Technical Analysis Tutorial

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Introduction

The methods used to analyze and predict the performance of a company's stock fall into two broad categories: fundamental and technical analysis. Those who use technical analysis look for peaks, bottoms, trends, patterns and other factors affecting a stock's price movement and then make buy/sell decisions based on those factors. It is a technique many people attempt, but few are truly successful at it.

The world of technical analysis is huge today. There are literally hundreds of different patterns and indicators that investors claim to have success with. We have tried to keep this tutorial as short as possible. Our goal is to introduce you to the different types of stock charts and the various technical analysis tools available to investors.

(If you are new to the market and don't have a solid understanding of the various securities that exist, we recommend you check out our tutorials on *Stock Basics*, *Bond Basics* and *Mutual Fund Basics*.)

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 at stock charts for patterns and indicators that will

determine a stock's future performance.

Technical analysis has become increasingly 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 come as no surprise. People using fundamental analysis have always looked at the past performance of companies 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 according to very predictable trends and patterns. These trends continue until something happens to change the trend, and until this change occurs, price levels are predictable.

There are many instances of investors successfully trading a security using only their knowledge of the security's chart, without even understanding what the company does. However, although technical analysis is a terrific tool, most agree it is much more effective when used in combination with fundamental analysis.

Let's take a look at some of the major indicators used by technical analysts.

The Bar Chart

The bar chart is one of the most popular types of charts used in technical analysis. As illustrated on the left, the top of the vertical line indicates the highest price at which a security traded 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.

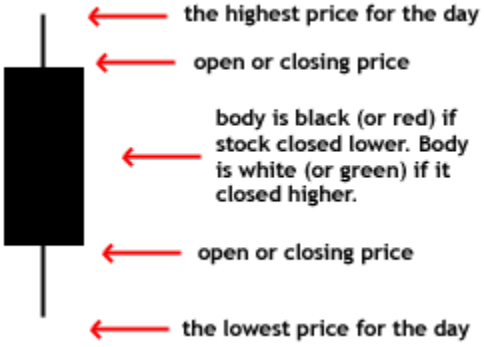
The chart below is an example of a bar chart for AT&T (T):

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 that will be used to display various indicators throughout this tutorial.

Two more types of charts, both similar to the bar chart, are also frequently used for technical analysis. The first one we'll look at is called candlestick charting.

Candlestick 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. The difference is the use of color to show if the stock went up or down over the day.

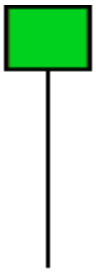
The chart below is an example of a candlestick chart for AT&T (T). Green bars indicate the stock price rose, red indicates a decline:

This chart was supplied by Barchart.com

Investors seem to have a "love/hate" relationship with candlestick charts. People either love them and use them frequently, or they are completely turned off by them. There are several patterns to 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. It indicates that the stock opened at (or near) its high and dropped substantially to close near its low.



Known as "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 that a reversal in the downtrend is in the works.

