



## Audio Script: Get Technical, Commonly Used Technical Indicators

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## Audio Script:

Welcome to another video in our get technical series. In this on-demand webinar, we are going to look at some of the most commonly used technical indicators. As you may already know, technical analysis is the study of patterns and trends. There are many indicators or studies available, however focusing on the pattern of usage and application may be of value. Perhaps these indicators are so widely used they are spoken into existence? Let's dive deeper into that concept.

Investing involves risk, therefore, please take a moment to read through and be aware of all of the information contained in these disclosures. As we are focusing on technical analysis today, it is important to know that technical analysis is performed by an individual and derives from many theories. Nothing stated within this presentation is an indication of directional movement of any sort. You can contact us if you have any questions on this information or anything else we cover today.

We are going to look at three commonly used indicators which are Bollinger bands, RSI which stands for the relative strength index and MACD also known as the moving average convergence divergence. It is important to note that no indicator should be used alone. When a signal occurs, it should be confirmed with other indicators to validate any sentiment you may have.

Today we will be assessing charts. All screenshots in this presentation are sourced from Merrill Edge MarketPro - which is available to Merrill Edge Self-Directed clients. You can access the platform by hovering over trade and selecting Merrill Edge MarketPro from the drop down. We are focusing on charts and the use of studies. Let's dive in.

The first indicator we are going to look at today is Bollinger bands. Bollinger bands can be utilized as a measurement of volatility and may signal for mean reversions and breakouts. Let's talk about the math, briefly. Bollinger bands are by default calculated with a 20 period moving average and the bands are formed with plus and minus two standard deviations. The period can be 5 minutes, an hour or even a day. The higher band is two standard deviations above the average and the lower band is two standard deviations below the average.

I'm going to take a brief moment to explain a standard deviation. A deviation really means how far from the normal or in this case the average. A standard deviation is a measurement of how spread out the numbers really are. Guess what? You do not need to remember the math in the slightest – however it certainly helps clarify how it is used. Now the important part: the 20 period moving average is indicated by this blue line on the center of the chart. The 20 period in this chart is a 20 day moving average. The green line is two standard deviations above the mean and the red is two deviations below. Which really means how spread out the numbers really are. Wide bands generally mean high volatility; there is a lot of price variance from the average. Narrow bands generally mean low volatility, there is lower price variance from the average. We use this knowledge and apply it to the financial theory of mean reversion. The mean reversion theory states that the price will tend to move to the average price over time, or in other words everything reverts to the mean or 'moving average' in this example.

Here is how to use Bollinger bands. When markets are range bound, prices tend to trade within the bands and revert to the mean. This means that the bands can serve as support and resistance. According to the mean reversion theory the price is always going to work towards that blue center line or 20 day simple moving average. You can see on the chart how the price reaches the upper band and resists and reaches the lower band and is supported multiple times during this time frame.

We are looking at the price in relation to bands and moving average. If the price crosses above or below a moving average, it may reach the other band. When the price reaches an outward band, it is considered a bullish or bearish tag. These tags are a place where further analysis is required to determine if a valid bullish or bearish signal exists, if at all. Looking at the chart we see the price cross below the moving average and reach the lower band, then test the moving average here, and actually close directly on it on this red candle, finally cross above the moving average and reach the upper band.

The prices cross below and reaches the lower band, cross above and reaches the upper band. You can see how this continues across the chart. The crossing of a moving average is an indication of directional movement and a potential price target.

Now you can see the price hugging the bands – this is an indication of trend strength. Let's add on to the example: here we see the price move above the moving average towards the upper band. The price then begins to 'hug' the upper band – which means stay very close to it, this can be an indication of a strong upward trend. On the downside, we see the price cross below the moving average and hug the lower band, this can be an indication of a strong downward trend. Lastly, we will want to watch for the bands widening and becoming narrow. Excessively wide bands may be an indication of volatility and the end of a trend. We see that occur right here. Tightening bands may be an indication of low volatility and increased risk of sharp price swings perhaps signaling the beginning of trend. We see that occur here and here. Essentially, we are using the Bollinger bands study's upper and lower bands as support and resistance. Watch price to move above or below a moving average as an indication of directional movement, hugging of the bands to signify strength of the trend, and widening and narrowing to indicate the beginning and endings of the trend.

Bollinger bands are not intended to be used on their own. All signals or tags produced are not entry or exit points, rather a point worth exploring with other analysis tools to determine if an entry point or exit point may exist. In fact, it is very common to use in tandem with our next indicator: the relative strength index also known as RSI. RSI is a momentum oscillator that measures the speed and change of price movements. The oscillator is traditionally utilized to determine if the market is overbought or oversold. Or in other words, the market moved too far too fast. RSI measures the momentum of a trend by comparing the average size of the up periods to the average size of the down periods over a specified timeframe, such as 14 days.

Now the calculation, RSI, by default, uses a period of 14 days and assesses the average momentum of that period. For example, if we were to look at the price change of a security for a 14 day period and see that 10 of the days the security was up \$1.00 and the remaining four days the security was down \$0.25, we would clearly see that the security went up more on average than it went down. In this example, this type of market would be described as overbought, the opposite would indicate oversold. Again, the market moved too far too fast.

