

The Trader's Lens

A Practical Guide to Key Technical Indicators

Simple Moving Average (SMA): Smoothing the Noise

What It Is

A core trend indicator calculated as the average price of a security over a specific number of periods. Its purpose is to smooth out short-term price volatility and reveal the underlying trend.

The Formula

$$\text{SMA} = (\text{Sum of Closing Prices for } n \text{ periods}) / n$$

Significance & Signals

- **Trend Direction:** A positively sloping SMA indicates an uptrend; a negatively sloping SMA signals a downtrend.
- **Price Crosses:** When prices cross above the SMA, it can be a long signal. When prices cross below, it can be a short or exit signal.
- **SMA Crossovers:** A 'Golden Cross' (faster SMA crosses above slower SMA) is bullish. A 'Death Cross' is bearish.



Exponential Moving Average (EMA): Emphasizing 'Now'

What It Is

A type of moving average that applies more weight to the most current data. The EMA follows prices more closely than a corresponding SMA, reacting more quickly to price changes.

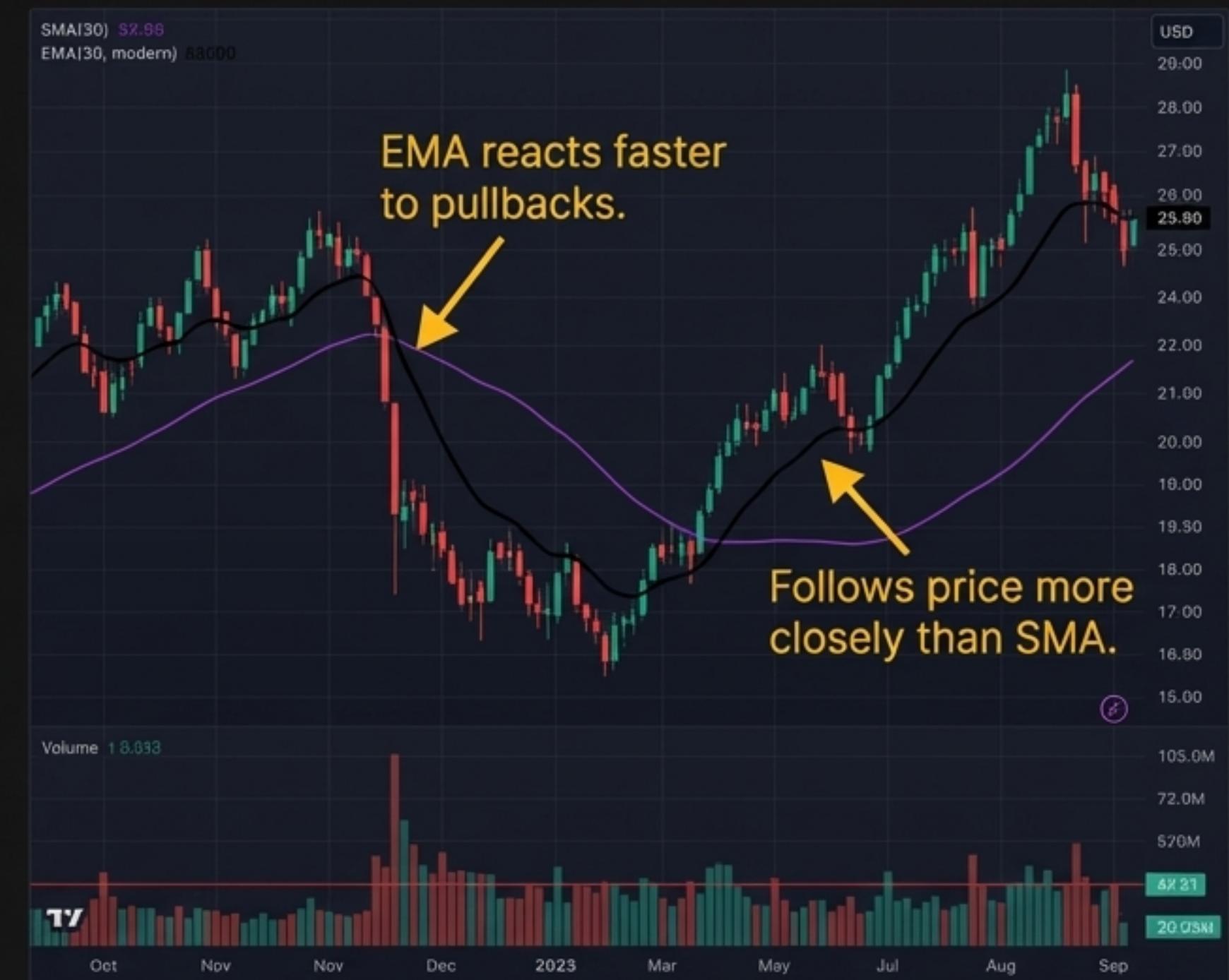
The Formula

$$\text{EMA} = (\text{Close} - \text{Previous EMA}) * \text{Multiplier} + \text{Previous EMA}$$

