50-Minute Opening-Range Breakout WITH STOP - 10-year check

SPY / QQQ / IWM | Alpaca SIP 1-minute bars, 2016-10-24 to 2026-10-30 | generated 2026-11-04 on TICG04-DT

TRADING RULES (as live on scanner.highmountainroad.com/intraday since 2026-10-26; IDEA_BANK #16)

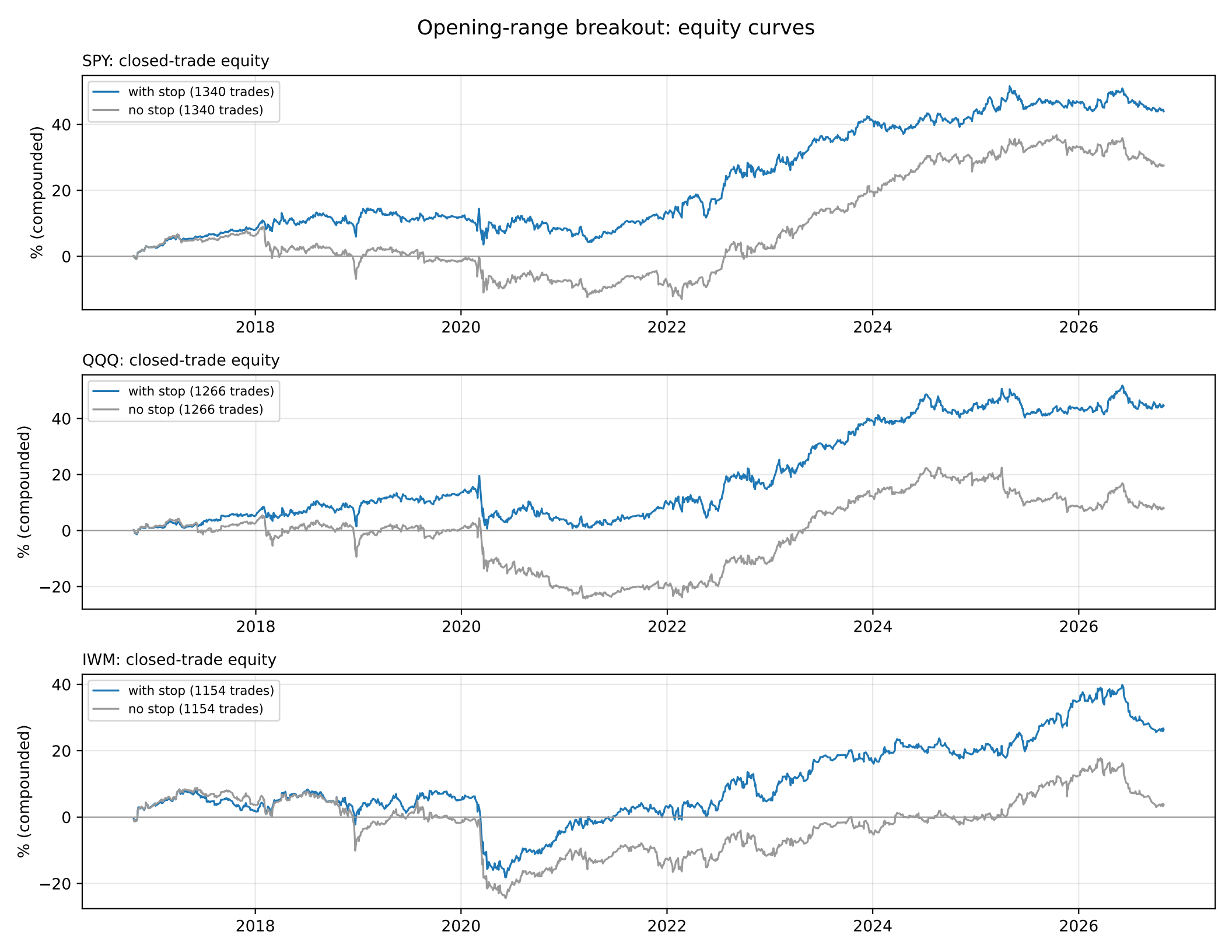
STRATEGY	Opening-range breakout, long only, one trade per day, day trade only. Source: Nestor (30 yrs); Gary Smith, How I Trade for a Living (2000), ch.16 rule #1.
RANGE	High of the first 50 minutes: 09:30 through the 10:20 ET bar inclusive (6:30-7:20 PT).
ENTRY	First 1-min bar from 10:21 to 11:59 ET whose high exceeds the range high. Fill at the range high (buy stop); at the bar open if it gaps above. No break before noon = no trade.
EXIT	Close of the last regular-session bar (15:59 ET) the same day. No target, no overnight.
STOP	Nestor 2026-11-04: 'if it breaks the low of the day, we're out.' Tested as the LOW of the opening range (09:30-10:20). Exit at the stop, or the bar open if it gaps below. Entry minute not checked.
POSITION	One unit of capital per trade, compounded trade to trade. Zero commission.
EXECUTION	Stop fill at the range high is the optimistic case; slippage table shows bps round trip.
DATA	Alpaca SIP consolidated 1-minute bars, regular session only, raw prices. Early-close days skipped.