RSI is normalized to fall between 0 and 100 and often times referred to on a percentage basis. This red line is the RSI line. Two level lines are plotted on the 70 and 30 mark forming the default state of the oscillator. RSI rises as the number and size of positive closes increase and falls as the number and size of the losses increase. When RSI crosses above the 70% level, it is considered overbought, and when crossing below the 30% level, RSI is considered oversold.

So, how do we use this? There are multiple uses of RSI. First, RSI can be used to determine trend, whether current, ending or the beginning a trend. In practice, we recognize an upward trend with higher highs and higher lows. If price were to breakout to new highs, we would look for confirmation with RSI crossing the overbought level. Additionally, we would look for the sustainability of this level to determine divergence. For example, if we see higher highs from the security but lower RSI highs, this may be a bearish divergence signal. When a security is in a downtrend, we should see it oversold more often than not, and when in an uptrend it should be overbought more often. In between overbought and oversold levels, we should see the security trending in a trading range. We can use this information to analyze trend. Let's look at the chart.

At the beginning of the chart we see a trading range and RSI in-between the 70 and 30 levels after its cross below the 30 level. This is an indication that the price is trending in a trading range – which it was. We see the security break out of the trading range – which is a bullish signal. RSI confirms the break out and beginnings of the trend as it crosses above the overbought level of 70.

We see the stock reach higher highs and higher lows indicating an upward trend. RSI at first continues upwards, but forms a bearish divergence as RSI levels reach lower highs as the stock reaches higher highs. Remember, when a stock is in an uptrend, it should be overbought more often than not, which suggests demand is increasing relative to supply. If we see overbought levels fall, this indicates a bearish trend could be forming. We then see lower lows and lower highs indicating a downtrend. RSI confirms with a cross below the oversold level of 30.

Now, during a downtrend we are looking for increasing oversold levels or in other words RSI moving downwards as the stock moves downwards – here we see increasing RSI levels, which could be forming a bullish divergence. Indicating the end of a bearish trend and perhaps bullish beginnings. We see an upward trend, as this stock begins to make higher highs and higher lows. The security even reaches a new high during this period, which is confirmed with the cross above the 70 line. However, our upward momentum of RSI is not sustained and begins to trend in a trading range, this is confirmed with RSI in-between the 30 and 70 levels. RSI can be modified to your liking. You can adjust the period and even the levels. Technicians will often adjust the levels temporarily in an uptrend to 40 and 80, and in downtrend to 20 and 60 to further analyze when a trend may be ending.

The final indicator we will be discussing today is the moving average convergence divergence. More commonly known as MACD. MACD is a momentum oscillator utilized to follow trends. MACD uses two exponential moving averages. One long term with a period of 26 and short term with a period of 12. This is the first time we are introducing an exponential moving average, let's pause and briefly discuss an exponential moving average or EMA. An exponential moving average places greater weight and significance on the most recent data points. Whereas a simple moving average places equal weight on all data points. Therefore, an exponentially weighted moving average reacts more significantly to recent price changes than a simple moving average. Because of this, MACD may be used to indicate earlier signals of trend reversals.

We of course need to discuss the math! The MACD line is this green line here. The MACD line is calculated by subtracting the long term EMA which is 26 periods from the short term EMA which is 12 periods. MACD will have a positive value when the 12 period is above the 26 and negative when the 12 period is below the 26 period. The signal line is the 9 period moving average of the MACD line and depicted as a red line in our example. The MACD histogram graphs the distance between the MACD line and the signal line. If MACD is above the signal, this histogram will be above the baseline, if MACD is below the signal line, the histogram will be below the baseline. Again, you do not need to know the math behind the indicators, advanced trading platforms do the math for you, you just need to understand the signals you are looking for and be able to recognize them.

So how do we actually use MACD? Well we are looking for bullish and bearish signals and then validate the signals in conjunction with other indicators or studies. It is considered bullish when the MACD line crosses above the signal line while less than zero and it is considered bearish when the MACD line cross below the signal line while greater than zero. It is also considered bullish when the MACD line crosses above the baseline of zero and bearish when it crosses below the baseline of zero.

Here we see the MACD line cross above the signal and cross above the baseline of zero. This generates a bullish signal that we would then validate with our indicators or others of your choice. Moving across the chart, we see the MACD line cross below the signal and very shortly after crosses below the baseline of zero indicating a bearish signal. Here we see the MACD line cross above the signal line, providing us with a bullish signal. But does not cross the zero line for some time until here.

We can also use MACD to spot bullish or bearish divergence patterns in the same manner that we applied with the RDI indicator.

That covers the commonly used indicators. We encourage you to refine your charting skills with Merrill Edge Market Pro®. Feel free to give us a call with any questions or concerns at 877.653.4732.

Also, we would love to hear from you. Let us know your suggestions for future topics or any other questions you may have. Fill out the have a question box found at the bottom of this page. On behalf of the Merrill team, thank you.