

MACD: A Primer

By CASEY MURPHY Updated December 26, 2023

Reviewed by GORDON SCOTT

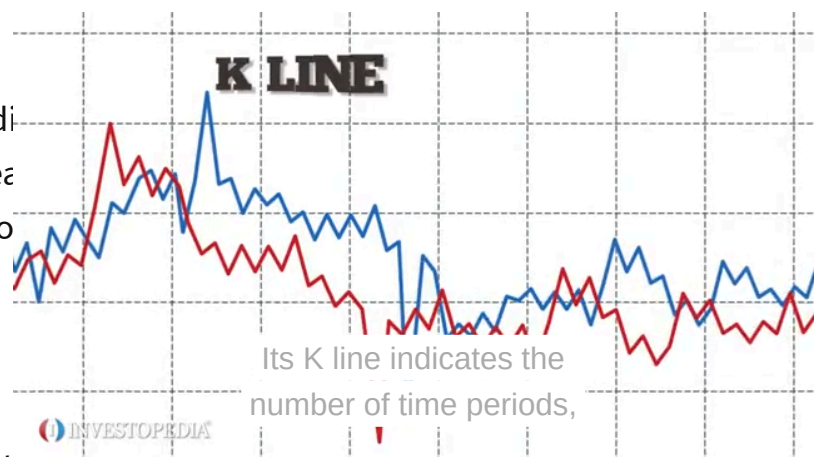
Fact checked by SUZANNE KVILHAUG

Learning to trade in the direction of short-term [momentum](#) can be a difficult task at the best of times, but it is exponentially more difficult when one is unaware of the appropriate tools that can help. This article will focus the most popular indicator used in [technical analysis](#), the [moving average convergence divergence](#) (MACD).

Gerald Appel developed this indicator. It sounds very complicated, it's really not. You can start looking for ways to [trading strategy](#).

Background Knowledge

The MACD's popularity is largely due to its focus on short-term momentum. However,



Top Stories Inflation Just Ticked Up Again—Protect Your Savings Fast Are You Ready for the Fed

As you can see from the chart below, many [traders](#) will watch for a short-term moving average (blue line) to cross above a longer-term moving average (red line) and use this to signal increasing upward momentum. This bullish [crossover](#) suggests that the price has recently been rising at a faster rate than it has in the past, so it is a common technical [buy sign](#). Conversely, a short-term moving average crossing below a longer-term average is used to illustrate that the asset's price has been moving downward at a faster rate and that it may be a good time to sell.



Credit: Image by Sabrina Jiang © Investopedia 2020

The Indicator

Notice how the moving averages chart as the strength of the move. [profit from this divergence](#) by an [exponential moving averages](#) (EMA) line, representing the average of the

Its K line indicates the number of time periods,

[Top Stories](#) Inflation Just Ticked Up Again—Protect Your Savings Fast Are You Ready for the Fed's
settings of 12- and 26-day periods.

A positive MACD value, created when the short-term average is above the longer-term average, is used to signal increasing upward momentum. This value can also be used to suggest that traders may want to refrain from taking [short positions](#) until a signal suggests it is appropriate. On the other hand, falling negative MACD values suggest that the [downtrend](#) is getting stronger, and that it may not be the best time to buy.

Transaction Signals

It has become standard to plot a separate moving average alongside the MACD, which is used to create a clear signal of shifting momentum. A [signal line](#), also known as the [trigger line](#), is created by taking a nine-period moving average of the MACD. This is found plotted alongside the indicator on the chart. As you can see in the figure below, transaction signals are generated when the MACD line (the blue line) crosses through the [signal line](#).

The basic [bullish](#) signal (buy signal) is generated when the MACD line crosses above the signal line (the [signal line](#)). A [bearish](#) signal (sell signal) is generated when the MACD line crosses below the signal line. Traders attempting to [profit](#) from bullish MACD signals should be aware that momentum direction, while the

Its K line indicates the number of time periods,



[Top Stories](#) Inflation Just Ticked Up Again—Protect Your Savings Fast Are You Ready for the Fed



Credit: Image by Sabrina Jiang © Investopedia 2020

Another common signal that many traders watch for occurs when the indicator travels in the opposite direction of the asset, something known as [divergence](#). This concept takes further study and is often used by experienced traders.