PROVISIONAL ASSUMPTIONS (not yet confirmed by Nestor; HMR_RD_TODO open question from 10/26):

* exit at the same-day close (Smith sometimes carried winners overnight)
* which low: range low (tested here) vs the session low before entry (DAY_LOW: within a few % of these results)
* no TICK/TRIN filter yet (Nestor: TICK must stay above 0); no intraday TICK/TRIN data available yet; no short side
* 10:20 bar included in the range; the break must come before noon ET

COMPARISON ORB50 = same rule with NO stop (the 2026-11-02 report).

BASELINE Day-session buy & hold = buy the 09:30 open, sell the 15:59 close, every session.


Opening-range breakout: equity curves
SPY: closed-trade equity
with stop (1340 trades)
no stop (1340 trades)
% (compounded)
40
20
0
2018
2020
2022
2024
2026
QQQ: closed-trade equity
with stop (1266 trades)
no stop (1266 trades)
% (compounded)
40
20
0
−20
2018
2020
2022
2024
2026
IWM: closed-trade equity
with stop (1154 trades)
no stop (1154 trades)
% (compounded)
40
20
0
−20
2018
2020
2022
2024
2026

SPY: year by year

ORB50 + STOP (range low)

Year	Trades	Win%	Avg%	Best%	Worst%	Compounded%	MaxDD%
2016	20	60.0	0.13	1.21	-0.42	2.69	-0.97
2017	129	58.9	0.04	0.69	-0.49	5.09	-1.45
2018	146	45.2	0.01	3.40	-1.71	1.51	-6.52
2019	137	45.3	0.02	1.16	-0.82	2.20	-3.65
2020	147	46.3	-0.02	3.33	-3.38	-3.08	-9.53
2021	130	53.8	0.03	1.18	-1.25	4.39	-4.38
2022	120	53.3	0.09	3.34	-1.97	10.74	-5.96
2023	126	54.8	0.10	1.82	-0.98	12.69	-3.63
2024	137	47.4	0.01	1.05	-0.72	1.91	-2.87
2025	131	51.1	0.01	1.37	-0.85	1.79	-4.65
2026	117	47.0	-0.02	1.60	-1.01	-1.82	-4.65
ALL	**1340**	**50.3**	**0.03**	**3.40**	**-3.38**	**43.95**	**-9.59**

ORB50, NO STOP (11/02)