where Multiplier = $2 / (n + 1)$

Significance & Signals

- ***Faster Signals***: The EMA's sensitivity allows it to identify trends earlier than an SMA.
- ***Dynamic Support/Resistance***: In an uptrend, a rising EMA tends to support the price action. In a downtrend, a falling EMA tends to provide resistance.



Moving Average Convergence Divergence Divergence (MACD): Gauging Momentum

What It Is

A versatile trend-following momentum oscillator that shows the relationship between two exponential moving averages. It is composed of the MACD line, a signal line, and a histogram.

The Formula

MACD Line = 12-Period EMA - 26-Period EMA

Signal Line = 9-Period EMA of the MACD Line

Significance & Signals

- Signal Line Crossovers:** Bullish when the MACD line crosses above the signal line. Bearish when it crosses below.
- Zero Line Crossovers:** Crossing above the zero line is considered bullish; crossing below is bearish.
- Divergence:** A powerful reversal signal that occurs when the price makes a new high or low that is not confirmed by a new high or low in the MACD.



A: Bullish Zero Line Cross

B: Bullish Signal Line Cross

C: Bearish Signal Line Cross

D: Bearish Turn from Above Zero

Relative Strength Index (RSI): Measuring Overbought & Oversold

What It Is

A momentum oscillator that measures the speed and change of price movements. The RSI oscillates between zero and 100 to evaluate overbought or oversold conditions.

The Formula

$$RSI = 100 - [100 / (1 + RS)]$$

where $RS = \text{Average Gain} / \text{Average Loss}$

Significance & Signals

- **Overbought:** Traditionally considered overbought when above 70.
- **Oversold:** Traditionally considered oversold when below 30.
- **Divergence:** When price makes a new high/low not confirmed by the RSI, it can signal a reversal.
- **Trend Behavior:** In a bull market, RSI tends to stay in the 40-90 range. In a bear market, it tends to stay in the 10-60 range.



Stochastic Oscillator: Closing Price in Context

What It Is

A momentum indicator that shows the location of the close relative to the high-low range over a set number of periods, operating on the principle that momentum precedes price. It ranges from 0 to 100 and is most effective in trading ranges or slow-moving trends.

The Formula

$$\%K = 100 * [(Close - Low_n) / (High_n - Low_n)]$$

$\%D$ = 3-Period Simple Moving Average of $\%K$

Significance & Signals

- Overbought/Oversold:** Above 80 is overbought; below 20 is oversold. A buy signal is given when crossing back above 20; a sell signal when crossing back below 80.
- Divergence:** A powerful signal when a new high or low in price is not confirmed by the Stochastic Oscillator.



Bollinger Bands®: Visualizing Volatility

What It Is

A tool that defines price and volatility, consisting of a simple moving average (the middle band) and two outer bands plotted at a standard deviation level above and below it. They help determine whether prices are high or low on a relative basis.

The Formula

Middle Band = 20-Day Simple Moving Average

Upper/Lower Bands = Middle Band \pm (2 * 20-Day Standard Deviation)

