Advanced IBS and Momentum/ROC on Microsoft

Strategy evaluated · **Nivel de evidencia** Histórico · Development · Sample 2019-04-08 13:30:00+00:00 to 2024-12-31 14:30:00+00:00

N/A marks an undefined or missing value. Return and risk fractions are shown as percentages. The JSON evidence preserves the original precision of the results.

Assessment limits

Survivorship bias. Not assessed. Historical universe membership is missing (SURVIVORSHIP_BIAS_NOT_CONTROLLED).

Look-ahead bias. Not assessed. The report does not verify when signals became available.

Multiple testing. DSR and PBO cannot be assessed from the evidence supplied.

Costs and execution. Gross and net returns were reconciled with recorded costs. Cost sensitivity and actual execution were not assessed.

Use of AI. The evidence does not say whether Strateva used AI in the review.

Advice. This report does not constitute investment advice.

Performance and risk

Absolute performance · Strategy and benchmark

Metric	Strategy	Benchmark
Annualized arithmetic return `annual_return_arithmetic`	8.70341%	11.279%
Annualized volatility `annual_volatility`	13.7988%	18.3895%
Periods per year `annualization`	252	252
Annualized compound return (CAGR) `cagr`	8.06045%	10.045%
Calmar `calmar`	0.3276457	0.3116323
Excess kurtosis `excess_kurtosis`	14.23919	10.86094
Alias for the share of positive periods `hit_rate`	10.9418%	55.4017%
Maximum drawdown `max_drawdown`	-24.6011%	-32.2334%
Periods from the previous peak to recovery `max_drawdown_recovery_periods`	N/A	137
Periods to the maximum drawdown trough `max_drawdown_underwater_periods`	138	27
Observations `n_obs`	1444	1444
Share of positive periods `positive_period_rate`	10.9418%	55.4017%
Annual risk-free rate `risk_free_annual`	2%	2%
Sharpe `sharpe`	0.487222	0.5056483
Skewness `skewness`	0.2714009	-1.12958

Absolute performance · Strategy and benchmark

Metric	Strategy	Benchmark
Sortino `sortino`	0.7330577	0.6782948
Cumulative return `total_return`	55.9251%	73.0629%

Active performance · Strategy versus benchmark

Field	Value
Annualized active return `active_return_annual`	-2.57555%
Periods per year `annualization`	252
Benchmark Sharpe ratio `benchmark_sharpe`	0.5056483
Beta `beta`	0.2769482
Correlation with the benchmark `correlation`	0.3690863
Information ratio `information_ratio`	-0.1394195
Annualized Jensen alpha `jensen_alpha_annual`	4.14783%
Observations `n_obs`	1444
Annualized regression alpha `regression_alpha_annual`	5.57972%
Annual risk-free rate `risk_free_annual`	2%
Strategy Sharpe ratio `strategy_sharpe`	0.487222
Annualized tracking error `tracking_error_annual`	18.4734%

Statistical uncertainty

Strategy · Sharpe ratio interval · block bootstrap

Field	Value
Replications attempted `attempted_repetitions`	1000
Block length `block_length`	5
Lower interval bound `ci_lower`	-0.1829197
Upper interval bound `ci_upper`	1.191873
Confidence level `confidence`	95%
Lower-tail probability `lower_probability`	2.5%
Observations `n_obs`	1444
Point estimate `point_estimate`	0.487222

Strategy · Sharpe ratio interval · block bootstrap	
Field	**Value**
Replications `repetitions`	1000
Seed `seed`	20261116
Standard error `standard_error`	0.3468454
Status `status`	evaluated
Replications with no defined estimate `undefined_repetitions`	0
Upper-tail probability `upper_probability`	97.5%
Valid replications `valid_repetitions`	1000

Strategy · Mean excess return · HAC	
Field	**Value**
Annualized estimate `annualized_estimate`	6.72307%
Annualized standard error `annualized_standard_error`	5.06236%
Estimate per period `estimate`	0.0266788%
Weighting kernel `kernel`	bartlett
Lags `lags`	7
Observations `n_obs`	1444
Two-sided p-value (normal) `p_value_two_sided_normal`	0.1841613
Standard error `standard_error`	0.0200887%
Status `status`	evaluated
t-statistic `t_stat`	1.328051

Benchmark · No uncertainty estimate supplied.

