

NQ TBBO Daily-Breadth Order-Flow

Causal profile levels, independent trigger sleeves, one-NQ arbitration, Monte Carlo, and prop-program proxies

EXHAUSTIVE TECHNICAL REPORT

A profitable all-history-seen diagnostic — not prospective evidence

RESOLVED PNL

\$29,826

272 resolved · 18 censored

EV / TRADE

\$109.65

one NQ after stated friction

TRADES / SESSION

1.050

average, not every session

DAILY-CLOSE DD

\$2,400

known segments only

Identity and boundary

- Study: nq_tbbo_daily_breadth_portfolio_analysis_v1_780f813e48279f16
- Portfolio: NQ_OF_PORTFOLIO_DIAG_DAILY_BREADTH_PRIOR_TPOVA_TPOSP_TPOEXT_V1
- Stage-aware diagnostic: NQ_OF_ACCOUNT_POLICY_DIAG_PRIOR10_EVAL_DAILY_EXTENDED_FUNDED_V1
- Dataset GLBX.MDP3 TBBO NQ.c.0; exact historical instrument/contract retained; 2025-08-07 through 2026-08-06.
- One NQ; one adverse entry tick; one adverse stop tick; zero target slippage; \$2 round turn; no arbitrary time exit.
- All current dates were inspected. No untouched holdout remains. No plugin, entitlement, practice authorization, paid-evaluation authorization, or funded/live path exists.

Prepared from checksum-verified immutable result tables · 2026-08-11

Evidence, data, and capability boundary

Inputs retained causally; continuous symbol used for discovery only with exact historical contract identity

Historical source

- Databento GLBX.MDP3 TBBO, NQ.c.0 continuous mapping, 2025-08-07 through 2026-08-06; UTC event/receive timestamps, provider sequence, instrument ID, bid/ask prices and sizes, trades, side, and raw contract mapping.
- Profile input uses completed exact-contract one-minute OHLCV reconstructed from TBBO; trigger/fill replay uses provider-ordered TBBO top-of-book and trades.
- Profile/session timezone America/Chicago; event clock UTC; historical observations are simulated only on their mapped historical contracts.

Capability limits

- TBBO is top-of-book plus trades. It does not reveal deep liquidity, exact queue position, hidden orders, participant identity, genuine full-depth sweeps, or exact passive-fill probability.
- Aggressor flow, depletion, replenishment, absorption, and sweep concepts are explicitly proxies constrained to observable top-of-book/trade state.
- ProjectX live quote/trade parity remains unresolved; completed OHLCV bars cannot be substituted and called equivalent.

Evidence status

- All available dates are inspected; named splits are chronological design panels, not prospective evidence after final selection.
- Unknown sessions are null, never zero-filled. Monte Carlo samples only original blocks fully known for every compared variant.

Causal level architecture

Levels are frozen before interaction; post-availability events alone may trigger

Anchored volume-profile reference

- Causally available intraday anchored profile AVP_S and AVP_M valley zones are generated from completed bars and frozen snapshots.
- AVP_S: Gaussian sigma 4 bins, 16-tick minimum peak separation, 32-tick prominence context, maximum 12-tick zone width.
- AVP_M: sigma 8 bins, 32-tick minimum peak separation, 64-tick prominence context, maximum 24-tick zone width.
- Prior completed 21-session profile edges and mapped 90-session profile edges were researched as structural context; unchanged trigger transfer to exact 21-session edges was not robust enough to become a profitable sleeve.

TPO and prior-value breadth

- Latest completed exact-contract overnight TPO profile (17:00–05:00 CT) supplies 70% value-area endpoints, single-print intervals, and profile highs/lows only after profile completion.
- Single prints require occupancy one and at least a two-tick run; active bounds are exact unbuffered source intervals unless the source study declares otherwise.
- Prior RTH value edges are known only after the prior RTH profile is complete. No current-session future volume contributes to those endpoints.

Lifecycle

- Interaction ordinals, rearm, accepted traversal, snapshot replacement, contract change, level retirement, and session expiry are explicit state—not hindsight labels.
- A level touch does not imply entry. It starts the applicable trigger state; fills occur only after a fully causal trigger and post-submission executable quote.

