Backtest Performance Report

Bars processed: 18697

Trades executed: 406

Starting capital: 10,000.00

Total capital (final equity): 686,926.70

Max capital: 768,371.21

Min capital: 8,273.81

Total fees paid: 13,435.85

Total interest/funding paid: 0.00

Total profit before fees: 690,362.55

Duplicate timestamps: 0

Missing bars: 16

Outlier bars: 65

Total volume traded: 134,358,522.56

Max effective leverage used: 2.60x

Key stats:

- Periods Per Year: 2,192
- Total Return: 6.77e+03%
- Cagr: 64.11%
- Volatility: 29.48%
- Sharpe: 1.83
- Sortino: 3.03
- Max Drawdown: -27.50%
- Max Intrabar Drawdown: -28.67%
- Calmar: 2.33
- Total Trades: 406
- Win Rate: 36.95%
- Profit Factor: 1.58
- Avg Trade Pnl: 1,667
- Avg Win: 12,318
- Avg Loss: -4,573
- Expectancy: 1,667
- Avg Holding Bars: 20.86

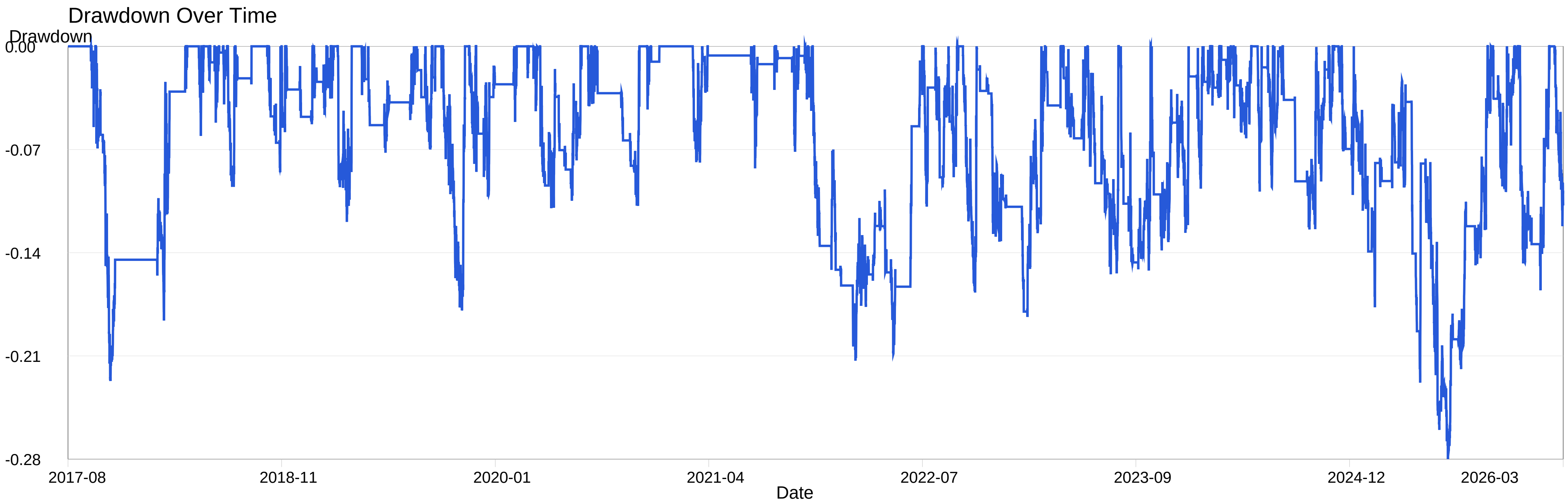
Position/trade stats:

- Mean position size (USD): 165,554.16
- Median position size (USD): 113,523.22
- Mean trade PnL (USD/%): 1,667.31 / 1.18%
- Median trade PnL (USD/%): -681.73 / -0.96%
- Total slippage paid (est): 1,343.59
- Fees per trade: 33.09
- Slippage per trade (est): 3.31