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

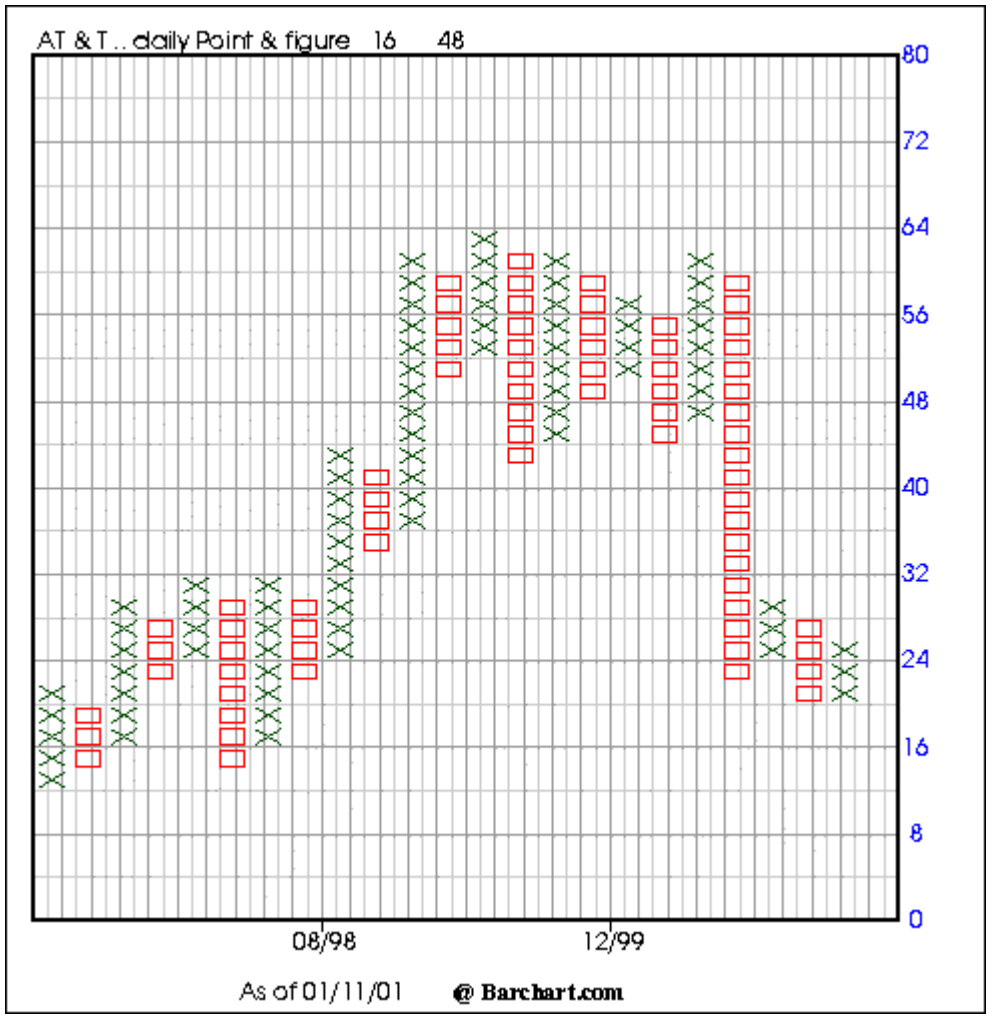
Keep in mind that there are over 20 other patterns used by technical analysts for candlestick charting.

Now, let's take a look at a more traditional style of charting stock price performance, known as point & figure charting.

Point & Figure Chart

The point & figure (P&F) chart is somewhat rare. In fact, most charting services do not even offer it. This chart plots day-to-day increases and declines in price: increases are represented by a rising stack of "X"s, while decreases are represented by a declining stack of "O"s. This type of chart was traditionally used for intraday charting (a stock chart for just one day), mainly because it can be long and tedious to create a P&F chart manually over a longer period of time.

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



This chart was supplied by Barchart.com

Two attributes affect the appearance of a P&F chart: box size and reversal amount. We won't get into these factors in detail.

