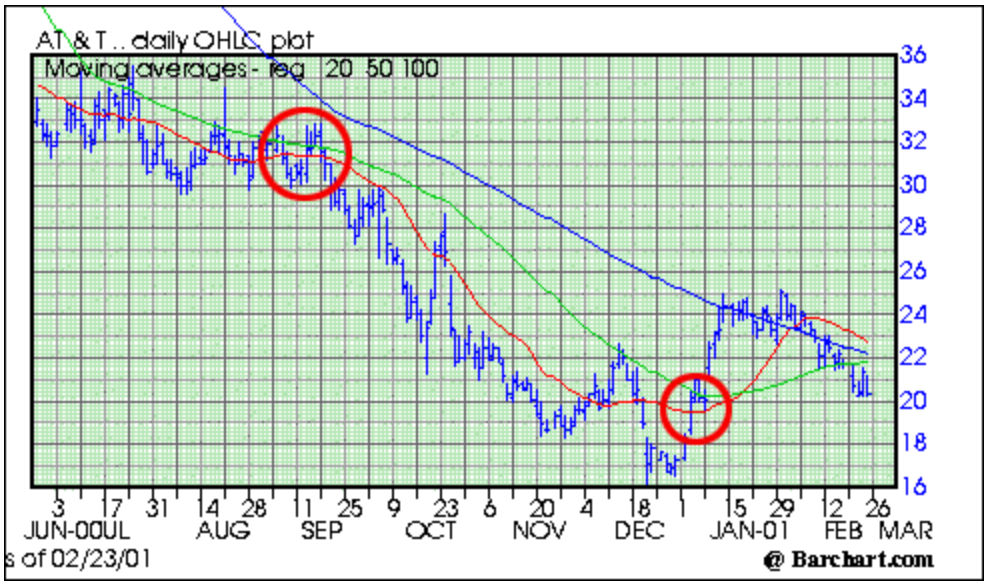
One of the easiest indicators to understand, the moving average shows the average value of a security's price over a period of time. To find the 50-day moving average, you would add up the closing prices (but not always, we'll explain later) from the past 50 days and divide them by 50. Because prices are constantly changing, the moving average will move as well. It should also be noted that moving averages are most often used when compared or used in conjunction with other indicators such as

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MACD and EMA.

The most commonly used moving averages are of 20, 30, 50, 100, and 200 days. Each moving average provides a different interpretation on what the stock will do, there is not one right time frame. The longer the time span, the less sensitive the moving average will be to daily price changes. Moving averages are used to emphasize the direction of a trend and smooth out price and volume fluctuations (or "noise") that can confuse interpretation.

Here is a visual example using the stock price of AT&T:



This chart was supplied by Barchart.com

Notice back in September when the stock price dropped well below its 50-day average (the green line). There has been a steady downward trend since then and no real strong divergence, until the end of December where it rose above its 50-day average and continued to rise for several weeks.

Typically, when a stock price moves below its moving average it is a bad sign because the stock is moving on a negative trend. The opposite is true for stocks that protrude their moving average - in this case, hold on for the ride.

If you'd like to learn more, check out our moving average tutorial.

Using the Relative Strength Index

When talking about the strength of a stock there are a few different interpretations, one of which is the Relative Strength Index (RSI). The RSI is a comparison between the days that a stock finishes up against the days it finishes down. This indicator is a big tool in momentum trading.

The RSI is a reasonably simple model that anyone can use. It is calculated with the

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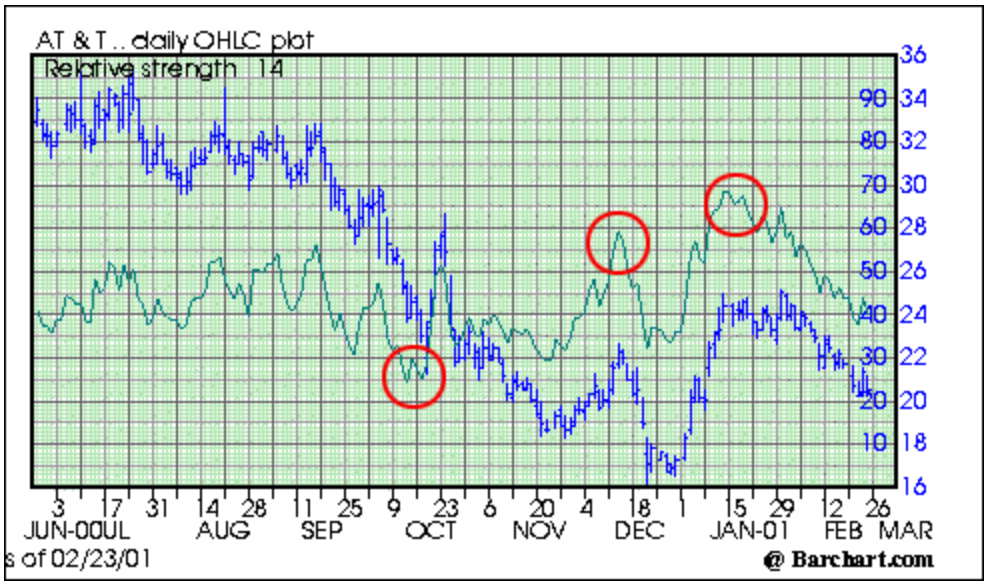
following formula. (Don't worry, most likely, you will never have to do this manually).