Entry/Exit Outcomes

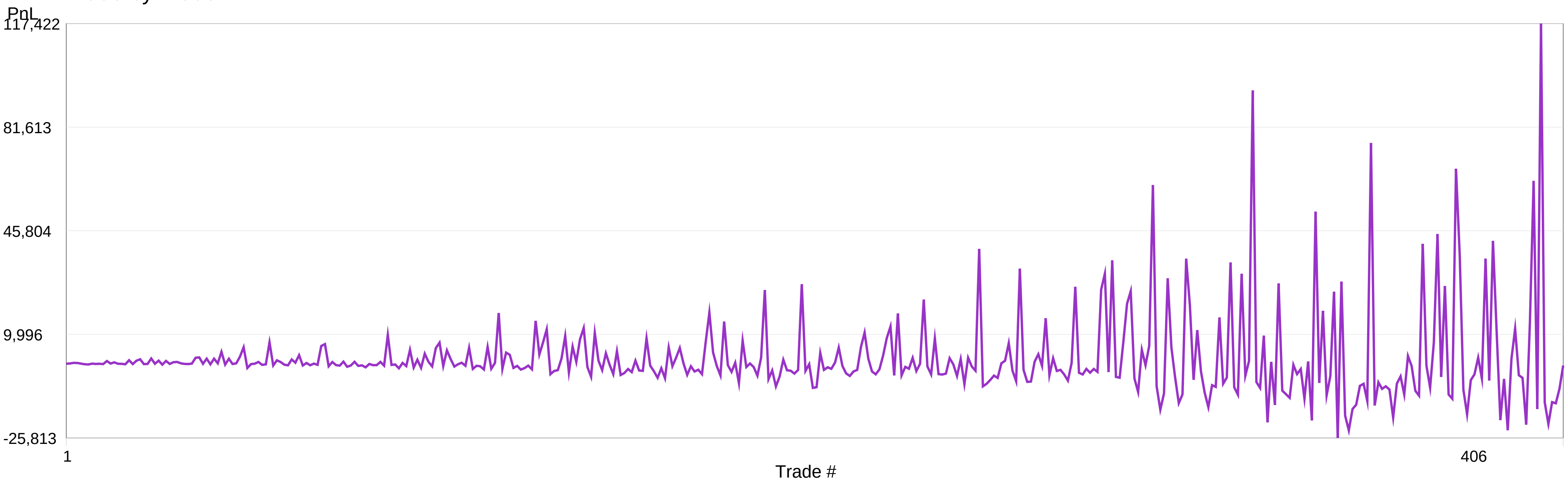
Entry	Exit	Trades	Net PnL
Bearish NTD	Strategy Exit Reason: Green Gator Lips PP	1	+63,059
Bearish NTD	Strategy Exit Reason: Red Gator Teeth PP	9	+132,872
Bearish NTD	Strategy Exit Reason: Williams Zones PP	8	+184,033
Bearish NTD	Strategy Stop Loss	45	-47,557
Bearish NTD	Strategy Stop Loss Bearish NTD	130	-197,241
Bearish NTD	Underlying Gain Target	10	+238,958
Bullish NTD	Engine End of Backtest	1	-776
Bullish NTD	Strategy Exit Reason: Green Gator Lips PP	2	+56,866
Bullish NTD	Strategy Exit Reason: Red Gator Teeth PP	8	+167,167
Bullish NTD	Strategy Exit Reason: Williams Zones PP	17	+223,300
Bullish NTD	Strategy Stop Loss	33	-137,733
Bullish NTD	Strategy Stop Loss Bullish NTD	130	-318,382
Bullish NTD	Underlying Gain Target	12	+312,360


Equity Over Time
Trade lines: long=green, short=red
Equity
768,371
247,517
79,733
25,685
8,274
2017-08
2018-11
2020-01
2021-04
2022-07
2023-09
2024-12
2026-03
Date


Drawdown Over Time
Drawdown
0.00
-0.07
-0.14
-0.21
-0.28
2017-08
2018-11
2020-01
2021-04
2022-07
2023-09
2024-12
2026-03
Date