Active performance · Information ratio interval · block bootstrap	
Field	**Value**
Replications attempted `attempted_repetitions`	1000
Block length `block_length`	5
Lower interval bound `ci_lower`	-1.026294
Upper interval bound `ci_upper`	0.7080563
Confidence level `confidence`	95%

Active performance · Information ratio interval · block bootstrap	
Field	**Value**
Lower-tail probability `lower_probability`	2.5%
Observations `n_obs`	1444
Point estimate `point_estimate`	-0.1394195
Replications `repetitions`	1000
Seed `seed`	20261116
Standard error `standard_error`	0.431968
Status `status`	evaluated
Replications with no defined estimate `undefined_repetitions`	0
Upper-tail probability `upper_probability`	97.5%
Valid replications `valid_repetitions`	1000

Active performance · Mean active return · HAC	
Field	**Value**
Annualized estimate `annualized_estimate`	-2.57555%
Annualized standard error `annualized_standard_error`	8.11586%
Estimate per period `estimate`	-0.0102205%
Weighting kernel `kernel`	bartlett
Lags `lags`	7
Observations `n_obs`	1444
Two-sided p-value (normal) `p_value_two_sided_normal`	0.7509793
Standard error `standard_error`	0.0322058%
Status `status`	evaluated
t-statistic `t_stat`	-0.3173483

Subperiods and robustness

Additional metrics · No evidence supplied.

Verification and configuration

Engine checks	
Field	**Value**
Schemas valid `schema_valid`	Yes
Evidence hash valid `hash_valid`	Yes
Signature verified `signature_verified`	No
Confirmatory provenance verified `confirmatory_provenance_verified`	No
`reconciliation.tolerance`	1e-09
Status `reconciliation.status`	reconciled
Metric paths checked `reconciliation.checkedPathCount`	96
Hash bindings valid `hash_bindings_valid`	Yes
Metrics reconciled `metrics_reconciled`	Yes
Simulations reproduced `simulations_reproduced`	Yes
`kernelVersion`	1.1.0

Decision thresholds · No evidence supplied.

Engine configuration	
Field	**Value**
`allowPositional`	No
Periods per year `annualization`	252
Annualization method `annualizationMethod`	declared by StrategyTrace.frequency.periodsPerYear
`calendar`	NASDAQ
Annual risk-free rate `riskFreeAnnual`	2%
`timezone`	UTC
Block length `uncertainty.blockLength`	5
Confidence level `uncertainty.confidence`	95%
`uncertainty.hacLagPolicy.kind`	sample-size-bartlett-v1
Replications `uncertainty.repetitions`	1000
Seed `uncertainty.seed`	20261116
Expected calendar hash `uncertainty.timeBasis.expectedEndsHash`	`9d348726ce78b24a8d0d9369c12e360ac0f8221ea52165cb9e0cdc26d88ec60d`
`uncertainty.timeBasis.kind`	session-grid

Monte Carlo

Observed path

Field	Value
Longest losing streak (periods) `longestLosingStreak`	5
Longest stretch below the peak (periods) `longestUnderwaterStreakPeriods`	678
Maximum drawdown magnitude `maximumDrawdown`	24.6011%
Ruin threshold reached `ruined`	No
Terminal wealth (multiple) `terminalWealth`	1.559251
Share of periods below the peak `timeUnderWaterFraction`	79.7091%
Cumulative return `totalReturn`	55.9251%

Circular block bootstrap

Metric	Minimum	Mean	Maximum	Quantiles
Longest losing streak (periods) `longestLosingStreak`	3	4.584	10	5% = 3 · 50% = 4 · 95% = 6
Longest stretch below the peak (periods) `longestUnderwaterStreakPeriods`	104	523.062	1442	5% = 193.95 · 50% = 450.5 · 95% = 1107.25
Maximum drawdown magnitude `maximumDrawdown`	7.26769%	19.3861%	51.5304%	5% = 11.3055% · 50% = 18.1053% · 95% = 31.8984%
Probability of reaching the ruin threshold `ruinProbability`		0%		
Terminal wealth (multiple) `terminalWealth`	0.5972894	1.628606	3.946833	5% = 0.9745554 · 50% = 1.546832 · 95% = 2.512848
Share of periods below the peak `timeUnderWaterFraction`	57.3407%	86.1713%	99.8615%	5% = 72.7112% · 50% = 86.9114% · 95% = 96.8837%
Cumulative return `totalReturn`	-40.2711%	62.8606%	294.683%	5% = -2.54446% · 50% = 54.6832% · 95% = 151.285%

Return-order permutation

Metric	Minimum	Mean	Maximum	Quantiles
Longest losing streak (periods) `longestLosingStreak`	2	3.053	6	5% = 2 · 50% = 3 · 95% = 4
Longest stretch below the peak (periods) `longestUnderwaterStreakPeriods`	161	513.687	1145	5% = 264 · 50% = 477 · 95% = 867.3
Maximum drawdown magnitude `maximumDrawdown`	9.48329%	21.1829%	47.8911%	5% = 14.3006% · 50% = 20.2055% · 95% = 31.9257%
Probability of reaching the ruin threshold `ruinProbability`		0%		
Share of periods below the peak `timeUnderWaterFraction`	75.9003%	87.9954%	94.4598%	5% = 83.376% · 50% = 88.2271% · 95% = 91.8975%