Trigger library and exact sleeves

Reversal and continuation branches remain separate, with immutable timing and exit geometry

Sleeve	Level universe	Touch	Trigger	Gate	Stop / target
AVP first FFRE	AVP_S/M	1st	accepted break → full-zone reentry + 1s flow flip ≥ 25	180s	10 / 50
AVP first PBR	AVP_S/M	1st	accepted break → ≥ 5 s pullback ≤ 4 ticks + 4-tick reassert	600s	10 / 30
AVP second accepted	AVP_S/M	2nd	causal rearm → fresh two-500v accepted break	180s	10 / 30
TPO SP second accepted	overnight single print	2nd	causal rearm → fresh two-500v accepted break	180s	10 / 30
Prior value direct	prior RTH VAH/VAL	1st	immediate direct two-500v accepted break	180s	10 / 30
TPO VA FFRE	overnight VAH/VAL	1st	two-500v break → flow flip + reentry	600s	10 / 50
TPO SP flow flip	overnight single print	2nd	1-second flow flip score ≥ 25	30s	15 / 45
TPO extreme accepted	overnight high/low	2nd	fresh two-500v accepted break	60s	10 / 50

Accepted-break primitive: two adjacent fresh 500-contract windows with distinct completion events; first overlaps and closes beyond the full zone; both signed deltas and closes point outward; no intervening full-zone reentry.

Execution, collision, and ownership model

One NQ normalized economics; no arbitrary time exits

Signal and entry

- Signal computation occurs on the triggering TBBO event after all feature state is available; 1ms decision latency plus 2ms submission latency.
- Entry is the first executable quote after submission for a one-contract marketable NQ order plus one adverse tick. Entry expires at the sleeve timing deadline and level lifetime.
- Partial fills are unsupported for one contract and represented as a binary fill. Passive queue position is never claimed.

Protective exits and costs

- Fixed stop from actual entry; one adverse stop tick. Fixed limit target from actual entry; zero target slippage. \$2 round-turn commission. No breakeven, trailing, partial target, or time exit in these identities.
- Existing-position stop precedes target on the same event; an entry event cannot also exit. Missing/stale end state is censored unknown, never forced flat at zero PnL.

Global one-slot arbitration

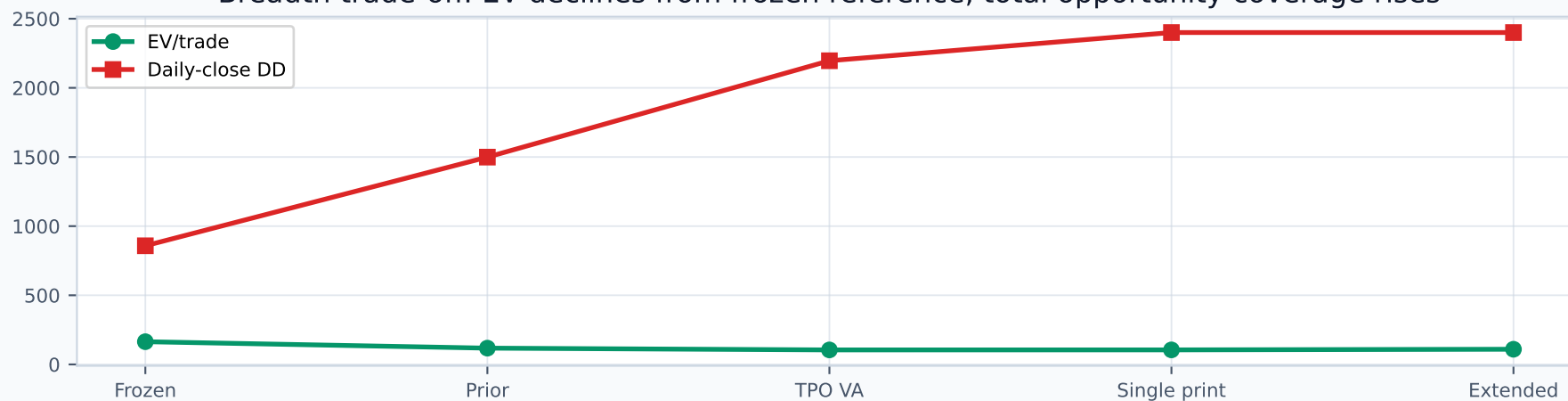
- Sort by signal_time_utc, entry_time_utc, candidate_id, signal_id, trade_id. Earliest eligible event owns capacity until exit/censor. Equal-terminal arrivals are blocked.
- Censored owners retain capacity; overlap rejection is explicit and never deferred. Candidate acceptance cannot inspect future outcome or PnL.