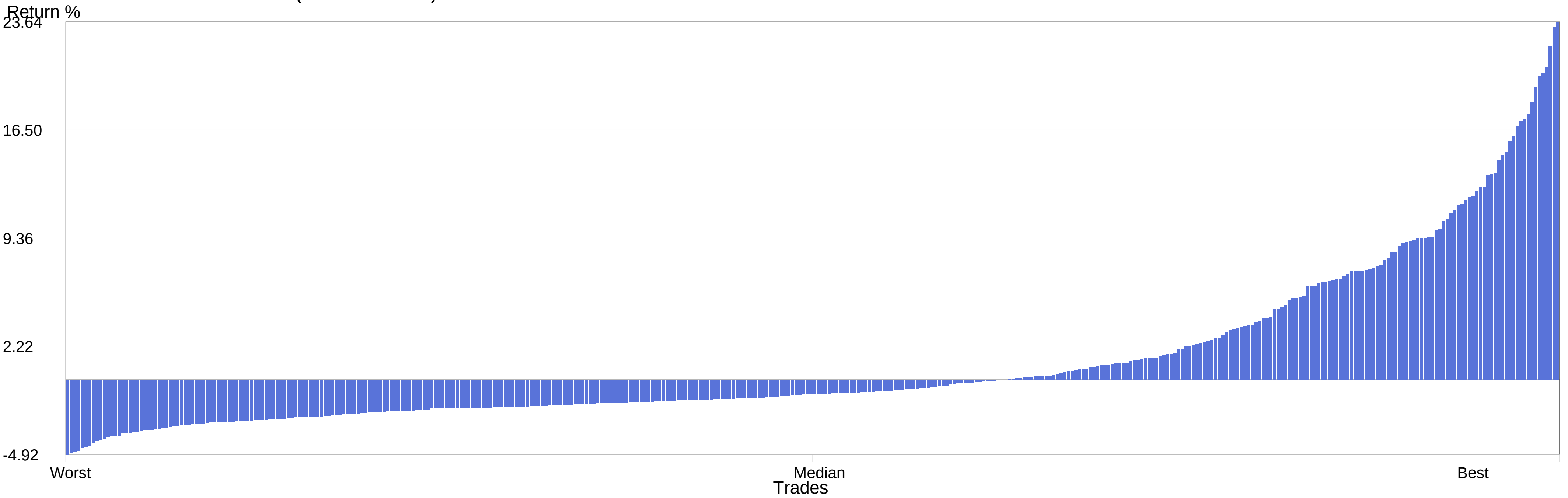
Cumulative Closed-Trade PnL

Trade-by-Trade PnL



Trade Return Distribution

Sorted Trade Return % (Worst to Best)



Trades analyzed: 406

Largest winner (PnL): 117,421.64

Largest loser (PnL): -25,812.71

Gross positive PnL contribution: 1,847,657.02

Gross negative PnL contribution: -1,170,730.32

Net closed-trade PnL: 676,926.70

Top profit contributors (PnL / return %):

1. 117,421.64 / 18.33%
2. 94,295.52 / 20.68%
3. 76,123.43 / 17.13%
4. 67,232.90 / 13.56%
5. 63,059.28 / 10.63%

