J3 Analytics

QUANTCONNECT ALGORITHM PROFILE

APEX QQQ Trader

APEX QQQ Trader is an AI machine learning strategy built on research across dozens of indicators, distilling the most predictive features into a model that estimates the forward probability of meaningful price appreciation in the Nasdaq-100. When the model's confidence exceeds a calibrated threshold, the strategy takes on leveraged long exposure through TQQQ. When conviction falls short, it exits to cash — deliberately sidestepping periods of elevated uncertainty. A shock-acknowledgement module completes the framework, limiting tail risk during sudden market dislocations and positioning the portfolio to minimize losses and capture recoveries.

LAUNCH DATE	INSTRUMENT	DATA FREQUENCY	UNDERLYING INDEX
April 19, 2026	TQQQ / BIL	Daily	Nasdaq-100 (QQQ)

Highlights

- **Exceptional training-period growth:** Over the five-year in-sample period (2020–2024), the strategy compounded at **104.8% annually**, growing a $10,000 starting portfolio to over $379,000 — more than 20× the S&P 500's cumulative return over the same span.

- **Out-of-sample validation:** During the independent test period (Jan 2025–Apr 2026), the strategy delivered a **30.5% annualized return** and a net profit of **41%** — nearly **2× the S&P 500's return of 20%** over the same period, which included significant Nasdaq drawdowns driven by macro and tariff shocks.

- **Selective, disciplined execution:** With a turnover rate of only 3–4% and roughly one trade every three months, the algorithm minimizes frictional costs and avoids overtrading.

- **Favorable win characteristics:** In training, the strategy achieved a **69% win rate** with average wins of 18.35% versus average losses of just 2.83%, producing a profit-loss ratio of 6.5× — reflecting the benefit of holding through extended uptrends while cutting exposure early when confidence wanes.

Historical Returns vs. Benchmark

Actual realized returns from the combined training (2020–2024) and test (2025–Apr 2026) backtests, compared to the S&P 500 for the same calendar periods.

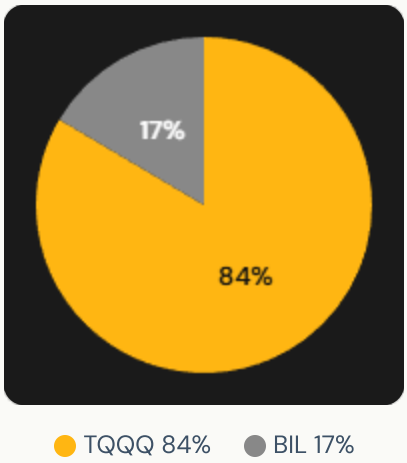
PERIOD	DATES	APEX CAGR	SPY CAGR	APEX NET PROFIT	SPY NET PROFIT
1 Year	1/1/2025 – 12/31/2025	+58.5%	+16.6%	+58.5%	+16.6%
3 Years	1/1/2023 – 12/31/2025	+129.4%	+21.7%	+1,107%	+80.2%
5 Years	1/1/2021 – 12/31/2025	+71.7%	+13.2%	+1,391%	+86.0%
All Periods	1/1/2020 – 4/17/2026	+82.0%	+13.1%	+4,221%	+117.3%