Cumulative portfolio frontier

Every row is independently re-arbitrated under the exact global ownership state

Portfolio	Trades	Net	EV	PF	Tr/day	Active	Green cal	DD
Frozen AVP3 + TPO	73	\$11,994	\$164	2.34	0.28	22.9%	10.3%	\$858
+ Prior value	142	\$16,711	\$118	1.90	0.55	40.4%	18.4%	\$1,499
+ TPO value	222	\$23,276	\$105	1.74	0.86	51.2%	23.0%	\$2,196
+ Single print	267	\$28,051	\$105	1.68	1.03	57.2%	27.6%	\$2,400
+ Profile extreme	272	\$29,826	\$110	1.71	1.05	57.4%	28.9%	\$2,400

Breadth trade-off: EV declines from frozen reference, total opportunity coverage rises



Chronological panels — all variants

Development → validation → final-design; final-design is no longer an untouched holdout

Variant	Panel	Trades	PnL	EV	PF	Tr/sess	Green active	DD
Frozen AVP3 + TPO2	development	27	\$3,591	\$133.0	2.06	0.260	40.0%	\$631
Frozen AVP3 + TPO2	validation	29	\$4,792	\$165.2	2.34	0.274	47.8%	\$636
Frozen AVP3 + TPO2	final-design	17	\$3,611	\$212.4	2.83	0.347	46.7%	\$858
+ Prior value	development	49	\$4,612	\$94.1	1.70	0.471	39.4%	\$1,499
+ Prior value	validation	62	\$9,161	\$147.8	2.21	0.585	46.9%	\$1,272
+ Prior value	final-design	31	\$2,938	\$94.8	1.66	0.633	52.6%	\$1,322
+ TPO value	development	87	\$3,886	\$44.7	1.29	0.837	34.0%	\$2,196
+ TPO value	validation	94	\$16,132	\$171.6	2.35	0.887	53.4%	\$2,100
+ TPO value	final-design	41	\$3,258	\$79.5	1.53	0.837	45.5%	\$1,529
+ Single print	development	98	\$7,579	\$77.3	1.50	0.942	40.0%	\$1,734
+ Single print	validation	118	\$16,704	\$141.6	1.94	1.113	54.8%	\$2,400
+ Single print	final-design	51	\$3,768	\$73.9	1.45	1.041	48.1%	\$1,735
+ Profile extreme	development	100	\$8,370	\$83.7	1.54	0.962	42.9%	\$1,734
+ Profile extreme	validation	120	\$17,495	\$145.8	1.98	1.132	55.6%	\$2,400
+ Profile extreme	final-design	52	\$3,961	\$76.2	1.47	1.061	51.9%	\$1,707

Exact marginal contribution

Delta versus the immediately preceding cumulative portfolio after full event-time re-arbitration

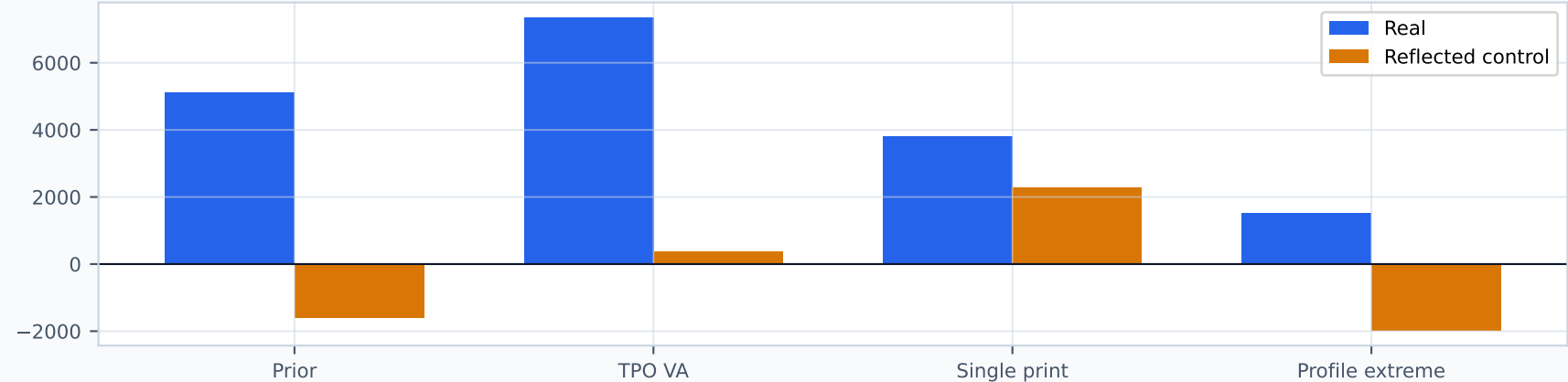
Added sleeve	Trades Δ	Resolved PnL Δ	Complete-day Δ	Active days Δ	Green days Δ	DD Δ	Tr/session Δ
Prior RTH VA direct	69	\$4,717	\$4,326	43	20	\$641	0.266
Overnight TPO VA FFR	80	\$6,565	\$7,857	26	11	\$697	0.309
TPO single-print flip	45	\$4,775	\$2,990	12	10	\$204	0.174
TPO profile extreme	5	\$1,775	\$2,194	0	3	\$0	0.019



