

Moving averages and oscillators: how chart tools smooth and score price moves

Moving averages smooth a price series to show its direction, and oscillators such as RSI and MACD turn recent moves into a momentum score.

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1. How to read it / Where it misleads

A moving average takes the average price over a rolling window, such as the last 20 days, and recalculates it as each new price arrives. It smooths out day-to-day noise to show which way a price has been heading. Oscillators go a step further and turn recent price moves into a single momentum score; the best known are the relative strength index, or RSI, and MACD, short for moving average convergence divergence.

These tools describe the past and have limits. Every moving average trails the price by construction, and a longer window trails further. The common settings, such as a 14-period RSI, are conventions that traders settled on, not results from theory.

Crypto adds a wrinkle. Markets trade around the clock, so a daily close depends on the cutoff each provider picks, and the same coin can show different averages on two platforms. Providers also compute RSI in different ways, so an RSI with the same settings on the same prices can differ by provider.

This explains how a metric is calculated. It is not a signal, forecast or recommendation, and past readings do not predict prices. Le Coin does not publish live readings of this metric.

2. The formula

Simple moving average (SMA) over n periods = (sum of the last n closing prices) / n

RSI = $100 \text{ minus } 100 / (1 + \text{RS})$, where RS = average gain / average loss over n periods, with 14 as the usual default (sources 1 and 2)

RSI therefore runs from 0 to 100. Wilder smoothing, one way to average the gains and losses, updates each period as (previous average $\times$ (n minus 1) + the new value) / n (source 2).

MACD = fast moving average minus slow moving average, where the fast one has the shorter length and both can be exponential (EMA) or simple (SMA) moving averages (source 3)

Because it is a difference between two averages, MACD moves around zero and is not bounded (source 3).

3. Example data

The figures below are invented to show the arithmetic. An imaginary coin closes at 10, 11, 12, 11 and 13 over five days.

Day	Close	Change
1	10	none
2	11	+1
3	12	+1
4	11	minus 1
5	13	+2

The five-day SMA is $57 / 5 = 11.4$. For RSI over the four changes with a simple average, the average gain is $(1 + 1 + 2) / 4 = 1.0$ and the average loss is $1 / 4 = 0.25$, so RS is 4 and RSI is $100 \text{ minus } 100 / 5 = 80$. Using Wilder smoothing on a longer history would give a different figure from the same closes.

4. **Who publishes it and how definitions differ**

TradingView, a charting platform, describes RSI as a momentum oscillator that tracks both the speed and the size of price moves, and its help page shows the built-in RSI averaging gains and losses with a function called rma over a default of 14 bars (source 1). AAIL, the American Association of Individual Investors, says the traditional formula uses a simple average of gains and losses and treats Wilder's smoothed form as a second variant (source 2).

In Le Coin's view, the choice of averaging method is a main reason RSI readings can disagree across platforms. A simple average reacts sharply when an old price drops out of the window, while Wilder smoothing carries every past move forward with shrinking weight, so readers should check which method a chart uses before comparing numbers.

5. **Where the measures come from**

The moving average has no single known originator; it is a long-standing statistical technique. TradingView and AAIL attribute RSI to J. Welles Wilder Jr. and his 1978 book *New Concepts in Technical Trading Systems* (sources 1 and 2). TradingView attributes MACD to Gerald Appel in the 1970s (source 3); Le Coin could not confirm the credit independently.

6. **What it means**

In Le Coin's view, moving averages and oscillators are best read as summaries of what a price has already done. They compress a chart into a line or a score, and the settings and averaging method behind that score matter as much as the score itself.

Sources

1

TradingView support, "Relative Strength Index (RSI)," <https://www.tradingview.com/support/solutions/43000502338-relative-strength-index-rsi/>, accessed 2026-10-16, 10:56 p.m. ET.

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TradingView support, "Moving average convergence divergence (MACD) indicator," <https://www.tradingview.com/support/solutions/43000502344-macd-moving-average-convergence-divergence/>, accessed 2026-10-16, 10:58 p.m. ET.

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