Backtest Performance — Training Set

Start: January 1, 2020 · **End:** December 31, 2024 · **Runtime:** 1,826 days

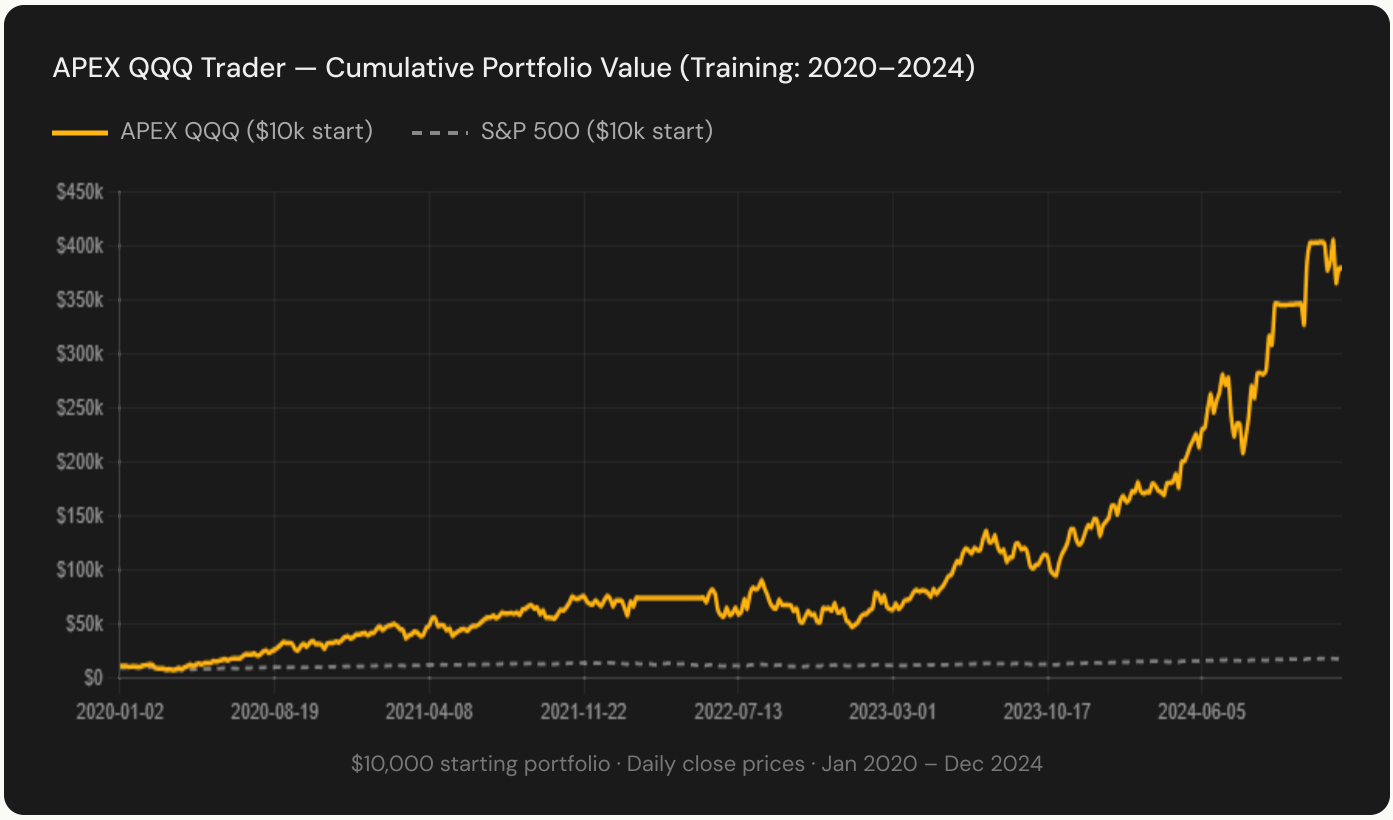
NET PROFIT	CAGR	STARTING EQUITY	ENDING EQUITY
3,514%	104.8%	$10,000	$361,424
SORTINO RATIO	WIN RATE	AVERAGE WIN	AVERAGE LOSS
1.79	69%	18.35%	-2.83%
PROFIT-LOSS RATIO	MAX DRAWDOWN		
6.48×	47.8%		