Reflected-control diagnostics

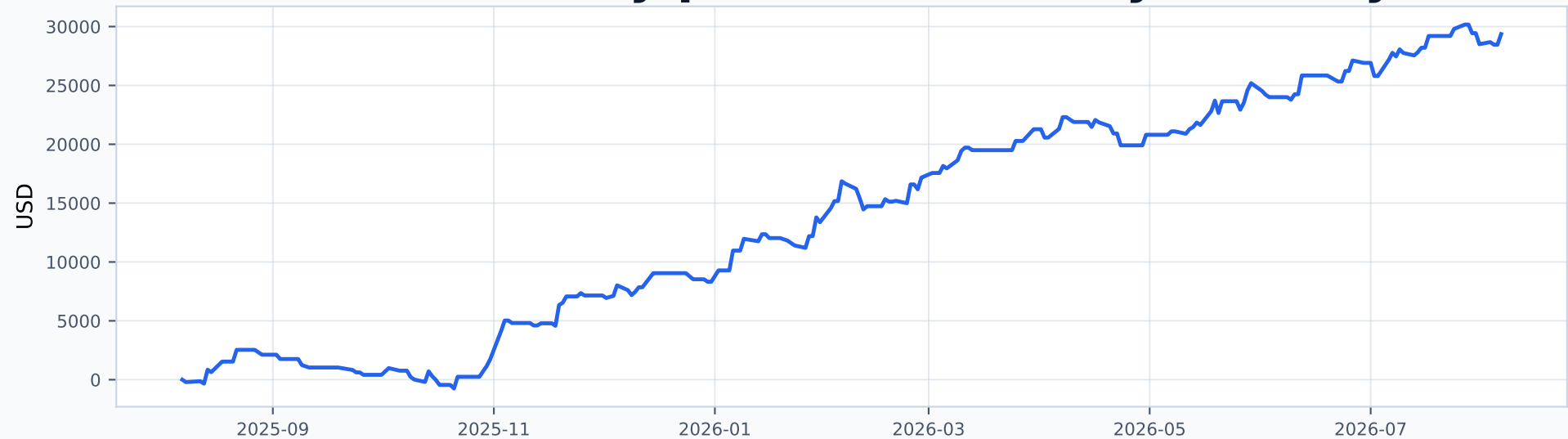
Unpaired populations; profitable controls block an exact level-specificity claim

Sleeve	Real tr	Real PnL	Real EV	Real PF	Ctrl tr	Ctrl PnL	Ctrl EV	Δ PnL
Prior RTH VA direct	71	\$5,108	\$71.9	1.52	46	-\$1,602	-\$34.8	\$6,710
Overnight TPO VA FFF	86	\$7,333	\$85.3	1.54	73	\$374	\$5.1	\$6,959
TPO single-print flip	53	\$3,794	\$71.6	1.33	54	\$2,277	\$42.2	\$1,517
TPO profile extreme	10	\$1,505	\$150.5	2.01	15	-\$1,965	-\$131.0	\$3,470