Year	Trades	Win%	Avg%	Best%	Worst%	Compounded%	MaxDD%
2016	20	60.0	0.13	1.21	-0.47	2.69	-1.04
2017	129	59.7	0.03	0.69	-1.08	3.40	-2.39
2018	146	47.3	-0.06	3.40	-4.00	-9.31	-14.48
2019	137	50.4	0.02	1.16	-2.48	2.43	-4.65
2020	147	53.1	-0.04	3.33	-6.00	-5.88	-10.81
2021	130	56.9	-0.00	1.18	-2.73	-0.21	-5.96
2022	120	60.0	0.09	3.34	-2.58	10.70	-5.07
2023	126	58.7	0.12	1.82	-1.72	16.61	-3.30
2024	137	56.9	0.05	1.05	-3.12	7.42	-4.30
2025	131	58.8	0.03	1.37	-3.39	3.62	-4.40
2026	117	51.3	-0.04	1.60	-1.65	-4.18	-6.43
ALL	**1340**	**55.2**	**0.02**	**3.40**	**-6.00**	**27.54**	**-20.08**

Day-session buy & hold baseline: 2518 days, win 53.8%, avg +0.019%/day, compounded +46.0%

QQQ: year by year

ORB50 + STOP (range low)

Year	Trades	Win%	Avg%	Best%	Worst%	Compounded%	MaxDD%
2016	20	50.0	0.05	1.28	-0.67	0.92	-1.58
2017	127	57.5	0.03	0.99	-0.84	4.10	-2.36
2018	137	45.3	0.00	3.76	-2.03	0.18	-8.20
2019	121	53.7	0.06	1.82	-1.12	7.56	-3.58
2020	131	51.9	-0.06	3.25	-4.06	-8.10	-15.77
2021	126	55.6	0.04	1.32	-2.01	5.58	-3.90
2022	117	53.0	0.06	3.66	-2.48	5.98	-7.24
2023	124	59.7	0.15	2.24	-1.48	19.76	-4.97
2024	127	50.4	0.03	1.21	-1.24	4.13	-5.63
2025	123	56.1	-0.01	1.77	-1.56	-1.22	-6.86
2026	113	54.9	0.01	1.89	-1.35	0.80	-5.58
ALL	**1266**	**53.6**	**0.03**	**3.76**	**-4.06**	**44.53**	**-15.77**

ORB50, NO STOP (11/02)

Year	Trades	Win%	Avg%	Best%	Worst%	Compounded%	MaxDD%
2016	20	50.0	0.05	1.28	-0.68	1.04	-1.33
2017	127	59.1	0.01	0.99	-2.71	1.34	-5.43
2018	137	47.4	-0.06	3.76	-4.30	-8.17	-14.02
2019	121	56.2	0.06	1.82	-2.89	6.83	-5.05
2020	131	55.0	-0.17	3.25	-6.50	-20.59	-23.96
2021	126	57.1	0.01	1.32	-3.15	1.16	-5.61
2022	117	59.0	0.09	3.66	-3.04	10.71	-6.20
2023	124	64.5	0.19	2.24	-1.67	25.82	-2.48
2024	127	54.3	0.04	1.21	-3.62	5.05	-5.29
2025	123	58.5	-0.07	1.77	-6.03	-8.16	-12.97
2026	113	55.8	-0.00	1.89	-2.18	-0.47	-8.09
ALL	**1266**	**56.5**	**0.01**	**3.76**	**-6.50**	**7.97**	**-28.18**

Day-session buy & hold baseline: 2516 days, win 54.1%, avg +0.029%/day, compounded +75.5%

IWM: year by year

ORB50 + STOP (range low)

Year	Trades	Win%	Avg%	Best%	Worst%	Compounded%	MaxDD%
2016	20	50.0	0.15	2.18	-0.63	2.91	-1.44
2017	121	50.4	-0.01	1.13	-1.13	-0.86	-6.01
2018	130	50.0	-0.00	3.58	-1.55	-0.75	-9.77
2019	120	52.5	0.03	1.44	-1.44	3.80	-5.36
2020	128	50.8	-0.07	3.42	-5.82	-9.27	-23.19
2021	117	63.2	0.07	2.49	-1.91	8.38	-4.17
2022	116	60.3	0.02	3.27	-2.33	2.03	-7.84
2023	97	55.7	0.11	2.27	-1.19	10.90	-3.20
2024	97	51.5	0.03	2.02	-1.42	2.35	-4.97
2025	115	57.4	0.10	1.67	-2.12	12.52	-4.51
2026	93	51.6	-0.07	2.33	-1.75	-6.17	-10.23
ALL	**1154**	**54.2**	**0.02**	**3.58**	**-5.82**	**26.36**	**-24.46**