Simulation settings and bindings

Field	Value
`simulationSchemaVersion`	strateva-simulation-evidence/v2

Simulation settings and bindings	
Field	**Value**
`engineVersion`	0.9.0
`kernelVersion`	1.1.0
`observationCount`	1444
`strategyTraceHash`	`19bd6d2546ce7eec217df512e7b7de123cf70281b9fddbe396944836ae580036`
`contentHash`	`7fb5f505ef8636a8df8e26c5c54f16ef69a42865aa36780403186d567e53cc68`
Block length `configuration.blockLength`	5
Initial wealth `configuration.initialWealth`	1
`configuration.quantiles`	5% · 50% · 95%
Replications `configuration.repetitions`	1000
Ruin threshold (share of initial wealth) `configuration.ruinWealthFraction`	50%
Seed `configuration.seed`	20261116
`classic.method`	CIRCULAR_MOVING_BLOCK_BOOTSTRAP
`classic.sampling`	WITH_REPLACEMENT
`permuted.method`	FISHER_YATES_RETURN_ORDER_PERMUTATION
`permuted.sampling`	WITHOUT_REPLACEMENT
Terminal wealth (multiple) `permuted.terminalWealth`	1.559251
Terminal wealth invariant `permuted.terminalWealthInvariant`	Yes

Provenance and traceability

Evidence and input hashes	
Field	**Value**
`bundleSchemaVersion`	strateva-evidence-bundle/v3
`artifactId`	`urn:strateva:strategy-trace:19bd6d2546ce7eec217df512e7b7de123cf70281b9fddbe396944836ae580036`
`engineVersion`	0.9.0
`kernelVersion`	1.1.0
`generatedAt`	2026-11-17T16:31:56Z
`contentHash`	`7e1f3300564e0c2e80bd6ee4f46ca4c2101901f2b413b46b9805a95d3871ff92`
Benchmark return series hash `inputHashes.benchmarkReturns`	f7f0b6ef1593d70bef7e5f84867e4fe5ef3f93c0491a1837f807ff642286379b
Strategy return series hash `inputHashes.strategyReturns`	4e3e6e47afbe6936c76bb6ee6f69746a5d573f2156e89b38ff906399be191df0

Evidence and input hashes	
Field	**Value**
`lineage`	strategyTrace:19bd6d2546ce7eec217df512e7b7de123cf70281b9fddbe396944836ae580036 · scope:7193463e20eda5f29c1e5ca8fcb1d085365671b1ccd4139449667ca1f2b648ee · artifact:711addc7a17241c26ba9611c75f66a07ffcae72b7954d35a651219145e626d57 · data:c665a3fab09709e1cda3d19e9e170e8d3862b59df8a994b6226c509a688bce6f

Provenance statement	
Field	**Value**
`claim`	development
`containerImageDigest`	N/A
`engineCommit`	N/A
`freezeHash`	N/A
`runId`	N/A

Evidence signature · No evidence supplied.

StrategyTrace · Identity, frequency, conventions and benchmark	
Field	**Value**
`traceSchemaVersion`	strateva-strategy-trace/v1
`engagementId`	eng-00000001
`runId`	quant-strategies-ibs-roc-advanced-docker-20261117
`generatedAt`	2026-11-17T16:31:56Z
`scopeContentHash`	`7193463e20eda5f29c1e5ca8fcb1d085365671b1ccd4139449667ca1f2b648ee`
`artifactContentHash`	`711addc7a17241c26ba9611c75f66a07ffcae72b7954d35a651219145e626d57`
`dataContentHash`	`c665a3fab09709e1cda3d19e9e170e8d3862b59df8a994b6226c509a688bce6f`
`frequency.barInterval`	1d
Periods per year `frequency.periodsPerYear`	252
`frequency.calendar`	NASDAQ
`frequency.sourceTimezone`	America/New_York
`conventions.returnType`	SIMPLE
`conventions.returnUnit`	FRACTION
`conventions.timestampMeaning`	UTC_PERIOD_END
`conventions.turnover`	SUM_ABSOLUTE_POSITION_CHANGES
`conventions.exposure`	FRACTION_OF_EQUITY
`conventions.costs`	RETURN_FRACTION
`benchmark.kind`	SERIES
`benchmark.symbol`	URTH
`contentHash`	`19bd6d2546ce7eec217df512e7b7de123cf70281b9fddbe396944836ae580036`

Notes included in the evidence	
Field	**Value**
`disclosures`	The engine recomputed the metrics from verified StrategyTrace net returns. · Monte Carlo has its own hash. It affects criteria only if preregistered for that purpose.