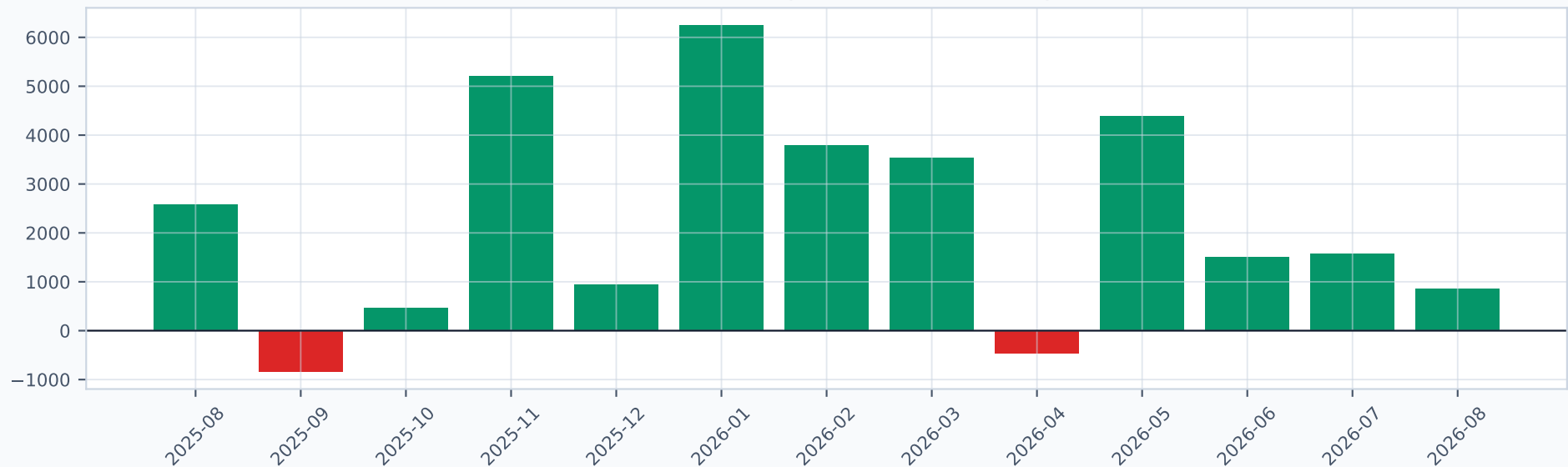


Historical daily path and monthly stability

Complete known daily cumulative PnL: \$29,350



Resolved-trade PnL by month · 11 of 13 positive



Contract, direction, and time-of-day robustness

Descriptive slices; afternoon weakness is post-hoc and cannot be silently gated

Contract	Trades	PnL	EV	PF
NQH6	71	\$10,848	\$152.8	2.04
NQM6	65	\$6,140	\$94.5	1.58
NQU5	23	\$2,189	\$95.2	1.59
NQU6	40	\$3,515	\$87.9	1.55
NQZ5	73	\$7,134	\$97.7	1.66

Slice	Trades	PnL	EV	PF
Side: long	134	\$15,047	\$112.3	1.71
Side: short	138	\$14,779	\$107.1	1.71
CT 05:00–08:59	154	\$15,652	\$101.6	1.67
CT 09:00–11:59	91	\$16,183	\$177.8	2.20
CT 12:00–15:59	27	-\$2,009	-\$74.4	0.61

Observed 12:00–15:59 CT: 27 trades, -2,009, – 74.41 EV, PF 0.614. Because this was identified after inspecting outcomes, disabling afternoons is only a forward hypothesis—not a validated improvement.