ORB50, NO STOP (11/02)

Year	Trades	Win%	Avg%	Best%	Worst%	Compounded%	MaxDD%
2016	20	55.0	0.14	2.18	-0.93	2.72	-1.77
2017	121	52.9	0.01	1.13	-1.34	1.05	-4.84
2018	130	50.8	-0.08	3.58	-3.72	-10.28	-16.55
2019	120	55.0	0.05	1.44	-2.92	5.49	-6.33
2020	128	51.6	-0.08	3.42	-6.25	-11.23	-24.14
2021	117	66.7	0.01	2.49	-4.73	0.40	-8.16
2022	116	64.7	0.02	3.27	-3.64	1.58	-7.98
2023	97	56.7	0.08	2.27	-2.67	7.27	-4.76
2024	97	51.5	0.04	2.02	-1.47	4.26	-4.19
2025	115	60.0	0.11	1.67	-4.08	12.80	-5.39
2026	93	52.7	-0.08	2.33	-2.40	-7.59	-12.54
ALL	**1154**	**56.2**	**0.01**	**3.58**	**-6.25**	**3.70**	**-30.52**

Day-session buy & hold baseline: 2511 days, win 50.0%, avg -0.015%/day, compounded -42.3%

SPY - Tier 1, 2 & 3 Analytics (ORB50 + stop)

2016-10-24 to 2026-10-30 | 1340 trades | +43.9% cumulative

TIER 1: TRADE QUALITY

Total trades	**1340**
Win rate	**50.3%**
Profit ratio	**1.16**
Expectancy / trade	**+0.029%**
Avg winner	**+0.42%**
Avg loser	**-0.37%**
R-multiple (avg win / avg loss)	**1.14x**
Max consecutive wins	**10**
Max consecutive losses	**6**
Avg minutes held / avg entry	**257 min / 10:43 ET**
Days traded	**53.2% of sessions**
Trades per year	**133.8**
Time in market	**35.0%**
Trades stopped out	**34%**

TIER 2: RISK & SIZING

Sharpe ratio	**0.61**
Sortino ratio	**0.96**
Max drawdown	**9.59%**
Max drawdown duration	**1091 days**
MAR (annual return / max DD)	**0.39**
Recovery factor	**4.6x**
Equity curve R2	**0.832**
Kelly / half-Kelly	**6.9% / 3.4%**
Annual return	**+3.70%**
Total return	**+43.9%**

SLIPPAGE SENSITIVITY (round trip)

5 bps	**Win 46% Sharpe -0.45 Net -26.3%**
10 bps	**Win 41% Sharpe -1.51 Net -62.3%**
15 bps	**Win 38% Sharpe -2.57 Net -80.7%**
20 bps	**Win 33% Sharpe -3.63 Net -90.2%**
30 bps	**Win 25% Sharpe -5.75 Net -97.4%**

SPY - Tier 3: Deep Analysis (ORB50 + stop)

WORST 5 TRADES

1. -3.38% 2020-03-16 entry 10:31 ET @ 247.79 -> close 15:59239.41
2. -3.23% 2020-03-09 entry 11:37 ET @ 282.63 -> STOP 14:44273.50
3. -2.85% 2020-03-20 entry 10:40 ET @ 243.55 -> STOP 12:08236.61
4. -1.97% 2022-05-11 entry 10:22 ET @ 403.17 -> STOP 13:39395.22
5. -1.73% 2020-03-31 entry 10:21 ET @ 262.84 -> STOP 13:21258.29