RSI = 100 - [100/(1 + RS)]

where:
RS = (Avg. of n-day up closes)/(Avg. of n-day down closes)
n= days (most analysts use 9 - 15 day RSI)

The RSI ranges from 0 to 100. A stock is considered overbought around the 70 level and you should consider selling. This number is not written in stone, in a bull market some believe that 80 is a better level to indicate an overbought stock since stocks often trade at higher valuations during bull markets. Likewise, if the RSI approaches 30 a stock is considered oversold and you should consider buying. Again, make the adjustment to 20 in a bear market.

The shorter number of days used, the more volatile the RSI is and the more often it will hit extremes. A longer term RSI is more rolling, fluctuating a lot less. Different sectors and industries have varying threshold levels when it comes to the RSI. Stocks in some industries will go as high as 75-80 before dropping back and others have a tough time breaking past 70. A good rule is to watch the RSI over the long term (1 year or more) to determine what level the historical RSI has traded at and how the stock reacted when it reached those levels.



This chart was supplied by Barchart.com

Here, we have an RSI chart for AT&T. The RSI is the green line, its scale is the numbers on the right hand side that go from 0 to 100. Notice the RSI was approaching the 60-70 levels in December and January and then the stock (blue line) sold off. Also, notice around October when the RSI dropped to 25 the stock climbed up nearly 30% in just a couple weeks.

Using the moving averages, trend lines, divergence, support, and resistance lines along with the RSI chart can be very useful. Rising bottoms on the RSI chart can

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produce the same positive trend results as it would on the stock chart. Should the general trend of the stock price tangent from the RSI, it might spark a warning, the stock is either over/under bought.

The RSI is a great little indicator that can help you make some serious money. Beware that big surges and drops in stocks will dramatically affect the RSI, resulting in false buy or sell signals. Most investors agree that the RSI is most effective in "backing up" or increasing confidence before making an investment decision, don't invest simply based on the RSI numbers.

The Money Flow Index

Now that we've taken a look at the Relative Strength Index (RSI), let's take a look at a more stringent momentum indicator. The Money Flow Index measures the strength of money flowing into and out of a stock. The difference between the RSI and Money Flow is that where RSI only looks at prices, the Money Flow Index also takes volume into account.

Calculating Money Flow is a bit more difficult than the RSI:

First we need the average price for the day:

$$\text{Average Price} = \frac{\text{Day High} + \text{Day Low} + \text{Close}}{3}$$

Now we need the Money Flow:

$$\text{Money Flow} = \text{Average Price} \times \text{Day's Volume}$$

Now, to calculate the money flow ratio you need to separate the money flows for a period into positive and negative. If the price was up in a particular day, this is considered to be "Positive Money Flow". If the price closed down it is considered to be "Negative Money Flow".

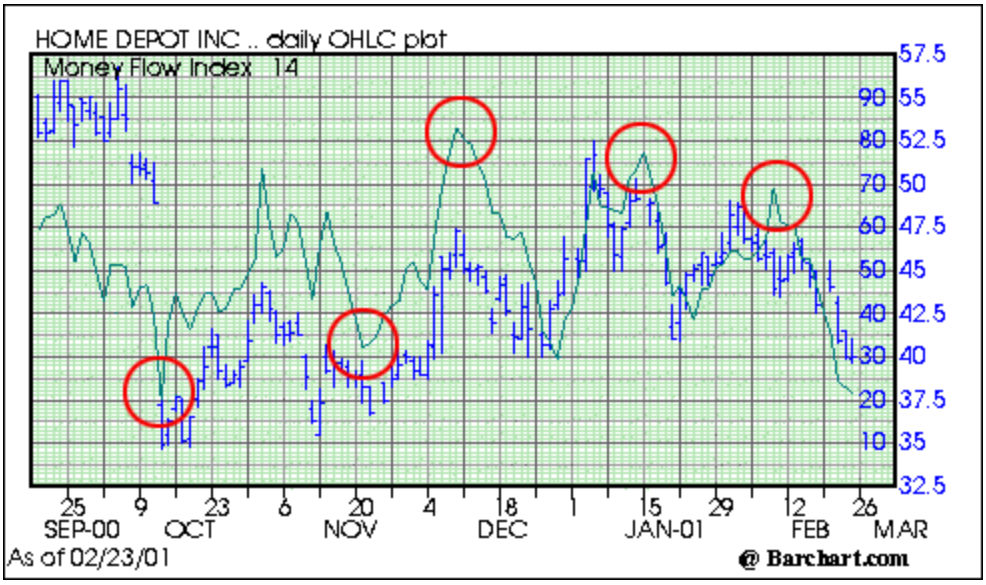
$$\text{Money Flow Ratio} = \frac{\text{Positive Money Flow}}{\text{Negative Money Flow}}$$

