

Wk. Technical Indicators

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Moving Average Convergence Divergence (MACD)

A trend-following momentum indicator that shows the relationship between two moving averages of prices. The MACD is calculated by subtracting the 26-day exponential moving average (EMA) from the 12-day EMA. A nine-day EMA of the MACD, called the "signal line", is then plotted on top of the MACD, functioning as a trigger for buy and sell signals.

There are three common methods used to interpret the MACD:

1. Crossovers - As shown in the chart above, when the MACD falls below the signal line, it is a bearish signal, which indicates that it may be time to sell. Conversely, when the MACD rises above the signal line, the indicator gives a bullish signal, which suggests that the price of the asset is likely to experience upward momentum. Many traders wait for a confirmed cross above the signal line before entering into a position to avoid getting "faked out" or entering into a position too early, as shown by the first arrow.
2. Divergence - When the security price diverges from the MACD. It signals the end of the current trend.
3. Dramatic rise - When the MACD rises dramatically - that is, the shorter moving average pulls away from the longer-term moving average - it is a signal that the security is overbought and will soon return to normal levels.

Traders also watch for a move above or below the zero line because this signals the position of the short-term average relative to the long-term average. When the MACD is above zero, the short-term average is above the long-term average, which signals upward momentum. The opposite is true when the MACD is below zero. As you can see from the chart above, the zero line often acts as an area of support and resistance for the indicator.

Stochastic Oscillator

A technical momentum indicator that compares a security's closing price to its price range over a given time period. The oscillator's sensitivity to market movements can be reduced by adjusting the time period or by taking a moving average of the result. This indicator is calculated with the following formula:

$$\%K = 100[(C - L14)/(H14 - L14)]$$

C = the most recent closing price

L14 = the low of the 14 previous trading sessions

H14 = the highest price traded during the same 14-day period.

$$\%D = 3\text{-period moving average of \%K}$$

The theory behind this indicator is that in an upward-trending market, prices tend to close near their high, and during a

downward-trending market, prices tend to close near their low. Transaction signals occur when the %K crosses through a three-period moving average called the "%D".

Above 80, overbought; and below 20, oversold.

Commodity Channel Index (CCI)

An oscillator used in technical analysis to help determine when an investment vehicle has been overbought and oversold. The Commodity Channel Index, first developed by Donald Lambert, quantifies the relationship between the asset's price, a moving average (MA) of the asset's price, and normal deviations (D) from that average. It is computed with the following formula:

The CCI has seen substantial growth in popularity amongst technical investors; today's traders often use the indicator to determine cyclical trends in not only commodities, but also equities and currencies.

The CCI, when used in conjunction with other oscillators, can be a valuable tool to identify potential peaks and valleys in the asset's price, and thus provide investors with reasonable evidence to estimate changes in the direction of price movement of the asset.

Relative Strength Index (RSI)

A technical momentum indicator that compares the magnitude of recent gains to recent losses in an attempt to determine overbought and oversold conditions of an asset. It is calculated using the following formula.

$RS = \text{Average of } x \text{ days' up closes} / \text{Average of } x \text{ days' down closes}$

As you can see from the chart below, the RSI ranges from 0 to 100. An asset is deemed to be overbought once the RSI approaches the 70 level, meaning that it may be getting overvalued and is a good candidate for a pullback. Likewise, if the RSI approaches 30, it is an indication that the asset may be getting oversold and therefore likely to become undervalued.

A trader using RSI should be aware that large surges and drops in the price of an asset will affect the RSI by creating false buy or sell signals. The RSI is best used as a valuable complement to other stock-picking tools.