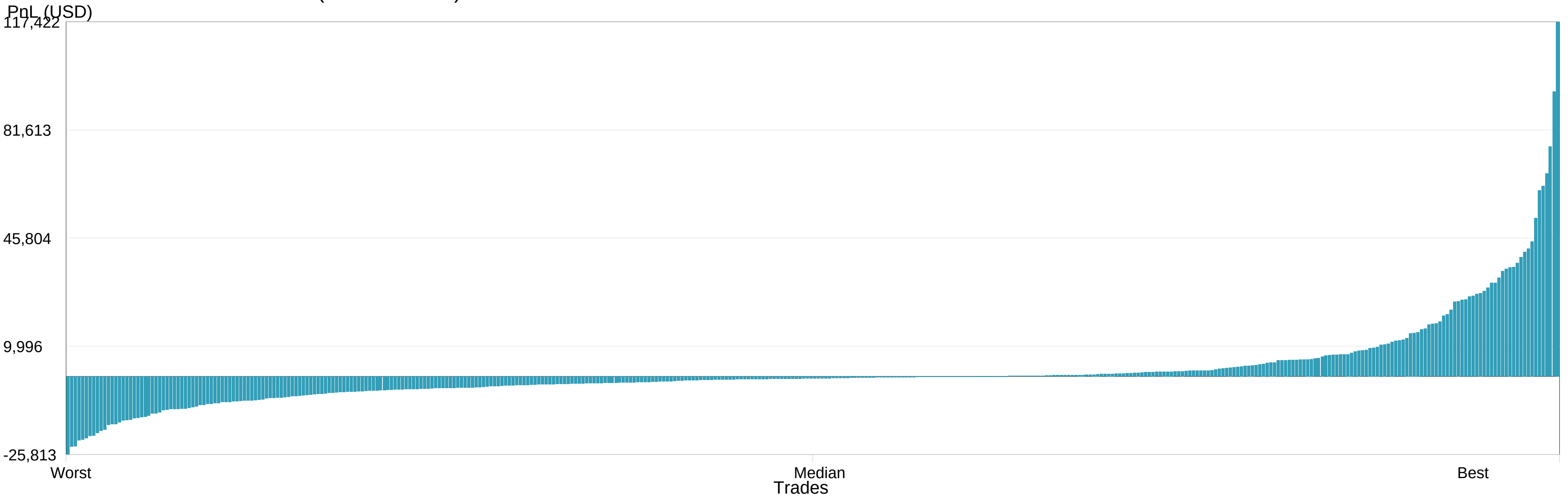
Top loss contributors (PnL / return %):

1. -25,812.71 / -4.77%
2. -23,190.30 / -4.41%
3. -23,153.22 / -3.74%
4. -21,233.18 / -3.54%
5. -20,968.01 / -2.82%

Bars are sorted by return %. Negative bars are below zero; positive bars are above zero.

Trade Return Distribution (USD)

Sorted Trade PnL in USD (Worst to Best)



Trades analyzed: 406

Largest winner (USD): 117,421.64

Largest loser (USD): -25,812.71

Gross positive PnL: 1,847,657.02

Gross negative PnL: -1,170,730.32

Net closed-trade PnL: 676,926.70

Bars are sorted by trade PnL in USD. Negative bars are below zero; positive bars are above zero.

Volume / Fees / Slippage Turnover

Total cumulative volume (USD): 134,358,522.56

Total cumulative fees (USD): 13,435.85

Total cumulative slippage (USD est): 1,343.59

Mean volume per trade (USD): 330,932.32

Median volume per trade (USD): 229,487.05

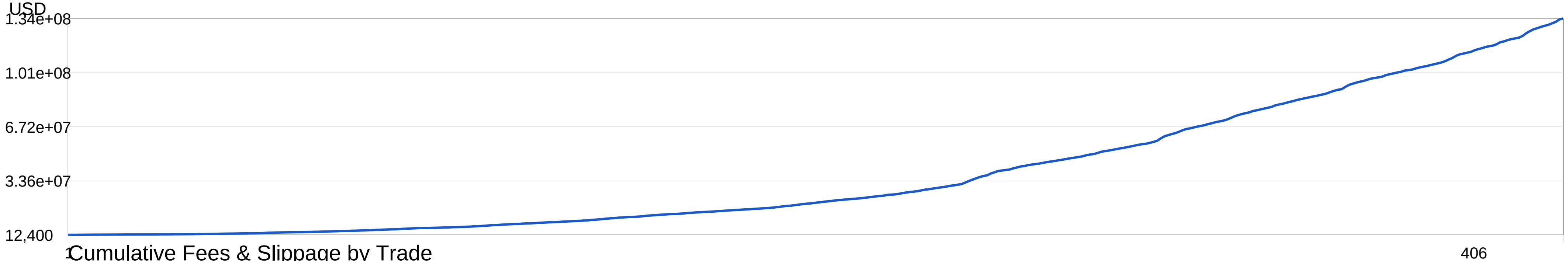
Mean fee per trade (USD): 33.09

Median fee per trade (USD): 22.95

Mean slippage per trade (USD est): 3.31

Median slippage per trade (USD est): 2.29

Cumulative Volume by Trade



Cumulative Fees & Slippage by Trade

Per-Trade Volume / Fees / Slippage

Blue=volume, Orange=fees, Red=slippage

Performance Diagnostics & Recommendations

Reconciliation:

