Portfolio Rebalancing Metrics — Formula Reference Guide

1. Return Metrics

Metric	Formula
Total Return	(Final Value − Initial Capital) / Initial Capital × 100%
CAGR	((Final Value / Initial Capital)^(1 / n)) − 1
Daily Return	(Vt − Vt−1) / Vt−1
Monthly Return	((∏(1 + rt))^(1 / M)) − 1
Annual Return	(1 + Avg Daily Return)^252 − 1
Best Day	max(rt)
Worst Day	min(rt)
Positive Days	Count(rt > 0)
Negative Days	Count(rt < 0)
Positive %	(Positive Days / Total Days) × 100%

2. Risk Metrics

Metric	Formula
Volatility (σ)	√252 × StdDev(rt)
Sharpe Ratio	(Rp − Rf) / σ
Sortino Ratio	(Rp − Rf) / σd
Calmar Ratio	CAGR / |Max Drawdown|
Downside Deviation	√(252 × (1/N) Σ[min(0, ri − MAR)]²)

3. Drawdown Metrics

Metric	Formula
Drawdown (DD)	(Vt – max(V1:t)) / max(V1:t)
Max Drawdown	min(DDt)
Average Drawdown	Mean of all DD periods
Longest DD Days	Max(duration of DD periods)
Average DD Days	Mean(duration of DD periods)

4. Supporting Definitions

Term	Description
Vt	Portfolio value at time t.
rt	Daily return on day t.
Rp	Portfolio's annualized return.
Rf	Annualized risk-free rate.
σ	Annualized standard deviation (volatility) of returns.
σd	Annualized downside deviation (volatility of negative returns).
n	Number of years in the backtest period.
MAR	Minimum Acceptable Return, typically 0% or Rf.