BEST 5 TRADES

1. +3.40% 2018-12-26 entry 11:56 ET @ 237.85 -> close 15:59245.94
2. +3.34% 2022-10-13 entry 10:47 ET @ 354.14 -> close 15:59365.96
3. +3.33% 2020-03-02 entry 10:49 ET @ 299.11 -> close 15:59309.08
4. +2.72% 2020-03-17 entry 11:09 ET @ 247.45 -> close 15:59254.19
5. +2.53% 2022-02-24 entry 10:21 ET @ 417.74 -> close 15:59428.31

BY ENTRY TIME

10:21-10:59: 1037 trades, win 49.6%, avg +0.021%, sum +21.3%
11:00-11:59: 303 trades, win 52.8%, avg +0.056%, sum +17.1%

BY WEEKDAY

Mon: 250 trades, win 51.2%, avg +0.011%, sum +2.8%
Tue: 266 trades, win 49.2%, avg +0.029%, sum +7.6%
Wed: 282 trades, win 49.6%, avg +0.039%, sum +11.1%
Thu: 276 trades, win 48.6%, avg +0.029%, sum +8.1%
Fri: 266 trades, win 53.0%, avg +0.033%, sum +8.8%

QQQ - Tier 1, 2 & 3 Analytics (ORB50 + stop)

2016-10-24 to 2026-10-30 | 1266 trades | +44.5% cumulative

TIER 1: TRADE QUALITY

Total trades	**1266**
Win rate	**53.6%**
Profit ratio	**1.13**
Expectancy / trade	**+0.032%**
Avg winner	**+0.53%**
Avg loser	**-0.54%**
R-multiple (avg win / avg loss)	**0.97x**
Max consecutive wins	**12**
Max consecutive losses	**7**
Avg minutes held / avg entry	**272 min / 10:43 ET**
Days traded	**50.3% of sessions**
Trades per year	**126.4**
Time in market	**35.0%**
Trades stopped out	**27%**

TIER 2: RISK & SIZING

Sharpe ratio	**0.50**
Sortino ratio	**0.74**
Max drawdown	**15.77%**
Max drawdown duration	**903 days**
MAR (annual return / max DD)	**0.24**
Recovery factor	**2.8x**
Equity curve R2	**0.789**
Kelly / half-Kelly	**6.0% / 3.0%**
Annual return	**+3.75%**
Total return	**+44.5%**

SLIPPAGE SENSITIVITY (round trip)

5 bps	**Win 50% Sharpe -0.29 Net -23.3%**
10 bps	**Win 47% Sharpe -1.07 Net -59.3%**
15 bps	**Win 43% Sharpe -1.86 Net -78.4%**
20 bps	**Win 40% Sharpe -2.64 Net -88.5%**
30 bps	**Win 33% Sharpe -4.21 Net -96.8%**

QQQ - Tier 3: Deep Analysis (ORB50 + stop)

WORST 5 TRADES

1. -4.06% 2020-03-16 entry 10:27 ET @ 178.50 -> *STOP*15:58171.25
2. -3.34% 2020-03-12 entry 10:26 ET @ 185.00 -> *STOP*15:56178.82
3. -3.00% 2020-03-09 entry 11:37 ET @ 199.63 -> *close*15:59193.65
4. -2.48% 2022-05-12 entry 10:22 ET @ 292.29 -> *STOP*14:43285.04
5. -2.38% 2020-03-20 entry 10:56 ET @ 182.60 -> *STOP*12:04178.25

BEST 5 TRADES

1. +3.76% 2018-12-26 entry 11:57 ET @ 146.95 -> *close*15:59152.47
2. +3.66% 2022-02-24 entry 10:21 ET @ 328.61 -> *close*15:59340.65
3. +3.60% 2022-10-13 entry 10:56 ET @ 259.42 -> *close*15:59268.75
4. +3.25% 2020-03-02 entry 10:54 ET @ 209.67 -> *close*15:59216.48
5. +2.74% 2020-03-17 entry 11:04 ET @ 177.15 -> *close*15:59182.01

BY ENTRY TIME

10:21-10:59: 976 trades, win 52.9%, avg +0.025%, sum +24.5%
11:00-11:59: 290 trades, win 56.2%, avg +0.054%, sum +15.6%