Closed-trade PnL (net of all allocated fees/funding): 676,926.70
Net profit (final - starting equity): 676,926.70
Total fees paid: 13,435.85
Total interest/funding paid: 0.00
Gross closed-trade profit before fees: 690,362.55
Reconciliation gap (should be 0.00): -0.00

Trade distribution:

Largest win: 117,421.64
Largest loss: -25,812.71
Average trade PnL: 1,667.31
Expectancy per trade: 1,667.31
Mean position size (USD): 165,554.16
Median position size (USD): 113,523.22

Data quality / outlier report:

Datetime index: True
Timezone aware: True
Duplicate timestamps: 0
Missing bars: 16
Outlier bars (|z|>5 on close returns): 65

Recommendations:

- Conservative intrabar drawdown exceeds 25%: tighten risk limits and consider lower position sizing.
- Outlier bars detected: verify candles around spikes and consider robust filters.
- Missing bars detected: fill or remove gaps before comparing strategy variants.

Robustness warnings:

- CAGR drops >40% without top 5% winners
- Sign-flip stress test indicates fragility
- Large first-vs-second-half performance drift

Strict OHLC validity:

Non-finite bars: 0
Non-positive price bars: 0
Invalid high/low bars: 0
Negative-volume bars: 0

Robustness Summary

SQN: 4.46 (strong)
Top-trade dependency warning: True
Sign-flip stress warning: True
Regime dependency warning: True
Robustness score: 1/4 (fragile)

Top 5% Winners Removal Test

Trades removed: 21
CAGR drop: 82.14%
Reduced CAGR: 11.45%
Reduced Sharpe: 0.54
Reduced Profit Factor: 1.24
Reduced Max Drawdown: -36.39%

Sign-Flip Stress Test (100 runs, 15% flips)

Average CAGR: 39.66%
Median CAGR: 39.39%
Average Max Drawdown: -41.96%

First Half vs Second Half

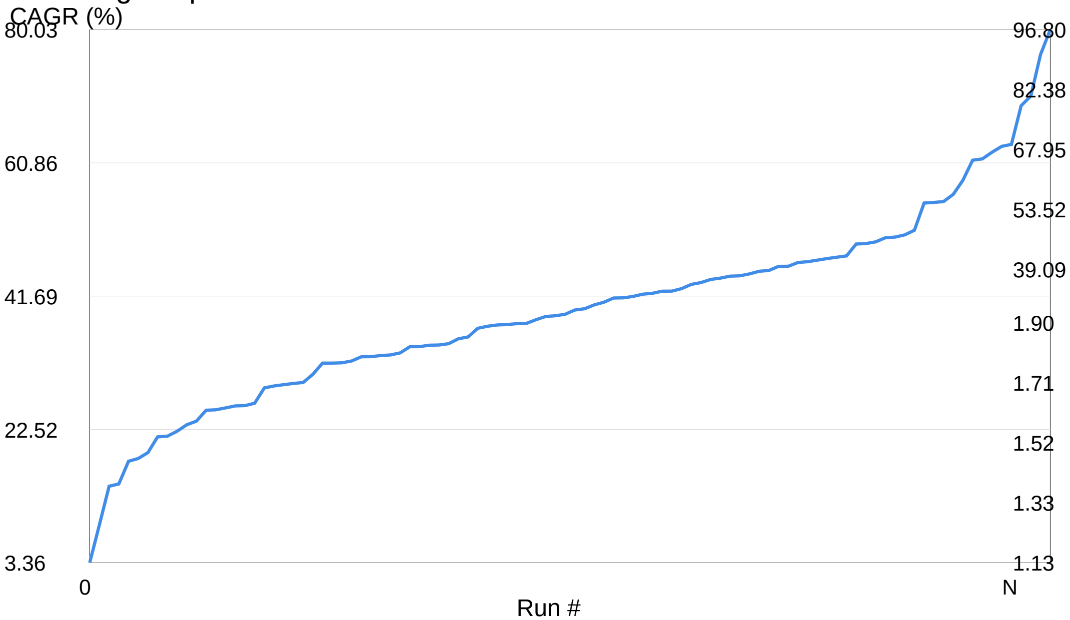
First half CAGR/Sharpe: 96.80% / 1.90
Second half CAGR/Sharpe: 39.09% / 1.13
CAGR diff: 59.62%
Sharpe diff: 40.34%