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

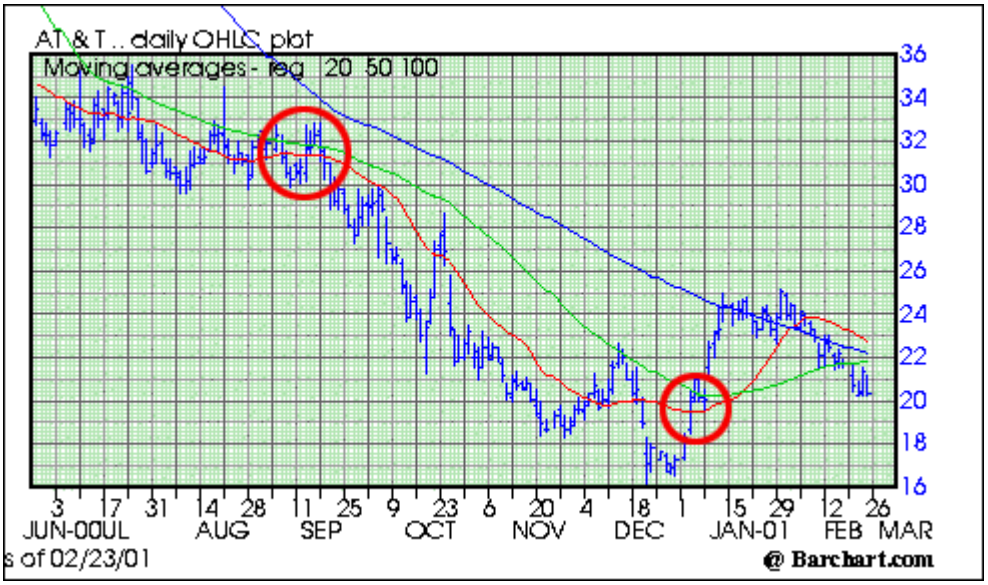
The Moving Average

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 moving average convergence divergence (MACD) and exponential moving average (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 that back in September the stock price dropped well below its 50-day average (the green line). There has been a steady downward trend since then and no really strong divergence until the end of December when 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 exceed their moving average - in this case, hold on for the ride.

(If you'd like to learn more, check out our *Moving Averages* tutorial.)

The Relative Strength Index (RSI)

There are a few different tools that can be used to interpret the strength of a stock. One of these is the Relative Strength Index (RSI), which is a comparison between the days that a stock finishes up and the days it finishes down. This indicator is a big tool in momentum trading.

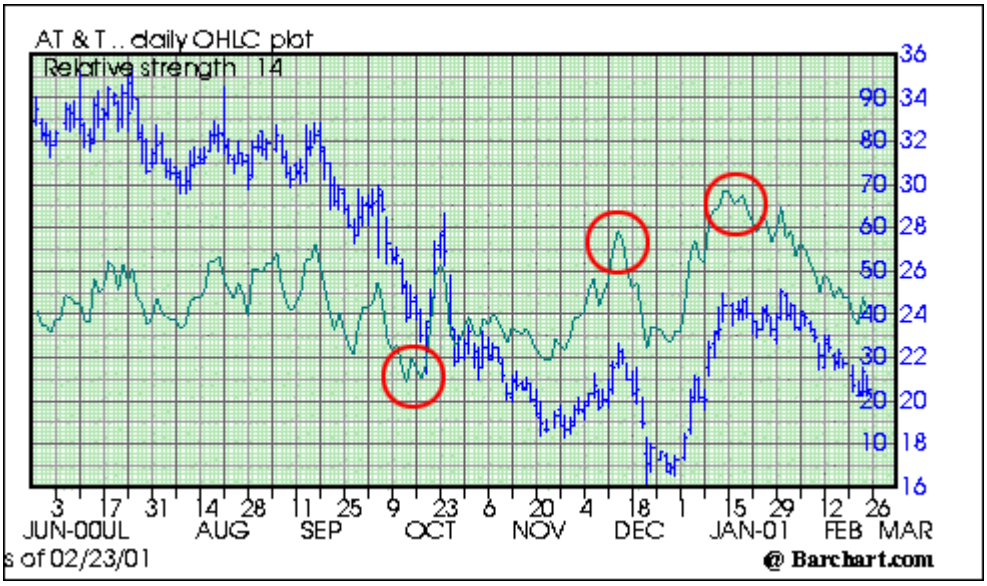
The RSI is a reasonably simple model that anyone can use. It is calculated using the following formula. (Don't worry, you will probably never have to do this manually.)

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. At around the 70 level, a stock is considered overbought and you should consider selling. But 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 smaller the 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, while others have a tough time breaking past 70. A good rule is to watch the RSI over the long term (one year or more) to determine at what level the historical RSI has traded and how the stock reacted when it reached those levels.



This chart was supplied by Barchart.com

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

Using the moving averages, trendlines, divergence, support and resistance lines along with the RSI chart can be very useful. Rising bottoms on the RSI chart can produce the same positive trend results as they would on the stock chart. Should the general trend of the stock price tangent from the RSI, it might spark a warning that the stock is either over- or underbought.

The RSI is a great indicator that can help you make some serious money. Be aware 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 looked at the Relative Strength Index (RSI), let's take a look at a more stringent

momentum indicator. The Money Flow Index (MFI) measures the strength of money flowing into and out of a stock. The difference between the RSI and the MFI is this: while the RSI looks only at prices, the MFI also takes volume into account.

