

DSR & Selection-Bias One-Pager

Deflated Sharpe summary — fixed FULL window

Version 1.11.0

June 2026

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The problem

When hundreds of strategy variants are tested on the same historical window, some will look excellent by chance alone. A raw Sharpe ratio of 5.24 on 317 trades invites the question: how much of that is genuine edge versus selection from a large search space?

This note explains how Smooth Brains reports deflated Sharpe - a conservative adjustment for multiple testing - and why we publish it alongside headline backtest metrics.

What we measured

Metric	Value	Context
Reported Sharpe (full fixed window)	5.24	Feb 2024 - Jun 2026, frozen tape
Round-trips	317	Same window
Gross return	~14,068%	Before live fees and slippage
Maximum drawdown	-11.4%	Same window
Win rate	85.5%	Same window

These are simulation results on historical data. They are not live verified performance.

Selection bias in plain terms

We did not wake up with one strategy. We explored a structured family of variants - different permission thresholds, exit policies, satellite overlays, and risk overlays - all evaluated on overlapping historical segments. The production release is the survivor of that process.

Deflated Sharpe (Bailey and López de Prado) asks: given how many independent trials were effectively run, what Sharpe would we expect if the true edge were zero? It penalises headline Sharpe when the search space is large relative to sample size.

Smooth Brains computes deflated Sharpe for the full fixed window and publishes it in this document (and in the strategy release confidence report). The figure updates only when the locked strategy definition or published window changes - not on every research experiment.

Deflated-Sharpe inputs (July 2026 release)	Value
Observed Sharpe (annualised)	5.24
Round-trips in window	317
Assumed independent trials (conservative lower bound)	220

Deflated-Sharpe inputs (July 2026 release)	Value
Stress trial count	440
Expected max Sharpe under zero edge (220 trials)	~1.52
Deflated Sharpe probability (edge is real)	>99.9% (also at 440 trials)

Skew and excess-kurtosis corrections are measured from the published full-window trade returns. Even doubling the assumed search space leaves the probability that the observed Sharpe is explained by selection alone at effectively zero.

How we limit false discovery internally

We do not promote a variant to production because it wins on the same tape that was used to design it. Promotion requires:

- Parity checks - live paper tracking must match rolling replay on the same bars.
- Frozen backtest integrity - the published historical window does not change when a lab variant looks better on extended history.
- Documented negative results - failed branches stay in the research record; they are not silently discarded.

That discipline does not eliminate selection bias in the historical Sharpe. It prevents ongoing bias from contaminating what we call production.

What allocators should conclude

- A deflated Sharpe materially below the headline Sharpe is expected when many variants were explored.
- A deflated Sharpe that remains strongly positive after adjustment is more credible than the raw number alone.
- Neither figure substitutes for months of verified live round-trips on the model portfolio and funded accounts.

What we do not disclose

The exact count of variants tested, internal grid dimensions, and signal parameter surfaces are proprietary. The deflated Sharpe methodology and published inputs are sufficient for third parties to sanity-check our headline without receiving the search space definition.

Disclaimer

Not financial advice. Statistical adjustments do not guarantee future performance.