Robustness Checks Table

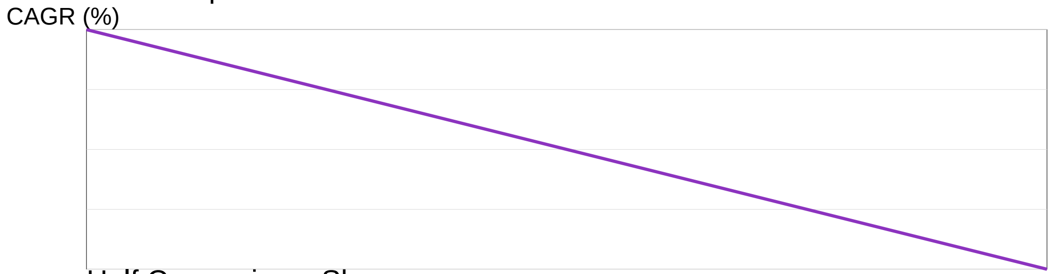
Test	Result	Status
SQN	4.46	PASS
Top 5% winners	82.1% CAGR drop	WARN
Sign-flip stress	median 39.39% CAGR	WARN
Half stability	CAGR 59.6% / Sharpe 40.3%	WARN

Equity Curve Without Top 5% Trades

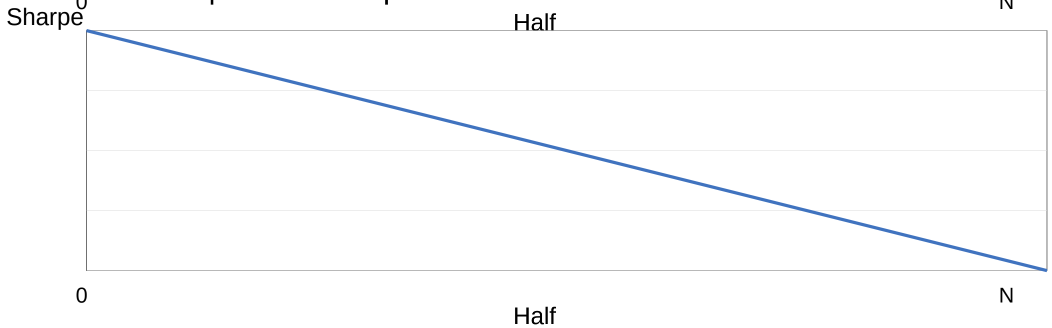
Sign-Flip CAGR Distribution



Half Comparison: CAGR



Half Comparison: Sharpe



Run Provenance

Code, data, runtime, and effective-range fingerprints for exact run identification.

argv: [".\\examples\\run_backtest.py","--csv",".\\examples\\BINANCE_ETHUSD4h.csv","--start","2017-06-01","--end","2026-03-0...

data_timezone: UTC

dependent_inputs: {"atr_ut_filter":{"effective_data_sha256":"4f60726eb18ecb01b4d0e59df783956c786ce5056940b4f49be5659beb5c2be7","effecti...