ASSET ALLOCATION

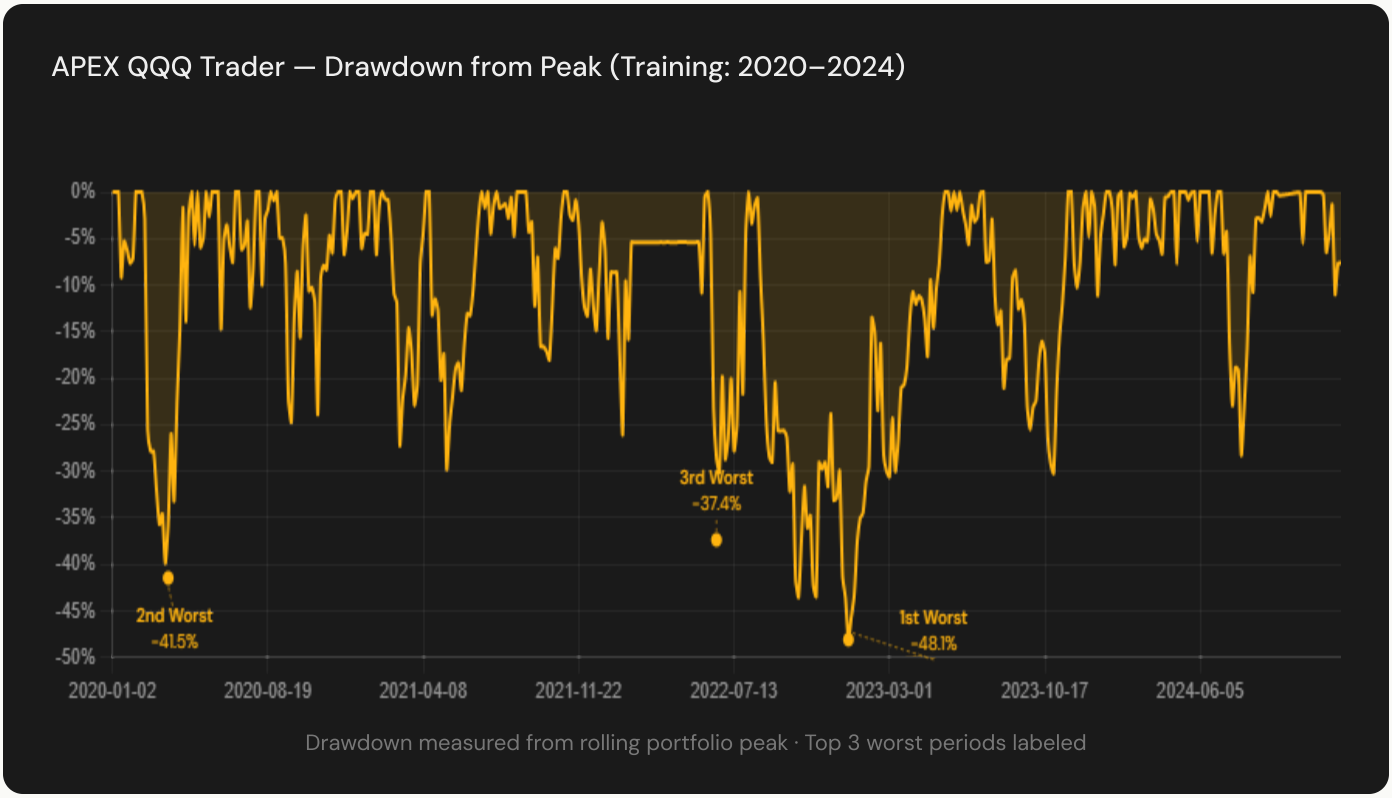


Asset allocation demonstrates the strategy's active risk management: predominantly in TQQQ during high-confidence regimes, with meaningful cash allocations (BIL) during low-confidence periods.

