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# MACD: A Primer

By CASEY MURPHY Updated December 26, 2023

Reviewed by GORDON SCOTT

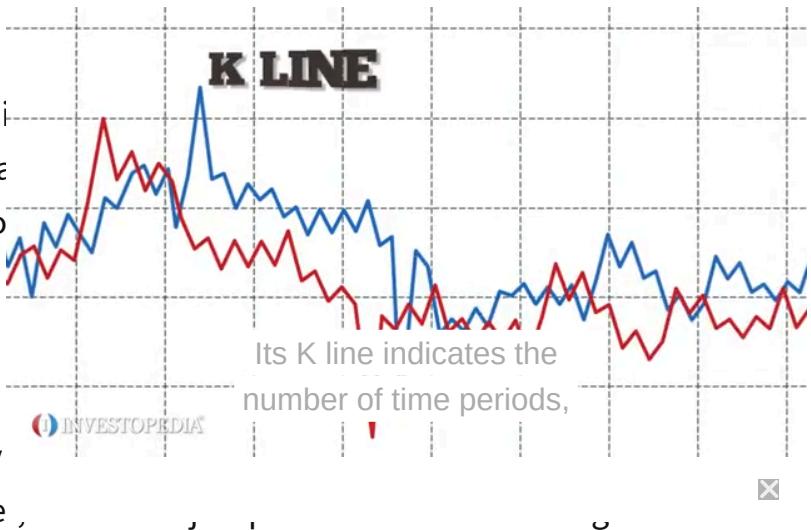
Fact checked by SUZANNE KVILHAUG

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 in the early 1970s. It sounds very complicated, it's really not. Once you understand the concept, you can start looking for ways to implement it into your trading strategy.

## Background Knowledge

The MACD's popularity is largely due to its ability to measure short-term momentum. However, it is also useful for identifying trends and potential reversals.



## TRADE

**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 2023

## The Indicator

Notice how the moving averages chart as the strength of the momentum. profit from this divergence by an exponential moving averages (EMA).

Its K line indicates the number of time periods,

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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.

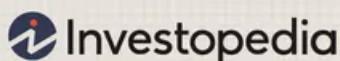
[<sub>1</sub>]

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

Its K line indicates the number of time periods,

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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

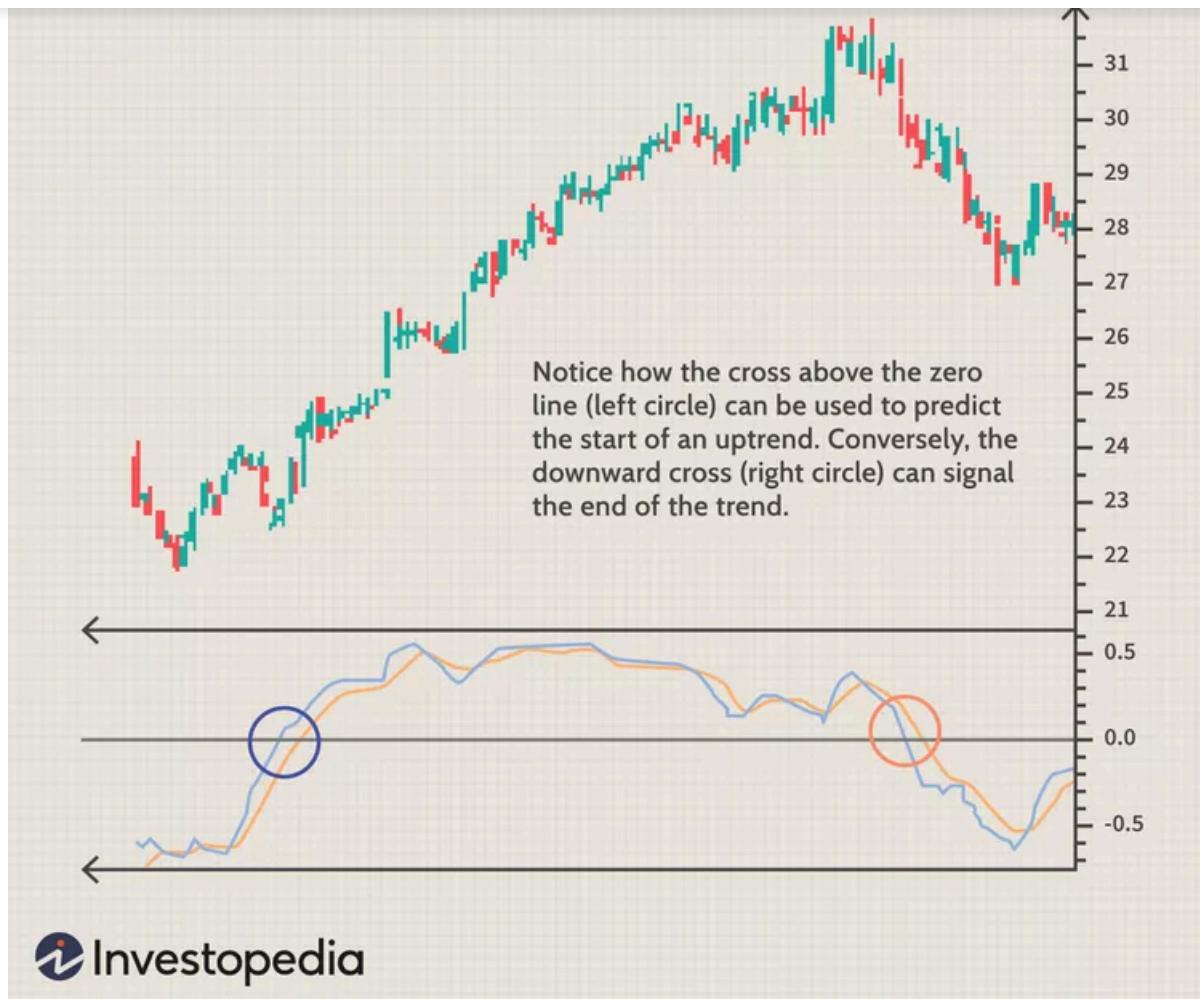
As mentioned earlier, the MACD is calculated by subtracting a long-term moving average (50-day EMA) from a short-term moving average (26-day EMA). Given this, the MACD line must be equal to zero each time the two moving averages cross.

Its K line indicates the number of time periods,

As you can see in the chart below, this is a simple method that can be used to identify trends.

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## 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 correction on a chart, the [lagging](#) aspect of this indicator can result in signals during a prolonged move that yield several unimpressive gains or even losses.

Its K line indicates the number of time periods,

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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 based on the difference between the two moving averages, the reading for different assets will vary. To facilitate comparisons when comparing a number of assets to one another, many [technical analysts](#) will use the MACD [in a similar fashion as other technical indicators](#), such as calculating the percentage difference between the moving averages.

## The Bottom Line

The MACD indicator is the most popular moving average convergence/divergence (MACD) indicator. It gives traders the ability to quickly analyze price trends and identify potential buy and sell opportunities.

Its K line indicates the number of time periods,

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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.

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