effective_data_sha256: 055ffde06b5ad362ed5e8d9ae29adf2685a2777efdef88ef09005a71f9321597

effective_end_utc: 2026-03-01T20:00:00+00:00

effective_rows: 18697

effective_start_utc: 2017-08-17T04:00:00+00:00

fill_interpretation: deterministic-OHLC-scenario-not-tick-reconstruction

generated_at_utc: 2026-07-16T08:07:00.187275+00:00

git_commit: 58a0f3132c5d0cac95a863f6ba2c51e20dff19c1

git_dirty: False

input_file_sha256: 1098dfff80c06b082b9a91ac273a5a680edf776506270255cef9dee4df6758eb

input_path: C:\WilliamsBot\examples\BINANCE_ETHUSD4h.csv

liquidity_queue_model: unavailable-no-tick-or-order-book-data

market_data_granularity: OHLC

numpy_version: 2.2.4

package_version: unavailable

pandas_version: 2.2.3

platform: Windows-11-10.0.26200-SP0

python_implementation: CPython

python_version: 3.13.3

runtime_timezone: Korea Standard Time

source_tree_sha256: 648ffe6e4e9fd98f7589fb9eec58afdf3b5e769cb46b25bbbe0614c359728ff8

CLI Flags Used for This Backtest (page 1)

All command-line options and effective values; see Run Provenance for hashes.

--allow-close-on-1w-a: True
--allow-close-on-1w-a-min-unrealized-return: 0.09
--allow-close-on-1w-d: True
--allow-close-on-1w-d-min-unrealized-return: 0.09
--asset-allocation: 1.0
--asset-size: []
--borrow-annual: 0.0
--bw-1w-contracts: 0
--bw-1w-divergence-filter-bars: 240
--bw-1w-exits: False
--bw-1w-gator-open-lookback: 180
--bw-1w-gator-open-percentile: 0.0
--bw-atr-ut-filter: True
--bw-atr-ut-filter-allow-filtered-reversals: True
--bw-atr-ut-filter-csv: .\examples\BINANCE_ETHUSD1h.csv
--bw-atr-ut-filter-detection-mode: intrabar
--bw-atr-ut-filter-key-value: 1.0
--bw-atr-ut-filter-period: 10
--bw-atr-ut-filter-timeframe: 4h
--bw-atr-ut-filter-timestamp-convention: open
--bw-atr-ut-flip-stop: False
--bw-atr-ut-independent-contracts: 1.0
--bw-atr-ut-independent-trades: False
--bw-atr-ut-trading-halt-csv: None
--bw-atr-ut-trading-halt-detection-mode: None
--bw-atr-ut-trading-halt-direction: none
--bw-atr-ut-trading-halt-key-value: None
--bw-atr-ut-trading-halt-period: None
--bw-atr-ut-trading-halt-timeframe: None
--bw-atr-ut-trading-halt-timestamp-convention: None
--bw-close-on-underlying-gain-pct: 0.25
--bw-fractal-add-on-contracts: 5
--bw-fractal-add-ons-enabled: True
--bw-ntd-initial-fractal-contracts: 5
--bw-ntd-initial-fractal-enabled: True
--bw-ntd-ranging-annualized-volatility-scaler: 0.0

CLI Flags Used for This Backtest (page 2)

All command-line options and effective values; see Run Provenance for hashes.