Significance & Signals

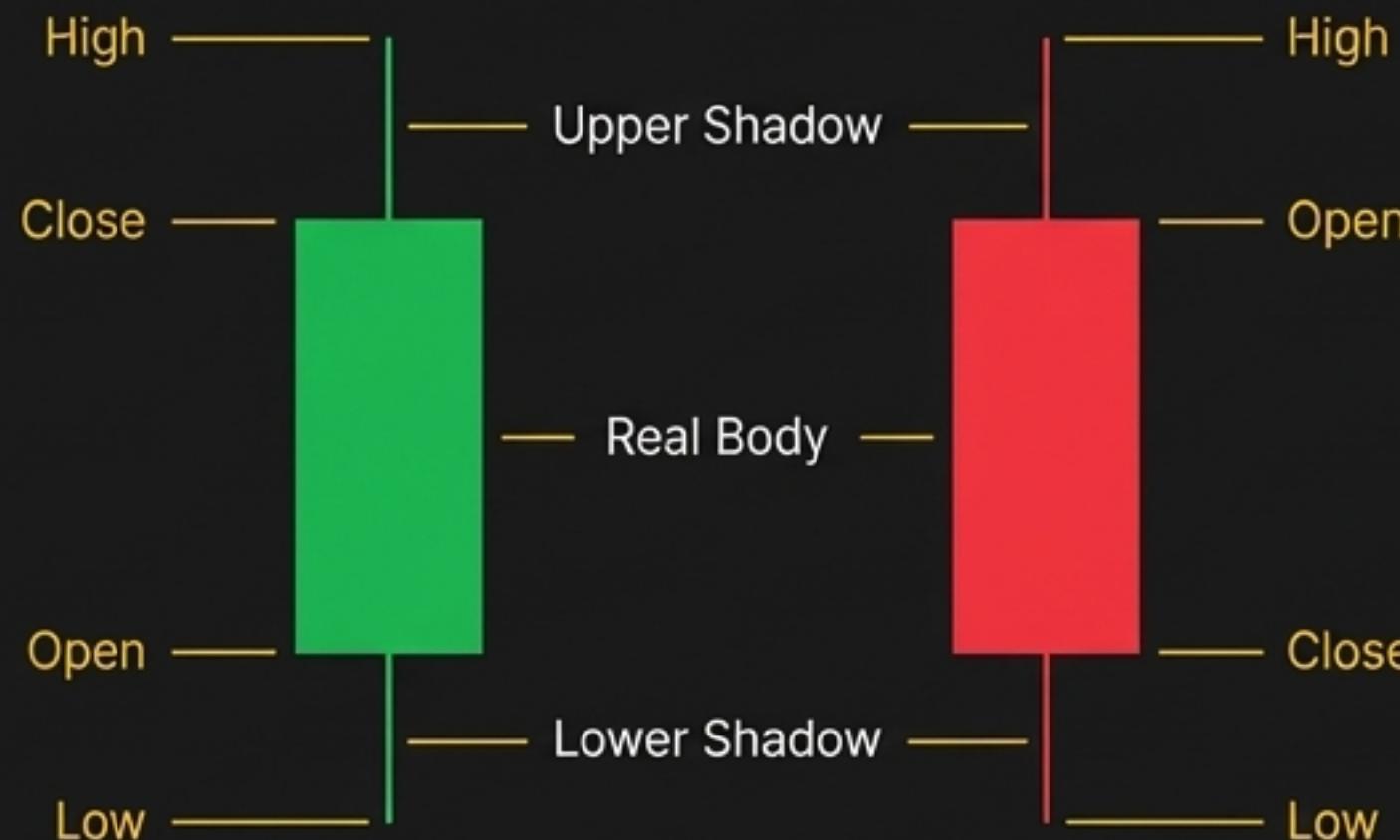
- **Volatility Squeeze:** When bands tighten (a 'squeeze'), it raises the likelihood of a sharp price move.
- **Volatility Breakout:** When bands separate by an unusually large amount, an existing trend may be ending.
- **Relative Price Levels:** Prices are considered relatively high at the upper band and low at the lower band.



Reading the Canvas: The Language of Price

Anatomy of a Candlestick

The Story in a Single Bar: Each candlestick encapsulates the struggle between buyers and sellers over a period. The color and shape of the “real body” and “shadows” reveal who won the battle and with how much conviction.



The Nature of Trends

The Market's Direction



The Guiding Philosophy of Technical Analysis

The Core Idea – Technical analysis is a method of evaluating securities by analyzing statistics generated by market activity, such as past prices and volume. Technical analysts believe that all known information is already reflected in the price. It focuses on the supply-and-demand dynamic expressed via stock prices.

Three Foundational Assumptions



1. The Market Discounts Everything

All fundamental, economic, political, and psychological factors are priced into a security. Technicians study the effect (price movement), not the myriad causes.

2. Prices Move in Trends

A core belief is that prices are nonrandom and move in observable trends. A trend in motion is more likely to continue than to reverse. The primary task is to identify the current trend.

3. History Repeats Itself

Chart patterns and market behaviors are recurring because they are rooted in consistent human psychology, which tends to respond to similar market stimuli in predictable ways (fear and greed).

Synthesizing Signal from Noise

Technical analysis is a dynamic discipline of pattern recognition and probability, not a crystal ball. True skill lies not in mastering a single indicator, but in combining multiple tools to build a confluence of evidence. Use trend indicators to find direction, momentum oscillators to time entries and exits, and volatility bands to understand and manage risk.

Key Takeaway: The best signals are confirmed across multiple, non-correlated indicators and timeframes. Always prioritize risk management.