Trade distribution and path behavior

Low win rate is paired with a large winner/loss payoff ratio

AVERAGE WINNER

\$779.52

AVERAGE LOSER

-\$232.72

PAYOFF RATIO

3.35

MEDIAN TRADE

-\$207.00

TARGETS / STOPS

92 / 180

MEAN / MEDIAN HOLD

92.4s / 42.5s

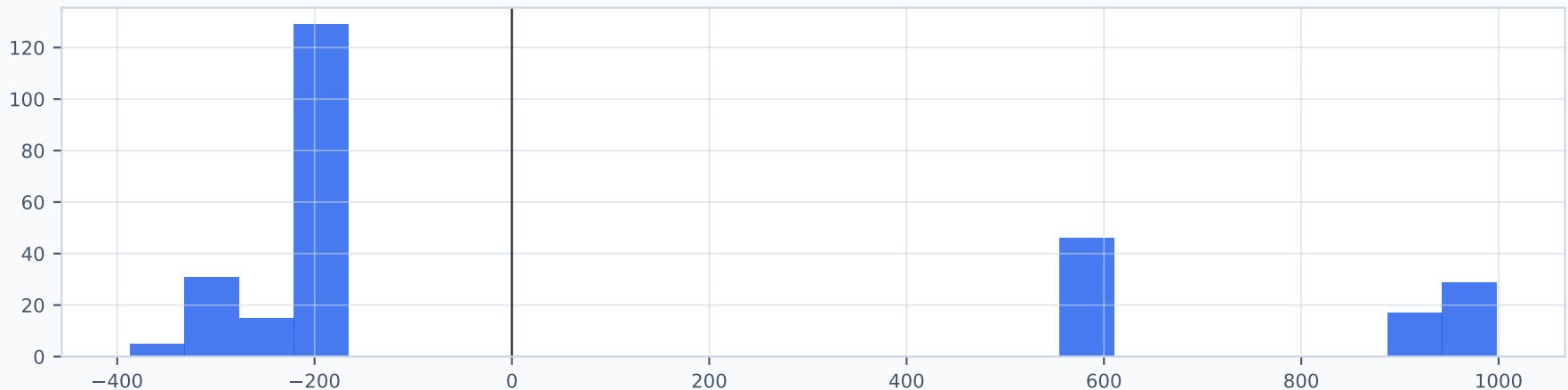
LOSING TRADE STREAK

14

RED-DAY STREAK

4

Resolved trade PnL distribution



Coverage, green days, and concentration

Frequency objective is met on average; literal every-day coverage is not

ACTIVE KNOWN DAYS 139 / 242 57.4%	GREEN ACTIVE 50.4% 70 green · 69 red active	GREEN CALENDAR 28.9% 103 flat known sessions	TRADES / ACTIVE DAY 1.813 clustering remains
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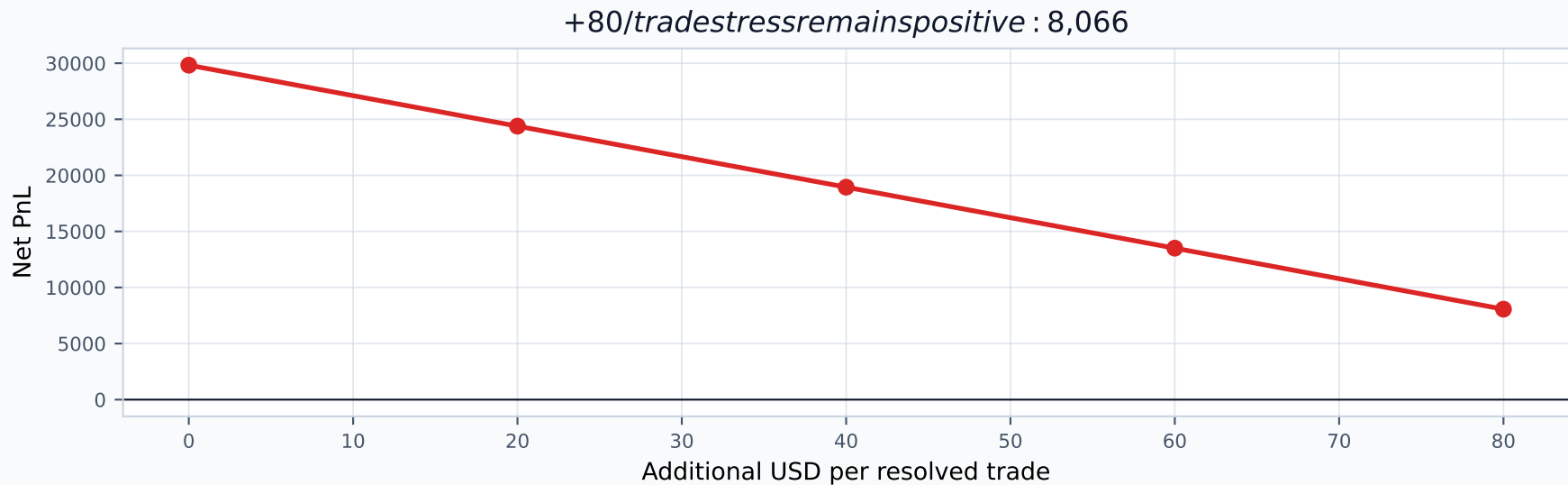
Resolved trades/day	Known sessions
0	103
1	76
2	31
3+	32

Best days	Share of positive gross
1	4.37%
2	7.61%
5	16.70%
10	29.43%

Friction sensitivity

Linear additional cost applied to every resolved trade on top of the frozen one-tick/one-tick/\$2 model

Additional cost / trade	Net PnL	EV / trade	PF
\$0	\$29,826	\$109.65	1.71
\$20	\$24,386	\$89.65	1.54
\$40	\$18,946	\$69.65	1.39
\$60	\$13,506	\$49.65	1.26
\$80	\$8,066	\$29.65	1.14