The MFI is a bit more difficult to calculate 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:

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

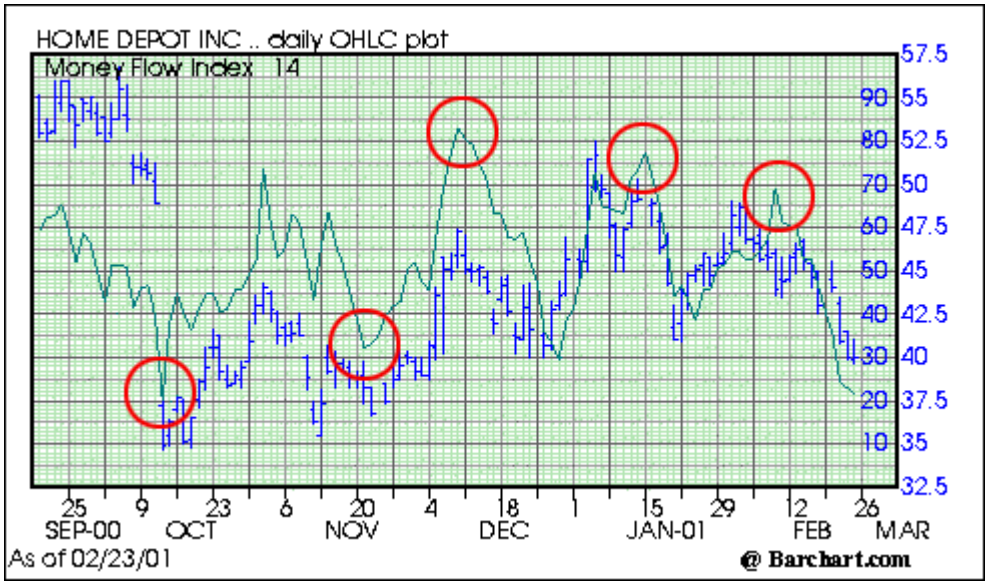
Now, to calculate the money flow ratio you need to separate the money flows for a period into positive and negative. If the price was up in a particular day, this is considered to be "positive money flow". If the price closed down, it is considered to be "negative money flow".

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

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

The money flow ranges from 0 to 100. Just as with the RSI, a stock is considered overbought in the 70- 80 range and oversold in the 20-30 range.

The smaller the number of days you use, the more volatile the money flow is. The chart below is for Home Depot (HD) and uses a 14-day average.



This chart was supplied by Barchart.com

The MFI is identified by the green line. 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, the MFI is not correct 100% of the time. Back in early October when the stock price dropped from around $55 down to $37, the MFI didn't detect a thing. Just remember that money flow is useful to detect momentum, but it cannot predict unsystematic risk.

The Bollinger Bands

The Bollinger band indicator uses three lines: the upper, the lower and the simple moving average (SMA) that is between the two. The upper/lower bands are plotted two standard deviations away from a SMA. Standard deviation is a measure of volatility; therefore, Bollinger bands adjust themselves to 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 band, green for the average and red for the upper band:

This chart was supplied by Barchart.com

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 oversold. 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 overbought. In both instances, the stock dropped substantially in subsequent weeks.