It is the Money Flow Ratio that is used to calculate the Money Flow

The Money Flow ranges from 0 to 100. Just like the RSI, a stock is considered overbought in the 70- 80 range and oversold in the 20-30 range.

The shorter number of days you use, the more volatile the Money Flow is. For the example below we will use a 14-day average.

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The chart above is for Home Depot (HD); the green line identifies the Money Flow index. Notice that each time the Money Flow dropped below 30, the stock began to rally. Furthermore, each time the money flow rose above 70, the stock started to sell off.

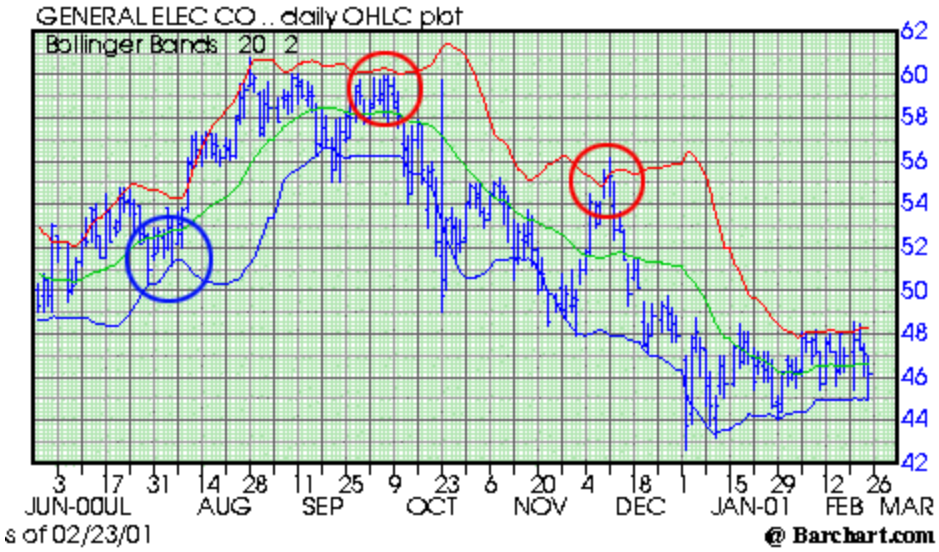
Like any indicator, this is not correct 100% of the time. Back in early October when the stock price dropped from around $55 down to $37 the Money Flow didn't detect a thing. Just remember that money flow is useful to detect momentum, but it can't predict unsystematic risk.

Using Bollinger Bands

There are three lines used for the Bollinger band indicator: the upper, lower, and the simple moving average that is between the two. These upper/lower bands are plotted two standard deviations away from a simple moving average. Standard deviation is a measure of volatility; therefore Bollinger Bands adjust themselves to the market conditions. When the markets become more volatile, the bands widen and they contract during less volatile periods.

The closer the prices move to the upper band, the more overbought the stock is. The closer the prices move to the lower band, the more oversold the stock is. Below is an example using General Electric (GE). Bollinger bands are blue for the lower, green for the average, and red for the upper band:

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We have circled three key points on this chart. The blue circle is where the stock price started to create a "base" on the lower band, it appeared that the stock was over sold. Buying at this point would have been a wise choice, as the stock proceeded to jump 20% or more in the next few weeks.

The two red circles are areas where the stock price was touching or breaking through the upper red band. This is usually an indication that the stock is over bought. In both instances, the stock dropped substantially in following weeks.

The Bollinger bands are a good tool to use, but as we've been preaching all along, never invest solely based on what just one indicator says. Notice there were instances when the stock touched the upper or lower band and did not react. Rather than basing their investment decisions on Bollinger, many investors use this indicator mainly to solidify a decision they are about to make.

Resistance and Support

Support and resistance are price levels at which movement should stop and reverse direction. Think of Support/Resistance (S/R) as levels that act as a floor or a ceiling to future price movements.