BY WEEKDAY

Mon: 244 trades, win 55.7%, avg +0.032%, sum +7.8%
Tue: 256 trades, win 53.1%, avg +0.035%, sum +8.9%
Wed: 262 trades, win 53.4%, avg +0.061%, sum +15.9%
Thu: 263 trades, win 51.0%, avg -0.002%, sum -0.4%
Fri: 241 trades, win 55.2%, avg +0.033%, sum +7.9%

IWM - Tier 1, 2 & 3 Analytics (ORB50 + stop)

2016-10-24 to 2026-10-30 | 1154 trades | +26.4% cumulative

TIER 1: TRADE QUALITY

Total trades	**1154**
Win rate	**54.2%**
Profit ratio	**1.08**
Expectancy / trade	**+0.023%**
Avg winner	**+0.55%**
Avg loser	**-0.60%**
R-multiple (avg win / avg loss)	**0.91x**
Max consecutive wins	**8**
Max consecutive losses	**9**
Avg minutes held / avg entry	**272 min / 10:43 ET**
Days traded	**45.8% of sessions**
Trades per year	**115.2**
Time in market	**32.0%**
Trades stopped out	**24%**

TIER 2: RISK & SIZING

Sharpe ratio	**0.33**
Sortino ratio	**0.47**
Max drawdown	**24.46%**
Max drawdown duration	**1477 days**
MAR (annual return / max DD)	**0.10**
Recovery factor	**1.1x**
Equity curve R2	**0.508**
Kelly / half-Kelly	**4.2% / 2.1%**
Annual return	**+2.36%**
Total return	**+26.4%**

SLIPPAGE SENSITIVITY (round trip)

5 bps	**Win 51% Sharpe -0.38 Net -29.0%**
10 bps	**Win 47% Sharpe -1.08 Net -60.2%**
15 bps	**Win 43% Sharpe -1.78 Net -77.6%**
20 bps	**Win 40% Sharpe -2.49 Net -87.5%**
30 bps	**Win 34% Sharpe -3.89 Net -96.1%**

IWM - Tier 3: Deep Analysis (ORB50 + stop)

WORST 5 TRADES

1. -5.82% 2020-03-16 entry 10:34 ET @ 109.49 -> *STOP* 15:53103.12
2. -4.07% 2020-03-12 entry 10:54 ET @ 116.80 -> *STOP* 12:12112.05
3. -3.69% 2020-03-20 entry 10:51 ET @ 108.04 -> *STOP* 12:07104.05
4. -2.41% 2020-02-28 entry 11:43 ET @ 147.84 -> *STOP* 15:29144.27
5. -2.33% 2022-02-10 entry 10:30 ET @ 207.68 -> *STOP* 15:33202.84

BEST 5 TRADES

1. +3.58% 2018-12-26 entry 11:39 ET @ 127.37 -> *close* 15:59131.93
2. +3.42% 2020-06-15 entry 10:46 ET @ 136.40 -> *close* 15:59141.07
3. +3.27% 2022-10-13 entry 10:55 ET @ 165.96 -> *close* 15:59171.39
4. +2.87% 2022-02-24 entry 11:07 ET @ 192.65 -> *close* 15:59198.18
5. +2.49% 2021-03-25 entry 11:30 ET @ 211.42 -> *close* 15:59216.69

BY ENTRY TIME

10:21-10:59: 883 trades, win 52.9%, avg +0.007%, sum +5.8%
11:00-11:59: 271 trades, win 58.7%, avg +0.077%, sum +20.9%

BY WEEKDAY

Mon: 219 trades, win 54.3%, avg +0.007%, sum +1.5%
Tue: 237 trades, win 55.7%, avg +0.080%, sum +18.9%
Wed: 230 trades, win 50.9%, avg +0.019%, sum +4.5%
Thu: 242 trades, win 54.1%, avg +0.024%, sum +5.8%
Fri: 226 trades, win 56.2%, avg -0.018%, sum -4.0%