Same 80% win rate. Smaller losses. Positive edge.

A 20/80 reward/risk trade (collect $20, risk $80): held to max loss vs. closed at −$30,
and how results that look random converge to the exact probabilities over many trades.

MODEL Win +$20 (credit kept) · Loss −$80 max (width − credit) · Win probability p = 80% = break-even 80 / (20 + 80)

Expectancy E = p × win − (1 − p) × loss · Stop rule: close every losing trade at −$30 (assumes the win rate stays 80%; see panel 6)

1 · Expectancy per trade

HOLD TO MAX LOSS (−$80)

$0

/ trade

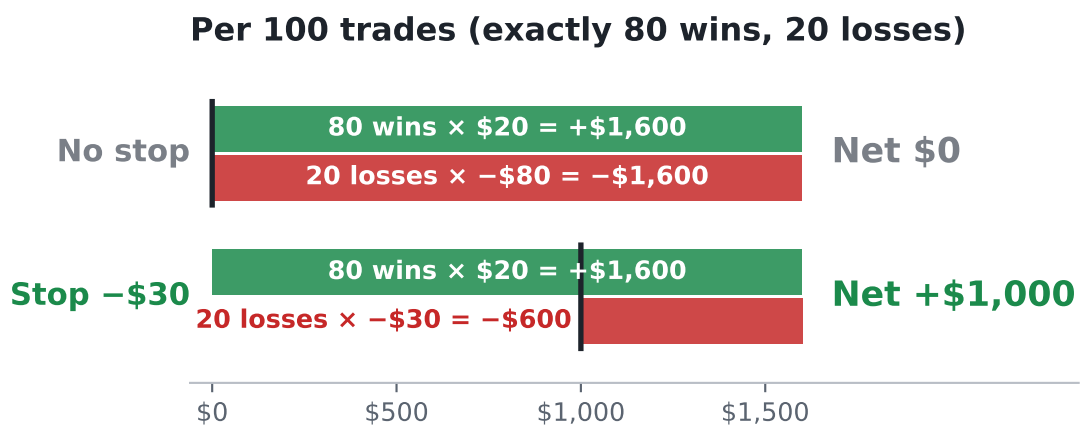
0.80 × $20 − 0.20 × $80 = $0

STOP AT −$30

+$10

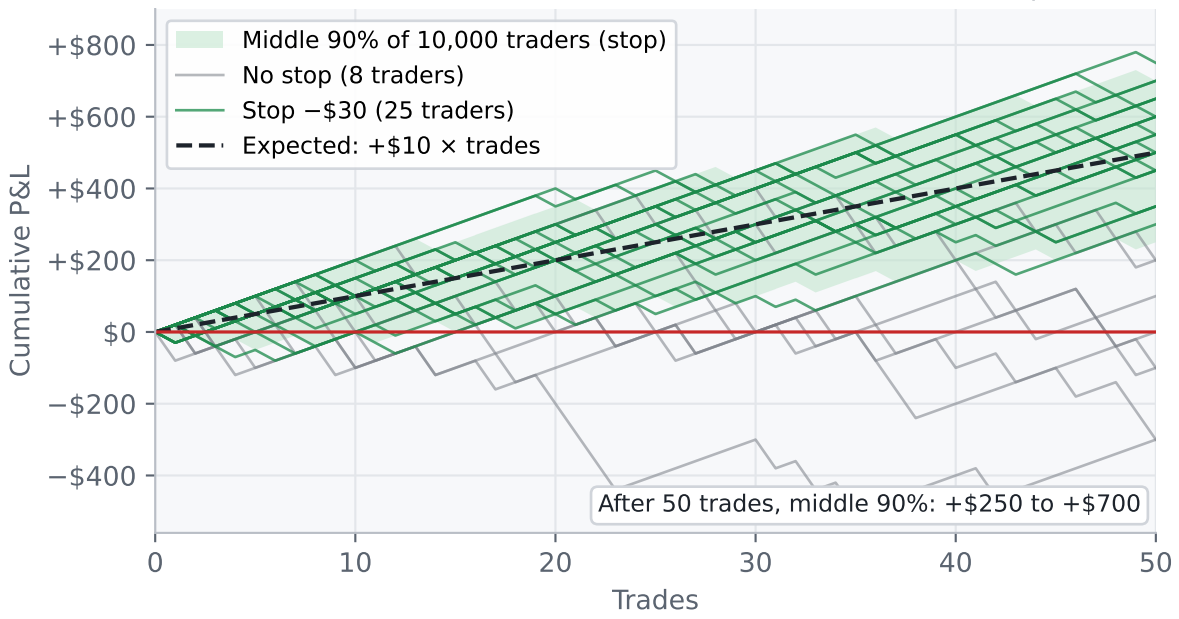
/ trade

0.80 × $20 − 0.20 × $30 = +$10



2 · The short run looks random

Account P&L over the first 50 trades — 25 traders with the stop, 8 without



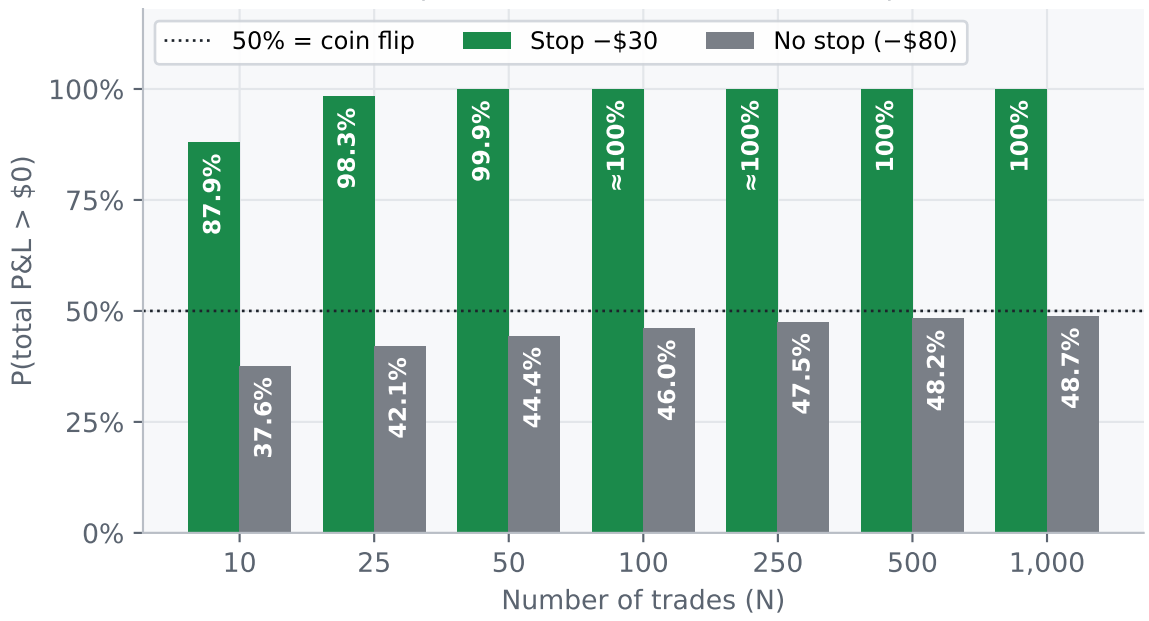
43%
of stop traders were underwater at some point

0.03%
still losing money after 50 trades (3.3% after 10)