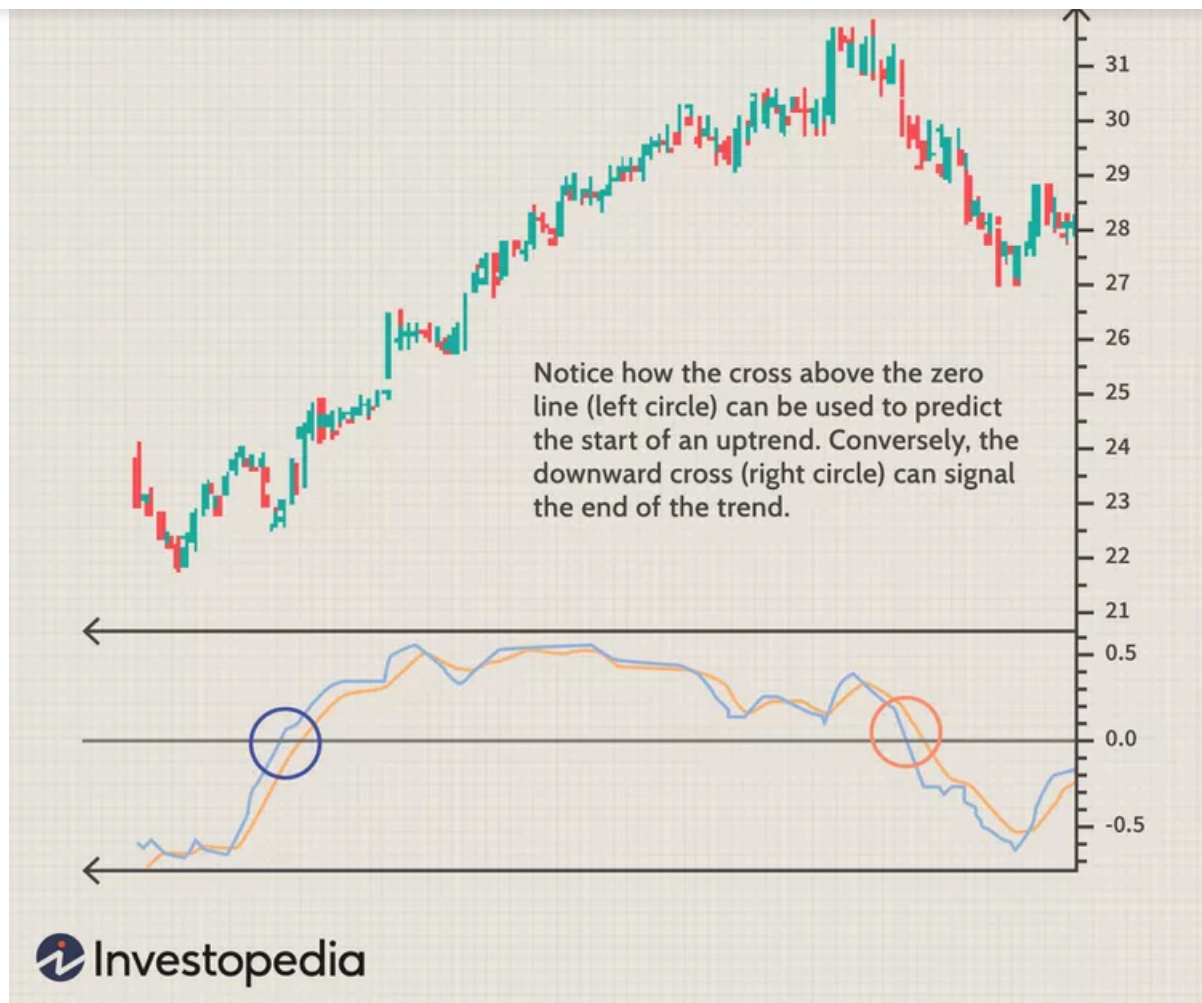
The Centerline

As mentioned earlier, the MACD is calculated as the difference between a short-term moving average (12-day EMA) and a long-term moving average (26-day EMA). Given this, the MACD must be equal to zero each time the two moving averages intersect.

Its K line indicates the number of time periods, such as days, that the asset has been open.

As you can see in the chart below, the MACD is a momentum method that can be used to identify potential buy and sell signals.

[Top Stories](#) Inflation Just Ticked Up Again—Protect Your Savings Fast Are You Ready for the Fed



Credit: Image by Sabrina Jiang © Investopedia 2020

Advantages of MACD

In the previous examples, the various signals generated by this indicator are easily interpreted and can be quickly incorporated into any short-term trading strategy. At the most basic level, the MACD indicator is [a very useful tool](#) that can help traders ensure that short-term direction is working in their favor.