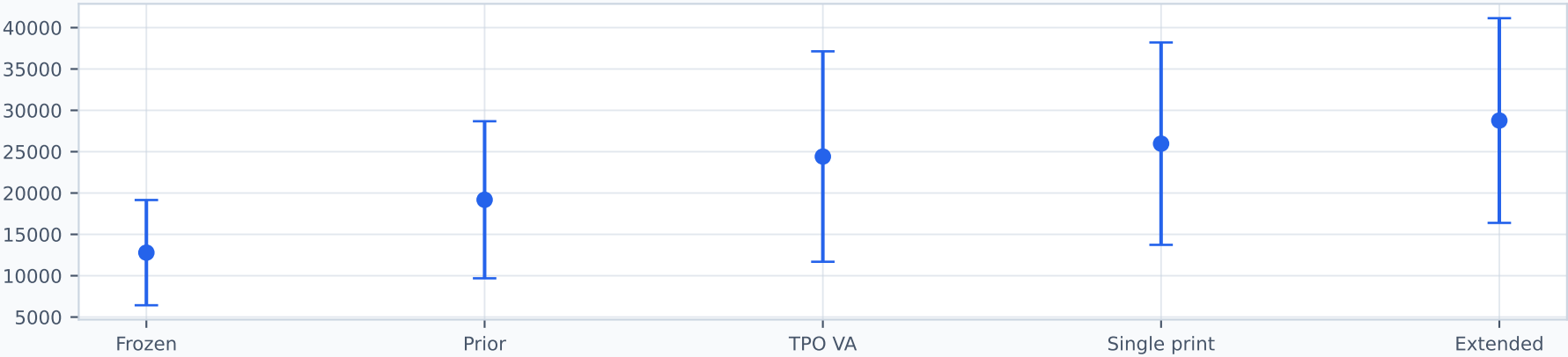


252-session moving-block Monte Carlo — all variants

10,000 shared paths; original non-circular 10-session blocks; unknown days sampled: zero

Portfolio	Terminal mean	P05	Median	DD med	DD P95	Positive	P DD≥2k	Tr/sess med
Frozen AVP3 + TPO2	\$12,937	\$6,427	\$12,790	\$1,297	\$2,014	100.00%	5.3%	0.310
+ Prior value	\$19,262	\$9,688	\$19,184	\$2,175	\$3,645	99.98%	59.9%	0.599
+ TPO value	\$24,399	\$11,688	\$24,412	\$3,360	\$5,723	99.91%	97.0%	0.901
+ Single print	\$25,940	\$13,733	\$25,970	\$3,408	\$5,705	99.97%	98.6%	1.091
+ Profile extreme	\$28,650	\$16,389	\$28,766	\$3,273	\$5,548	99.98%	98.2%	1.111

Median terminal with lower tail distance to P05



Generic evaluation and end-to-end proxies

3ktarget, fixed2k EOD loss proxy, generic fee/payout state machine; not official firm rules

Portfolio	Eval pass	Eval fail	Pass session	First payout	Mean payouts	Mean net cash	Cash P05	Profitable
Frozen AVP3 + TPO2	99.6%	0.2%	58	92.8%	1.982	\$2,282	-\$683	91.7%
+ Prior value	95.7%	4.3%	34	98.5%	3.286	\$4,670	\$680	98.3%
+ TPO value	87.0%	13.0%	24	99.1%	3.646	\$5,348	\$726	99.0%
+ Single print	88.2%	11.8%	23	99.5%	3.781	\$5,578	\$2,060	99.5%
+ Profile extreme	90.4%	9.6%	21	99.9%	4.342	\$6,571	\$2,395	99.8%

The full extended breadth portfolio raises payout throughput but has a 9.56% evaluation failure proxy versus 4.28% for the Prior10 union. That motivates stage-aware allocation instead of using maximum breadth in every stage.

The state machine is fixed-EOD because complete account-level intraday equity and true firm trailing thresholds are unavailable. These numbers cannot establish eligibility, payout approval, or operational rule compliance.

Stage-aware account-policy diagnostics

Selection uses only the declared stage and prior fixed-EOD state; no same-day outcome information

Policy	Eval attempts	First payout	Mean payouts	Gross cash	Fees	Net cash	Cash P05	Profitable
Frozen→Core	1.212	94.2%	2.986	\$5,915	\$996	\$4,327	-\$388	94.2%
Frozen→Extended	1.181	95.7%	3.414	\$6,753	\$998	\$5,080	\$641	95.7%
Frozen+\$1k→Extended	1.006	94.9%	3.088	\$6,026	\$1,004	\$4,419	-\$111	94.8%
Prior10→Extended	1.178	99.1%	4.025	\$7,986	\$1,109	\$6,078	\$2,202	99.1%

Recommended diagnostic: Prior10 during generic evaluation, Extended after funded transition. First payout 99.1%; mean 4.025 payouts; mean net cash 6, 078; P052,202.