CUMULATIVE RETURNS VS. S&P 500 BENCHMARK



DRAWDOWN

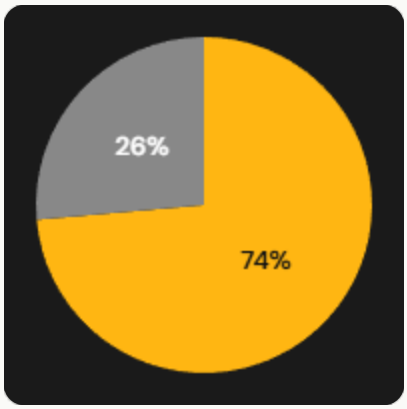


Backtest Performance — Test Set

Start: January 1, 2025 · **End:** April 17, 2026 · **Runtime:** 471 days

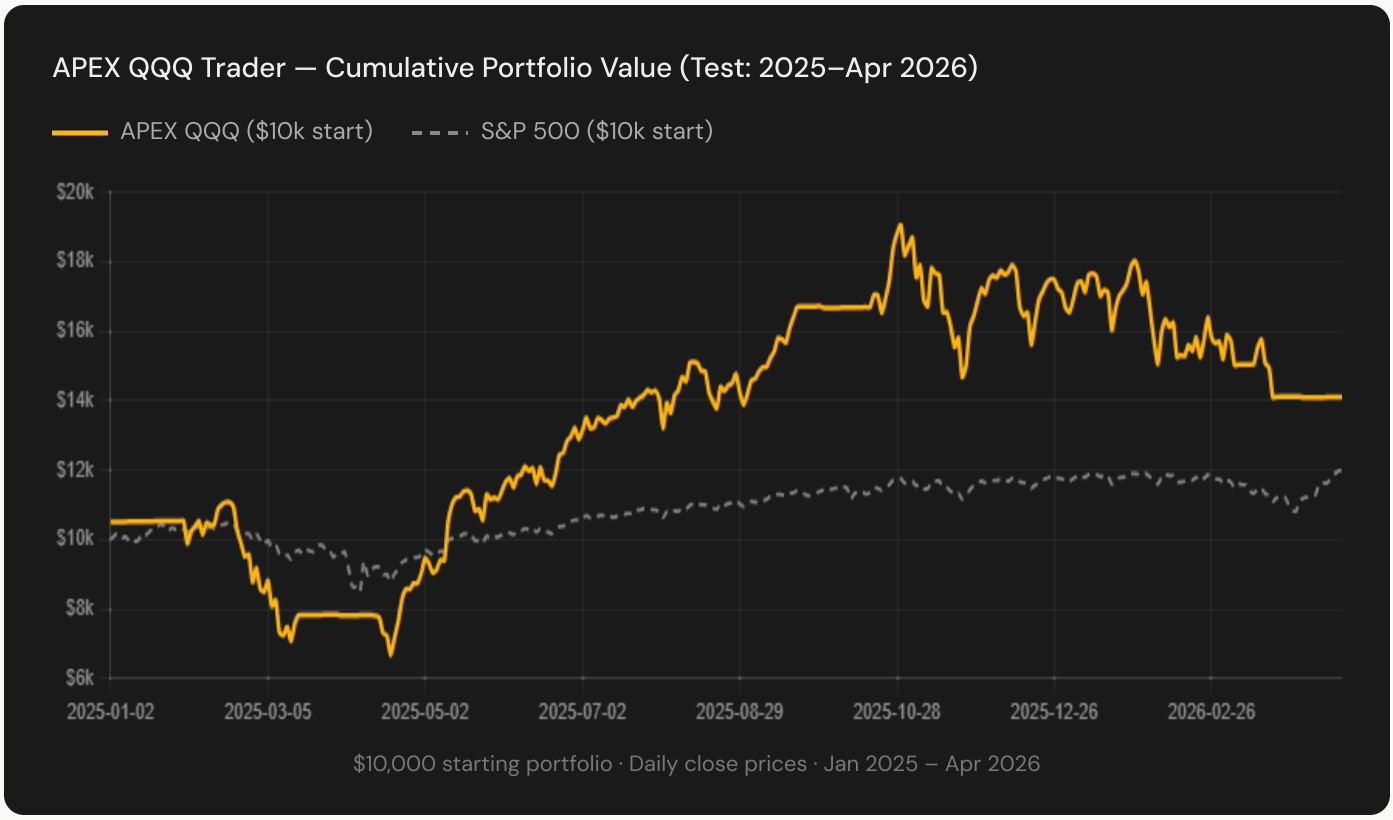
NET PROFIT	CAGR	STARTING EQUITY	ENDING EQUITY
41.1%	30.5%	$10,000	$14,108
SORTINO RATIO	WIN RATE	AVERAGE WIN	AVERAGE LOSS
0.62	77%	11.79%	-13.29%
PROFIT-LOSS RATIO	MAX DRAWDOWN		
0.89×	39.6%		

