MACD

Reading Momentum and Trend Shifts — Lesson Explainer

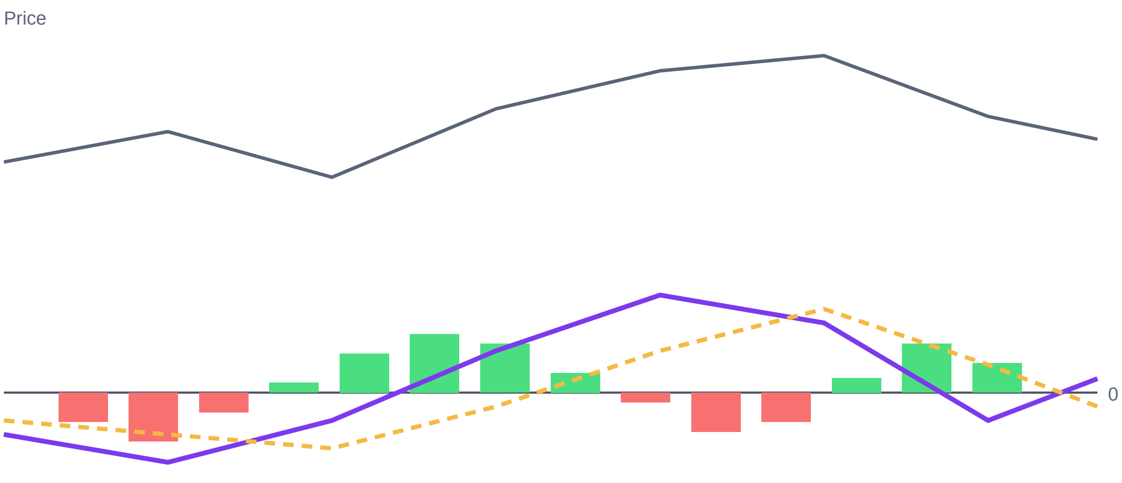
The Concept

MACD is built from two exponential moving averages (EMAs) of price: a fast 12-period EMA and a slower 26-period EMA. The MACD line is the fast EMA minus the slow EMA.

A 9-period EMA of the MACD line itself is the signal line. When MACD crosses above the signal line, that's read as bullish - momentum picking up. When it crosses below, that's bearish - momentum fading.

The gap between the two is often drawn as a histogram. A growing histogram means the lines are pulling apart; a shrinking one means they're converging - often visible before the crossover itself.

MACD Alongside Price



MACD (purple) / Signal (gold, dashed) / Histogram

5 Things to Know About MACD

1. MACD is a lagging indicator built from moving averages - it confirms a shift after it's begun.

2. The crossover is the headline signal, but the histogram often moves first.

3. MACD can diverge from price, just like RSI - a classic warning sign.

4. The zero line matters too - crossing zero means the fast EMA has overtaken the slow EMA outright.

5. MACD works best in trending markets - in a choppy, sideways market it can whipsaw.

4 Things to Check When Reading MACD

• Watch the histogram shrink - often more useful than reacting to the cross itself.

• Note the zero-line cross - a crossover that also crosses zero carries more weight.

• Check for divergence - compare MACD's recent peaks/troughs to price's.

• Confirm the market isn't choppy - MACD is far more reliable in a trending market.

> **Worth knowing:**
> MACD is a lagging indicator built from moving averages - it confirms a momentum shift after it's begun, not before. In choppy, range-bound markets it can generate frequent false crossovers. Pair it with trend context and volume.

Quiz — Answer the questions, then check the key on the next page

1. How is the MACD line calculated?

A. Today's closing price minus yesterday's closing price
B. The 12-period EMA minus the 26-period EMA
C. Total volume divided by average volume
D. The highest high minus the lowest low

2. What does the MACD histogram represent?

A. Total trading volume for the day
B. The company's earnings per share
C. The gap between the MACD line and the signal line
D. The stock's dividend yield

3. Why might a shrinking histogram be useful before a crossover?

A. It never provides any useful information
B. It guarantees a crossover within 24 hours
C. It means volume has stopped entirely
D. It can hint momentum is fading and a crossover may be approaching

4. Why does a crossover that also crosses zero carry more weight?

A. It means the fast EMA has overtaken the slow EMA outright
B. Zero-line crosses are purely decorative
C. It means the stock has been delisted
D. It only happens once per year

5. Why can MACD generate false signals in a sideways market?

A. MACD only works on cryptocurrencies
B. With no sustained trend, the averages cross back and forth without a real shift
C. The MACD formula breaks down mathematically in sideways markets
D. Sideways markets have no volume at all

Answer Key

1. How is the MACD line calculated?

Correct answer: B. The 12-period EMA minus the 26-period EMA

The MACD line is the fast (12-period) EMA minus the slow (26-period) EMA of price.

2. What does the MACD histogram represent?

Correct answer: C. The gap between the MACD line and the signal line

The histogram bars plot MACD minus signal - growing means pulling apart, shrinking means converging.

3. Why might a shrinking histogram be useful before a crossover?

Correct answer: D. It can hint momentum is fading and a crossover may be approaching

A shrinking histogram shows the lines converging - often visible before the actual crossover.

4. Why does a crossover that also crosses zero carry more weight?

Correct answer: A. It means the fast EMA has overtaken the slow EMA outright

Crossing zero means the fast EMA has actually moved past the slow EMA, a more decisive shift.

5. Why can MACD generate false signals in a sideways market?

Correct answer: B. With no sustained trend, the averages cross back and forth without a real shift

MACD works best when there's an actual trend to track - a choppy market causes frequent crosses without a genuine shift underway.