This is an all-history-seen account-policy diagnostic. It is not authorization to use a paid evaluation or funded account, and it cannot override the repository safety boundary.

Failure analysis and what creates the edge

First-principles interpretation of observed behavior—not a new fitted gate

Observed strengths

- Large target/stop geometry creates a 3.35 average payoff ratio; the system can remain profitable with a 33.82% trade win rate.
- Long and short PnL are balanced, every mapped historical contract is profitable, and best-day concentration is controlled relative to positive gross.
- Prior-value and TPO value-edge additions create most new active days; single prints add green days with modest drawdown; profile extremes are sparse but strongly level-specific versus their control in this sample.

Observed weaknesses

- Signals cluster: 103 of 242 known sessions have no resolved trade, so 1.05 trades/session does not mean daily participation.
- Noon/afternoon CT is negative post hoc; blindly adding a time gate would reuse outcomes and overstate validation.
- TPO value-edge and single-print reflected controls are profitable, suggesting trigger/flow state may explain part of the edge independent of exact level placement.
- The longest losing-trade streak is 14. Prop loss limits can be challenged even when annual terminal PnL is strongly positive.

What not to do

- Do not loosen profitable sleeves to force activity, auto-disable weak slices after inspection, sum standalone PnLs, zero-fill unknown days, or treat resampling as a new holdout.

Preregistered forward qualification gate

A frozen hypothesis must earn new evidence without retuning

Criterion	Required	Observed	Status
New chronology	≥ 60 new sessions	0	FAIL
Resolved trades	≥ 30 overall	0 forward	FAIL
Per retained sleeve	≥ 5	0 forward	FAIL
Trade EV lower 95%	> 0	not established forward	FAIL
Opportunity-day lower 95%	> 0	not established forward	FAIL
Profit factor	≥ 1.25	not established forward	FAIL
Cost stress	positive	not established forward	FAIL
Level/control separation	improve or explain	mixed historical controls	FAIL
Live input reproducibility	exact	ProjectX unresolved	FAIL
Practice launch	separate authorization	false	FAIL

No backtest, report, catalog row, dashboard status, or Monte Carlo outcome may automatically promote or authorize execution.

Next independent level universes

Increase active-day coverage without changing frozen profitable sleeves

Highest-priority causal research

- Developing intraday anchored-profile balance extremes frozen at predeclared snapshot clocks.
- Newly completed intraday TPO shelves and single prints, available only after the relevant TPO period closes.
- First accepted intraday balance followed by failed auction/reentry; intraday micro-balance LVN/HVN transitions.
- Causal developing VWAP/value migration plus TBBO absorption proxy; repeated aggressive flow without price progress as a defended-level proxy.
- Causal intraday accepted-break/retest continuation with explicit availability, expiration, and conservative fill semantics.

Research sequence

- Measure opportunity and unique zero-trade-day coverage before optimizing exits.
- Use a small defensible hypothesis set and reflected/placebo levels where possible; inspect distributions before thresholds.
- Evaluate standalone, then re-arbitrate against frozen, Prior10, and Extended portfolios under the same one-NQ slot.
- Primary targets: active known-session coverage above 57.44%, green calendar above 28.93%, positive chronology/cost stress, and no material q05-cash or evaluation-failure degradation.

Status matrix and source lineage

Clear distinction between research evidence, packaging, execution, and authorization

Layer	Status	Detail
Data infrastructure	Completed for this study	TBBO/normalized/profile/replay source lineage checksum-pinned
Exploratory hypotheses	Present	Prior value, TPO VA, single prints, profile extremes, controls
Formal frozen candidates	Frozen reference only	NQ_ORDERFLOW_CAND_PORTFOLIO_AVP3_TPOSECOND_V1
Breadth portfolio	Diagnostic only	NQ_OF_PORTFOLIO_DIAG_DAILY_BREADTH_PRIOR_TPOVA_TPOSP_TPOEXT_V1
Account policy	Diagnostic only	NQ_OF_ACCOUNT_POLICY_DIAG_PRIOR10_EVAL_DAILY_EXTENDED_FUNDED_V1
Packaged reference algorithms	Existing frozen reference lineage	Non-entitling; report addition does not create execution
Real execution plugin	None	TBBO live reproducibility unresolved
ProjectX practice verified	None	Practice authorization false
Paid evaluation / funded / live	Impossible	No entitlement or transmission path

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