ASSET ALLOCATION

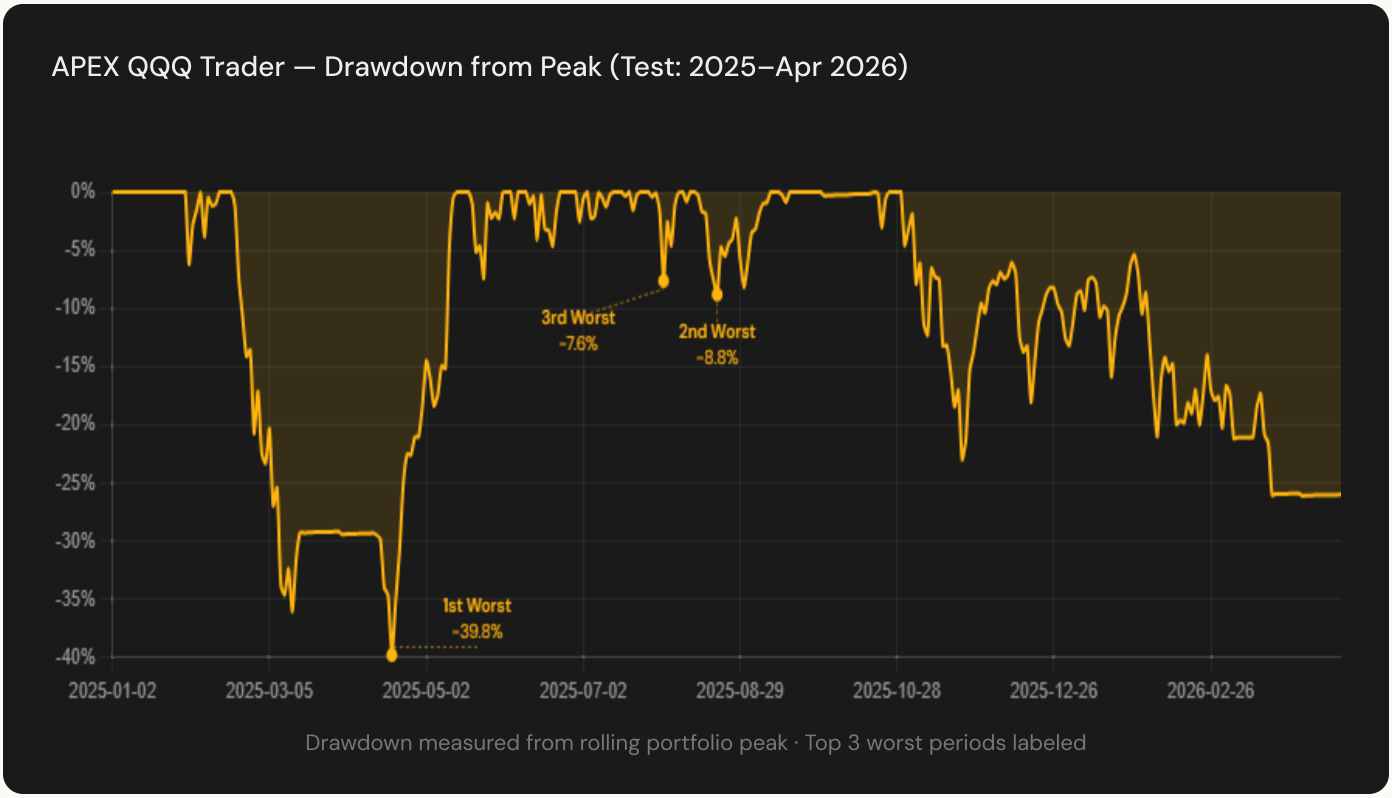


TQQQ 74% BIL 26%

CUMULATIVE RETURNS VS. S&P 500 BENCHMARK



DRAWDOWN



Monte Carlo Simulation

A trade-level Monte Carlo simulation was run across 10,000 independent paths to assess the range of probable outcomes. Trades are drawn from the strategy's historical return distribution and compounded continuously across each horizon. The improving probability of a winning outcome at longer horizons reflects the strategy's positive expected value accumulating over time.