42%
still losing after 50 trades without the stop

3 · Odds of being profitable after N trades

Exact binomial · stop needs wins > 60% of N · no stop needs > 80%



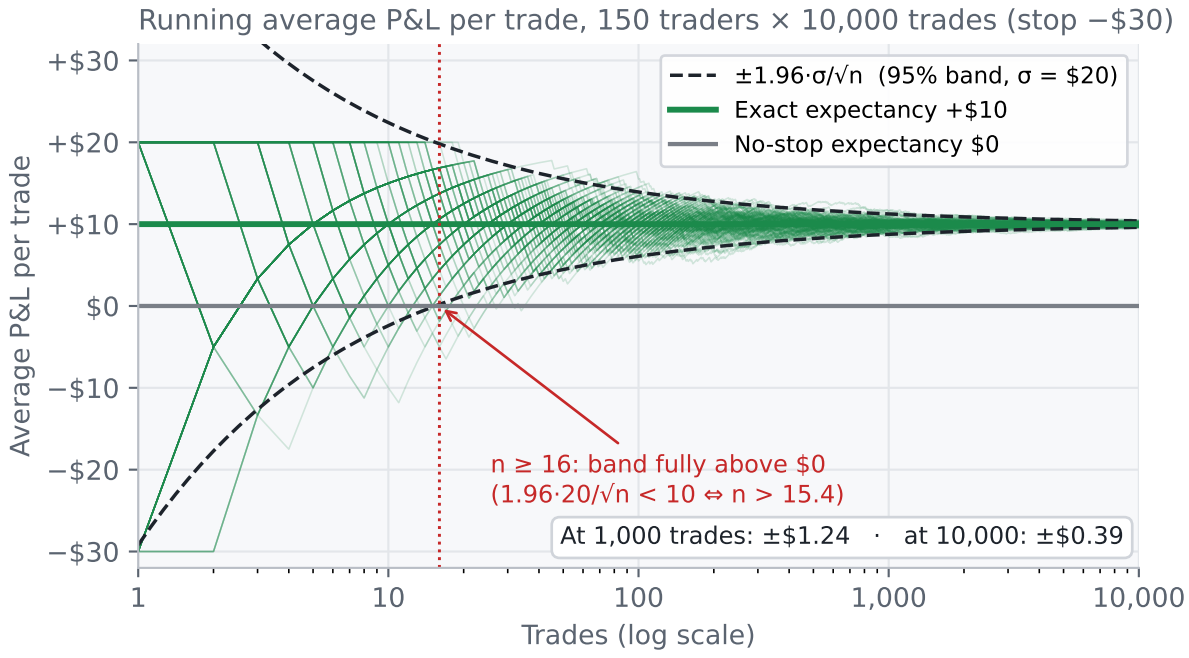
87.9%
profitable after 10 trades with the stop

99.9%
profitable after 50 trades with the stop

48.7%
after 1,000 without it (ties at $0 not counted)

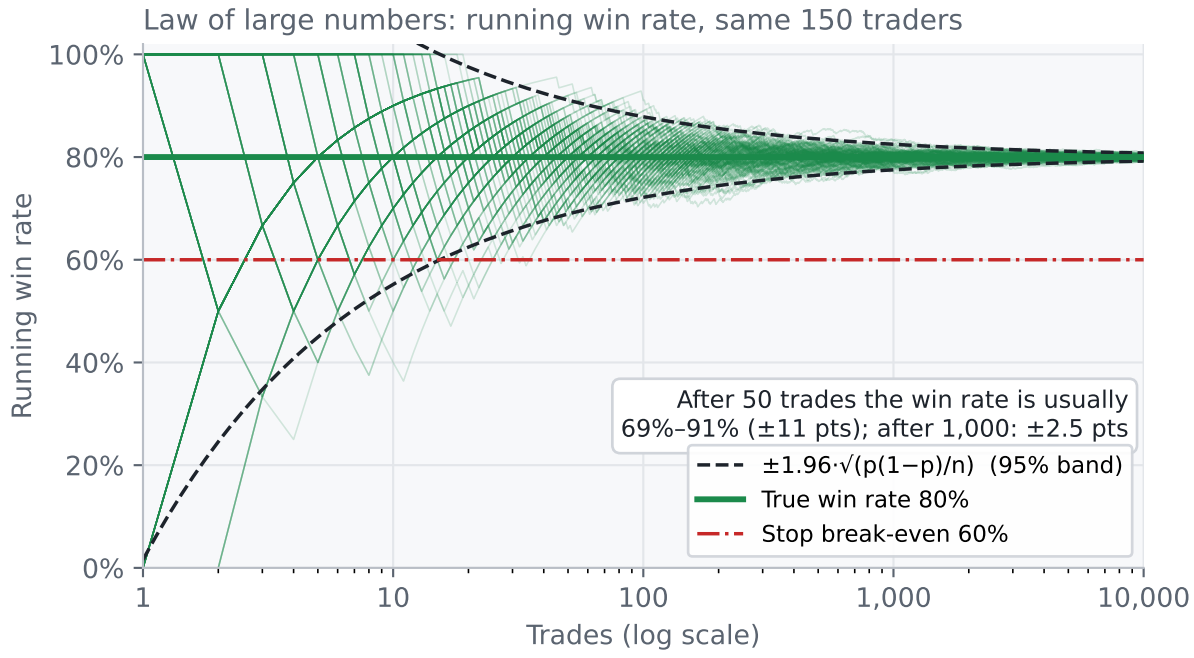
4 · The long run converges to +$10 / trade