Support - is a price level below the current market price, at which buying interest should be able to overcome selling pressure and thus keep the price from going any lower.

Resistance - is a price level above the current market price, at which selling pressure should be strong enough to overcome buying pressure and thus keep the price from going any higher.

One of two things can happen when a stock price approaches a support/resistance

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level. The first is, it can act as a reversal point, in other words, when a stock price drops to a support level, it will go back up. The other possibility is that S/R levels reverse roles once they are penetrated. For example, when the market price falls below a support level, that former support level will then become a resistance level when the market later trades back up to that level.



This chart was supplied by Barchart.com

The chart above shows an excellent example of support and resistance levels for General Electric (GE). Notice that once the stock price penetrated below the support level in December, it became the resistance level.

Another characteristic you should understand is that S/R levels vary in strength, leading to certain price levels being designated as major or minor S/R levels. For example, a 5-year high on a bar chart would be a much more significant and useful resistance level than a 1-month resistance level.

Popular Charting Patterns

Many believe that history repeats itself. Using successful and proven price patterns from great stocks is a widely used method by technical analysts. Let's take a look at a few examples:

- **Cup and Handle** - This is a pattern on a bar chart that can be as short as 7 weeks and as long as 65 weeks. The cup is in the shape of a U. The handle has a slight downward drift. The right hand side of the pattern has low trading volume. As the stock comes up to test the old highs, the stock will incur selling pressure by the people who bought at or near the old high. This selling pressure will make the stock price trade sideways with a tendency towards a downtrend for 4 days to 4 weeks, then it takes off.

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It looks like a pot with handle. Investors have made a lot of money using this pattern, which is one of the easier to detect.

Click here for an example of a cup and handle chart.

- **Head and Shoulders** - A chart formation that resembles an "M" in which a stock's price:
  - rises to a peak and then declines, then
  - rises above the former peak and again declines, and then
  - rises again but not to the second peak and again declines.

  The first and third peaks are shoulders, and the second peak forms the head. This pattern is considered a very bearish indicator.

  Click here for an example of the head and shoulder pattern.

- **Double Bottom** - Occurs when a stock price drops to a similar price level twice within a few weeks or months, the double-bottom pattern resembles a “W". You should buy when the price passes the highest point in the handle. In a perfect double bottom, the second decline should normally go slightly lower than the first decline to create a shakeout of jittery investors. The middle point of the “W” should not go into new high ground. This is a very bullish indicator.

  The belief is that after two drops in the stock price the jittery investors are out and long-term investors are still holding on.

  Click Here for an example of the double bottom pattern.

Conclusion

There have been entire volumes of textbooks written on technical analysis, this tutorial just scratches the surface. Technical analysis is one of those fields where everyone has a different theory on what works and what doesn't. If we can leave you with one last tip, it is to back test whatever strategy you decide to pursue. Back testing means looking back at several years’ worth of charts to see how a particular stock reacts. Different stocks do different things, do your homework first.

Here are a couple points to remember about technical analysis:

- Technical analysis is a method of evaluating securities by analyzing statistics generated by market activity, past prices, and volume.
- The advantage of using a bar chart over a straight-line graph is that it shows the high, low, open and close for each particular day.

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- One of the most basic and easy to use TA indicators is the moving average, which shows the average value of a security's price over a period of time. The most commonly used moving averages are the 20, 30, 50, 100, and 200 day.
- Support and resistance levels are price levels at which movement should stop and reverse direction. Think of Support/Resistance (S/R) as levels that act as a floor or a ceiling to future price movements.
- There are literally 100s of different price patterns and indicators out there.
- In our humble opinion, technical analysis is a terrific tool, but much more effective when combined with fundamental analysis.

Quiz Yourself
Finally, if you think you know this stuff now we challenge you to take the quiz and **Test Your Technical Analysis Knowledge**

Also:
1. If you think we missed something and have a question, tell us about it.
2. If you enjoyed this tutorial, make sure to Tell a Friend!
3. If you still aren't on our newsletter, why not?

Related Articles and Tutorials

For a more in-depth look at different technical analysis indicators and strategies, please **visit our technical analysis 101 archives**.

Check our category page of hundreds of terms relating to **Technical Analysis.**

Barchart.com - A great site for custom charting, we used this site for all of our examples in this tutorial.

Technical Analysis Center - Some great articles on various types of tech analysis.

Cup and Handle - Investor's Business Daily tutorial on winning price patterns. A good picture of "cup and handle".

Head and Shoulders Pattern - A tutorial on head and shoulders technical analysis by Sixer.com.

StockCharts.com Analysis - A great 4 part article on MACD and how interpret it.

Technical Analysis From A to Z - A great list of technical indicators from Equis.

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