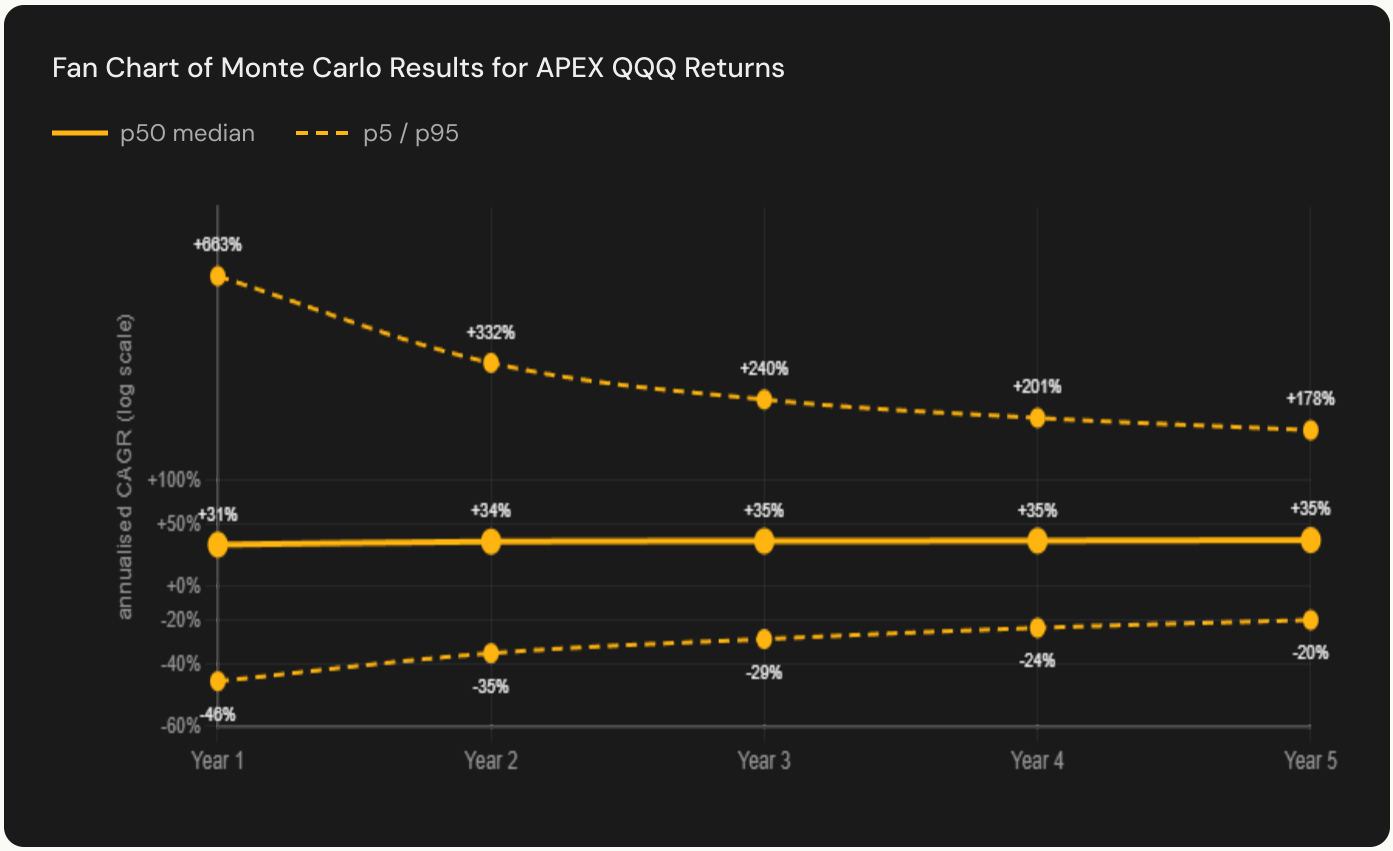
Simulation parameters: ~3 trades per year · 10,000 paths · Horizons: 1, 2, 3, 4, 5 years