Running average P&L per trade, 150 traders × 10,000 trades (stop −$30)



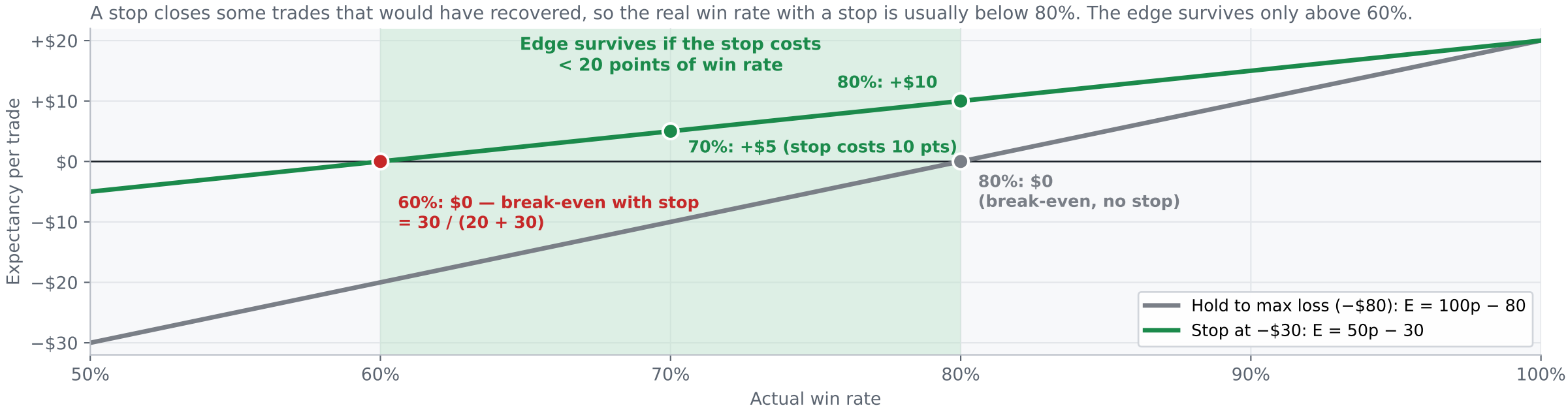
5 · The win rate converges to 80%

Law of large numbers: running win rate, same 150 traders



6 · Caveat: the edge depends on the win rate the stop leaves you

A stop closes some trades that would have recovered, so the real win rate with a stop is usually below 80%. The edge survives only above 60%.



⚠ Execution risk: slippage, commissions/fees and price gaps mean a stop can fill worse than −$30 (a gap can still hit the full −$80).
Every extra dollar lost per stopped trade, and every point of win rate the stop gives up, comes straight out of the +$10 edge.

Method: exact binomial probabilities, cross-checked against a Monte Carlo of 10,000 simulated traders (seed 2080); trades independent, p fixed at 80%. Educational illustration, not financial advice.