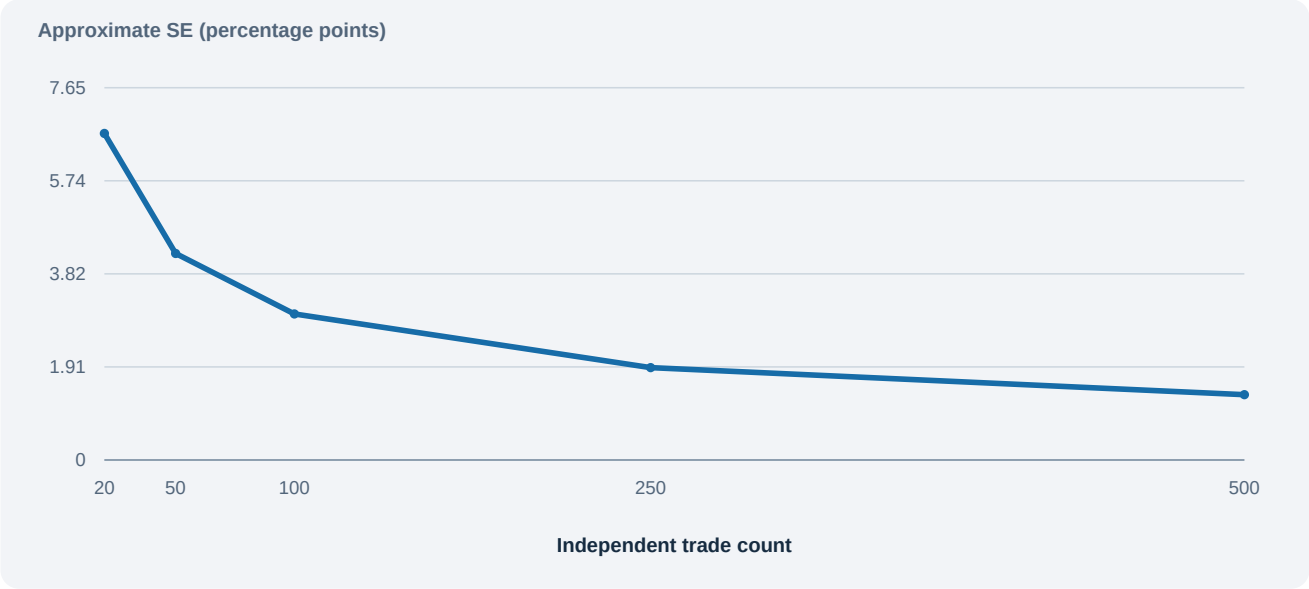
Approximate win-rate standard error

Research and evaluation | Original synthetic example | Edition 2026-11-26

Under an independent Bernoulli model, the plug-in standard error of an observed win fraction decreases with the square root of sample size. Dependence and regime shifts can invalidate this simple model.

FORMULA SE = sqrt(p x (1-p) / n)

SCENARIO 01: Observed win fraction 10%; independent-trial approximation



WORKED EXAMPLE

At n=100, plug-in SE is 3 percentage points. This is not an exact interval or a regime-change model.

COMMON MISTAKE

Using the normal approximation as an exact confidence guarantee, especially near zero or one, overstates precision.

BEFORE YOU USE THE CALCULATION

1. State independence assumptions.
2. Check sample size and boundary cases.
3. Use a more suitable interval for small samples.

COMPARE TWO MORE INPUT SETS

Scenario 05: Observed win fraction 50%; independent-trial approximation. At n=100, plug-in SE is 5 percentage points. This is not an exact interval or a regime-change model.

Scenario 10: Observed win fraction 90%; independent-trial approximation. At n=100, plug-in SE is 3 percentage points. This is not an exact interval or a regime-change model.

Synthetic values are not historical market data. Educational material; trading can result in substantial losses.