--bw-ntd-ranging-lookback: 20
--bw-ntd-ranging-max-span-pct: 0.1
--bw-ntd-sleeping-gator-lookback: 25
--bw-ntd-sleeping-gator-tightness-mult: 0.7
--bw-only-trade-1w-r: False
--bw-peak-drawdown-exit: False
--bw-peak-drawdown-exit-annualized-volatility-scaler: 1.0
--bw-peak-drawdown-exit-pct: 0.01
--bw-peak-drawdown-exit-volatility-lookback: 20
--bw-profit-protection-green-lips-annualized-volatility-scaler: 0.25
--bw-profit-protection-green-lips-exit: True
--bw-profit-protection-green-lips-latch-min-unrealized-return: True
--bw-profit-protection-green-lips-min-bars: 15
--bw-profit-protection-green-lips-min-unrealized-return: 0.1
--bw-profit-protection-green-lips-require-gator-direction-alignment: False
--bw-profit-protection-green-lips-volatility-lookback: 20
--bw-profit-protection-red-teeth-annualized-volatility-scaler: 0.25
--bw-profit-protection-red-teeth-exit: True
--bw-profit-protection-red-teeth-latch-min-unrealized-return: False
--bw-profit-protection-red-teeth-min-bars: 15
--bw-profit-protection-red-teeth-min-unrealized-return: 0.05
--bw-profit-protection-red-teeth-require-gator-direction-alignment: False
--bw-profit-protection-red-teeth-volatility-lookback: 20
--bw-profit-protection-sigma-move-exit: False
--bw-profit-protection-sigma-move-lookback: 90
--bw-profit-protection-sigma-move-sigma: 5.0
--bw-profit-protection-zones-annualized-volatility-scaler: 0.25
--bw-profit-protection-zones-exit: True
--bw-profit-protection-zones-min-bars: 15
--bw-profit-protection-zones-min-same-color-bars: 5
--bw-profit-protection-zones-min-unrealized-return: 0.05
--bw-profit-protection-zones-volatility-lookback: 20
--capital: 10000.0
--chart-max-bars: None
--csv: .\examples\BINANCE_ETHUSD4h.csv
--end: 2026-03-01

CLI Flags Used for This Backtest (page 3)

All command-line options and effective values; see Run Provenance for hashes.

--equity-cutoff: 1000.0
--fee: 0.0001
--funding-per-period: 0.0
--gator-width-lookback: 50
--gator-width-mult: 1.0
--gator-width-valid-factor: 1.0
--initial-capital: 10000.0
--leverage-stop-out: 0.001
--max-leverage: 20.0
--max-loss: None
--max-loss-pct-of-equity: None
--max-position-size: None
--ntd-ao-ac-near-zero-factor: 0.25
--ntd-ao-ac-near-zero-lookback: 50
--ntd-require-gator-close-reset: None
--order-type: stop
--out: .\artifacts_UTNTD
--overnight-annual: 0.0
--size-equity-milestones:
--size-min-usd: 0.0
--size-mode: volatility_scaled
--size-value: 0.3
--skip-chart: False
--skip-pdf: False
--skip-pine: False
--skip-runtime-estimate: False
--slippage: 1e-05
--spread: 0.0
--start: 2017-06-01
--strategy: bw
--volatility-lookback: 20
--volatility-max-scale: 3.0
--volatility-min-scale: 0.25
--volatility-target-annual: 0.2
--wiseman-1w-contracts: 1
--wiseman-1w-divergence-filter-bars: 0

CLI Flags Used for This Backtest (page 4)

All command-line options and effective values; see Run Provenance for hashes.

--wiseman-1w-opposite-close-min-unrealized-return: 0.0

--wiseman-1w-wait-bars-to-close: 0

--wiseman-2w-contracts: 3

--wiseman-3w-contracts: 5

--wiseman-cancel-reversal-on-first-exit: False

--wiseman-gator-direction-mode: 1

--wiseman-profit-protection-annualized-volatility-scaler: 1.0

--wiseman-profit-protection-credit-unrealized-before-min-bars: False

--wiseman-profit-protection-lips-arm-on-min-unrealized-return: False

--wiseman-profit-protection-lips-exit: False

--wiseman-profit-protection-lips-min-unrealized-return: 1.0

--wiseman-profit-protection-lips-profit-trigger-mult: 2.0

--wiseman-profit-protection-lips-recent-trade-lookback: 5

--wiseman-profit-protection-lips-volatility-lookback: 20

--wiseman-profit-protection-lips-volatility-trigger: 0.02

--wiseman-profit-protection-min-bars: 3

--wiseman-profit-protection-min-unrealized-return: 1.0

--wiseman-profit-protection-require-gator-open: True

--wiseman-profit-protection-teeth-exit: False

--wiseman-profit-protection-volatility-lookback: None

--wiseman-profit-protection-zones-exit: False

--wiseman-profit-protection-zones-min-unrealized-return: 1.0

--wiseman-reversal-contracts-mult: 1.0

--wiseman-reversal-cooldown: 0