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

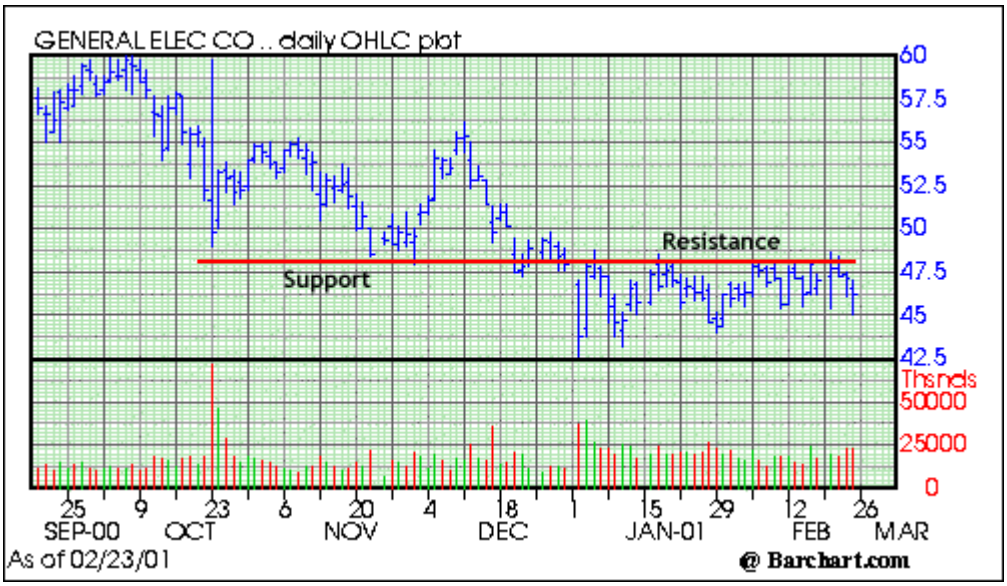
Support And Resistance

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 - 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 - 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 level. On the one hand, it can act as a reversal point: in other words, when a stock price drops to a support level, it will go back up. On the other hand, S/R levels may 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

This chart 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.

You also need to understand that S/R levels vary in strength, leading to certain price levels being designated as major or minor S/R levels. For example, a five-year high on a bar chart would be a much more significant and useful resistance level than a one-month resistance level.

Popular Charting Patterns

Many people believe that history repeats itself. Technical analysts often use proven successful price patterns from great stocks as tools to find new great stocks. Let's look at a few examples:

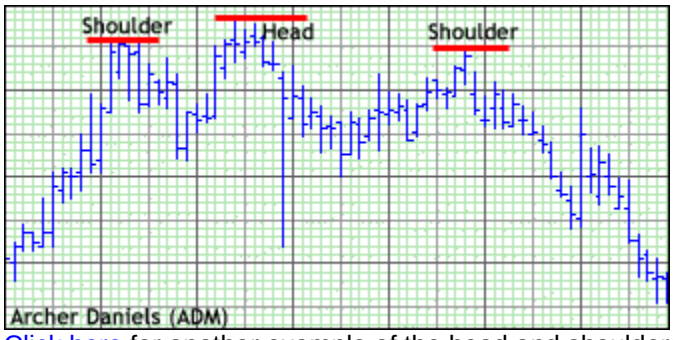
- **Cup and Handle** - This is a pattern on a bar chart that can be as short as seven weeks and as long as 65 weeks. The cup is in the shape of a "U". The handle has a slight downward drift. The right-hand side of the pattern has low trading volume. As the stock comes up to test the old highs, the stock 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 anywhere from four days to four weeks, then it will take off.

  This pattern looks like a pot with a handle. It is one of the easier patterns to detect, and investors have made a lot of money using it.

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

- **Head and Shoulders** - This is a chart formation resembling 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.

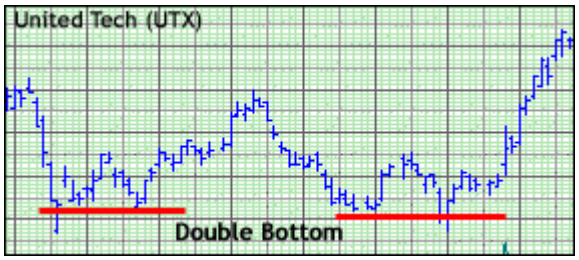


Click here for another example of the head and shoulders pattern.

- **Double Bottom** - This pattern resembles a "W" and occurs when a stock price drops to a similar price level twice within a few weeks or months. 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 will be out and the long-term investors will still be holding on.



Conclusion

Volumes of textbooks have been written about technical analysis - this tutorial just scratches the surface. Technical analysis is one of those fields in which everyone has a different theory regarding 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, so make sure you do your homework first.

Here are some 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.
- One of the most basic and easy to use technical analysis 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 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 hundreds of different price patterns and indicators out there.
- Technical analysis is a terrific tool, but it is much more effective when combined with fundamental analysis.

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