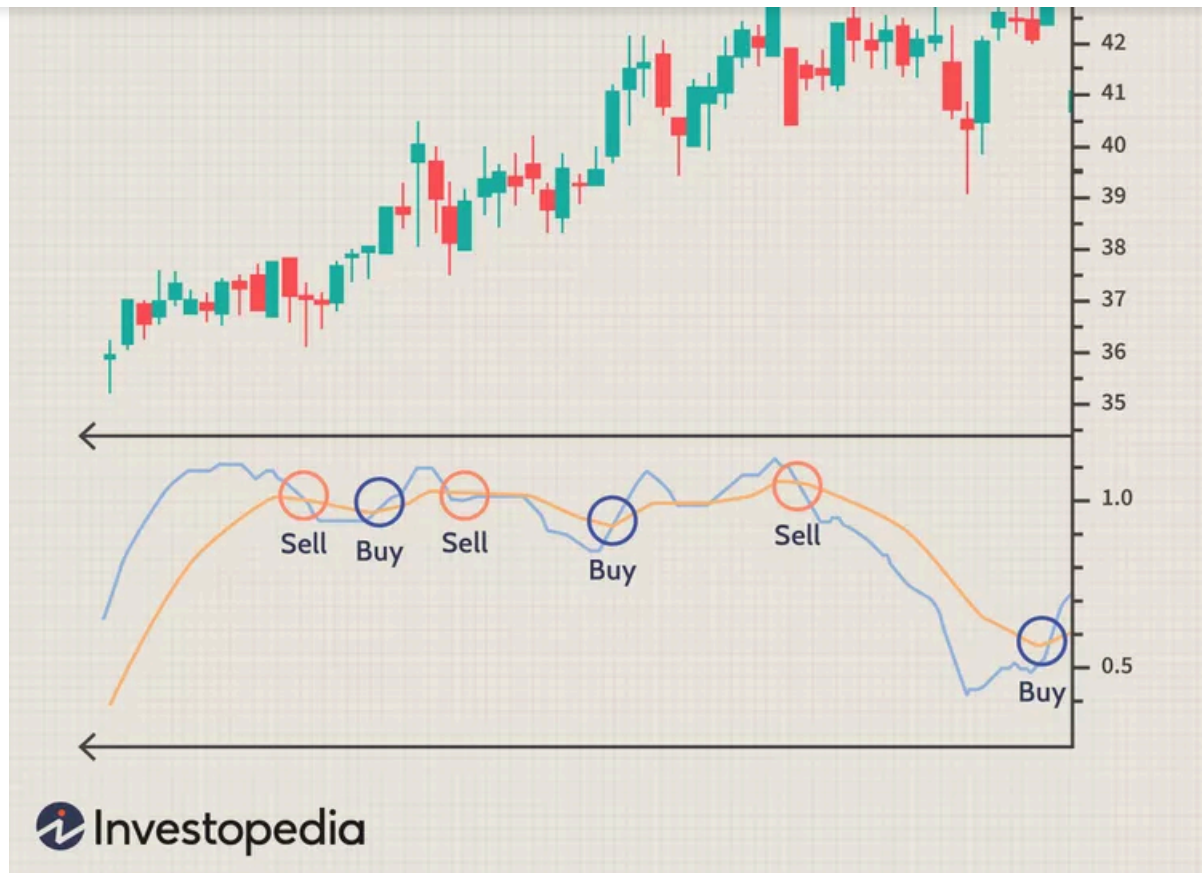
Drawbacks of MACD

The biggest disadvantage of using the MACD indicator is that a [trader](#) can get [whipsawed](#) by being able to capture a strong climb on the price chart, the [lagging](#) aspect of this indicator can result in missed signals during a prolonged move or several unimpressive gains or even

Its K line indicates the number of time periods,



[Top Stories](#) Inflation Just Ticked Up Again—Protect Your Savings Fast Are You Ready for the Fed



Credit: Image by Sabrina Jiang © Investopedia 2020

Traders should be aware that the whipsaw effect can be severe in both [trending](#) and [range-bound](#) markets because relatively small movements can cause the indicator to change directions quickly. A large number of [false signals](#) can result in a trader taking many losses. When commissions are factored into the equation, this strategy can become very expensive.

Another MACD drawback is its [inability to make comparisons](#) between different securities. Because the MACD is the difference between the two moving averages, the reading for different securities is not directly comparable. Many [technical analysts](#) will use the MACD calculated [in a similar fashion as](#) the difference between the moving averages.

The Bottom Line

The MACD indicator is the most popular moving average-based indicator. It gives traders the ability to quickly identify trends and potential reversals.

Its K line indicates the number of time periods, such as days, weeks, or months, used to calculate the moving averages.

Top Stories Inflation Just Ticked Up Again—Protect Your Savings Fast Are You Ready for the Fed
 technical analysis have proved to be more reliable than the MACD, and this relatively simple indicator can quickly be incorporated into any short-term trading strategy.

ARTICLE SOURCES ▼

READ MORE

Trading

Technical Analysis

Technical Analysis Basic Education

Partner Links

Related Articles



Technical Analysis Basic Education

How to Understand and Calculate Stock Price Targets

By Carla Taranto



Technical Analysis Broadening Trading Strategy

By Gordon S. Wood

Its K line indicates the number of time periods,