5-YR MEDIAN CAGR	5-YR P95 CAGR	5-YR P5 CAGR	5-YR PROB. OF WIN	5-YR MEDIAN SORTINO
+35.4%	+178.1%	-19.8%	81.1%	2.65

Probability of a winning outcome by horizon

1 Year: **65.2%** | 2 Years: **70.3%** | 3 Years: **74.6%** | 4 Years: **78.1%** | 5 Years: **81.1%**

FAN CHART — ANNUALIZED CAGR DISTRIBUTION (LOG SCALE)



FULL PERCENTILE TABLE BY HORIZON

METRIC	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5
Ann. CAGR (%)					
Median	31.4%	34.1%	34.5%	34.8%	35.4%
Mean	148.5%	77.5%	61.3%	54.7%	51.6%
p5	-46.3%	-35.5%	-29.2%	-23.8%	-19.8%
p25	-14.6%	-6.2%	-0.5%	3.8%	6.8%
p75	149.1%	104.2%	90.4%	81.6%	77.2%
p95	663.0%	332.3%	240.0%	201.4%	178.1%
Max Drawdown (%)					
Median	-20.4%	-33.6%	-44.1%	-49.5%	-55.7%
p5	-52.1%	-67.2%	-75.4%	-80.1%	-84.0%
p75	-6.3%	-21.0%	-29.4%	-35.8%	-42.2%
p95	0.0%	-2.0%	-11.3%	-20.4%	-25.8%
Sortino Ratio					
Median	2.65	2.65	2.65	2.65	2.65
p5	-1.97	-1.97	-1.97	-1.97	-1.97
p95	26.40	26.40	26.40	26.40	26.40

10,000 simulation paths · 3.13 trades/year · 0.05% slippage applied per trade

Metric Definitions: Net Profit — total percentage gain from starting to ending equity. **CAGR** — Compound Annual Growth Rate; the annualized portfolio growth rate assuming reinvestment. **Sortino Ratio** — return per unit of downside volatility only; penalizes harmful volatility while ignoring upside variance. **Win Rate** — percentage of completed round-trip trades that closed with a positive return. **Average Win / Average Loss** — mean return of winning and losing trades respectively. **Profit-Loss Ratio** — average win divided by average loss magnitude; values above 1.0 indicate wins are larger than losses on average. **Max Drawdown** — the largest peak-to-trough equity decline experienced during the period.

Leveraged ETF Disclosure: Investing in the funds of this algorithm involves a high degree of risk. Unlike traditional ETFs, leveraged ETFs pursue daily leveraged investment objectives, which means they are riskier than alternatives which do not use leverage. They seek daily goals and may not track the underlying index's performance over periods longer than one day. They are not suitable for all investors and should be utilized only by investors who understand leverage risk and who actively manage their investments. The Funds will lose money if the underlying index's performance is flat, and it is possible that any of the ETFs may lose money even if the underlying index's performance increases over a period longer than a single day. Investing in the Funds is not equivalent to investing in their underlying instruments.

The performance data quoted represents past performance. Past performance does not guarantee future results. The investment return and principal value of an investment will fluctuate. An investor's shares, when redeemed, may be worth more or less than their original cost. Current performance may be lower or higher than the performance quoted. Returns for performance under one year are cumulative, not annualized. Short-term performance, in particular, is not a good indication of a fund's future performance, and an investment should not be made based solely on returns. Because of ongoing market volatility and rotation, algorithm performance may be subject to substantial short-term changes.