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

SPY / QQQ / IWM | Alpaca SIP 1-minute bars, 2016-10-24 to 2026-10-30 | generated 2026-11-02 on TICG04-DT

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

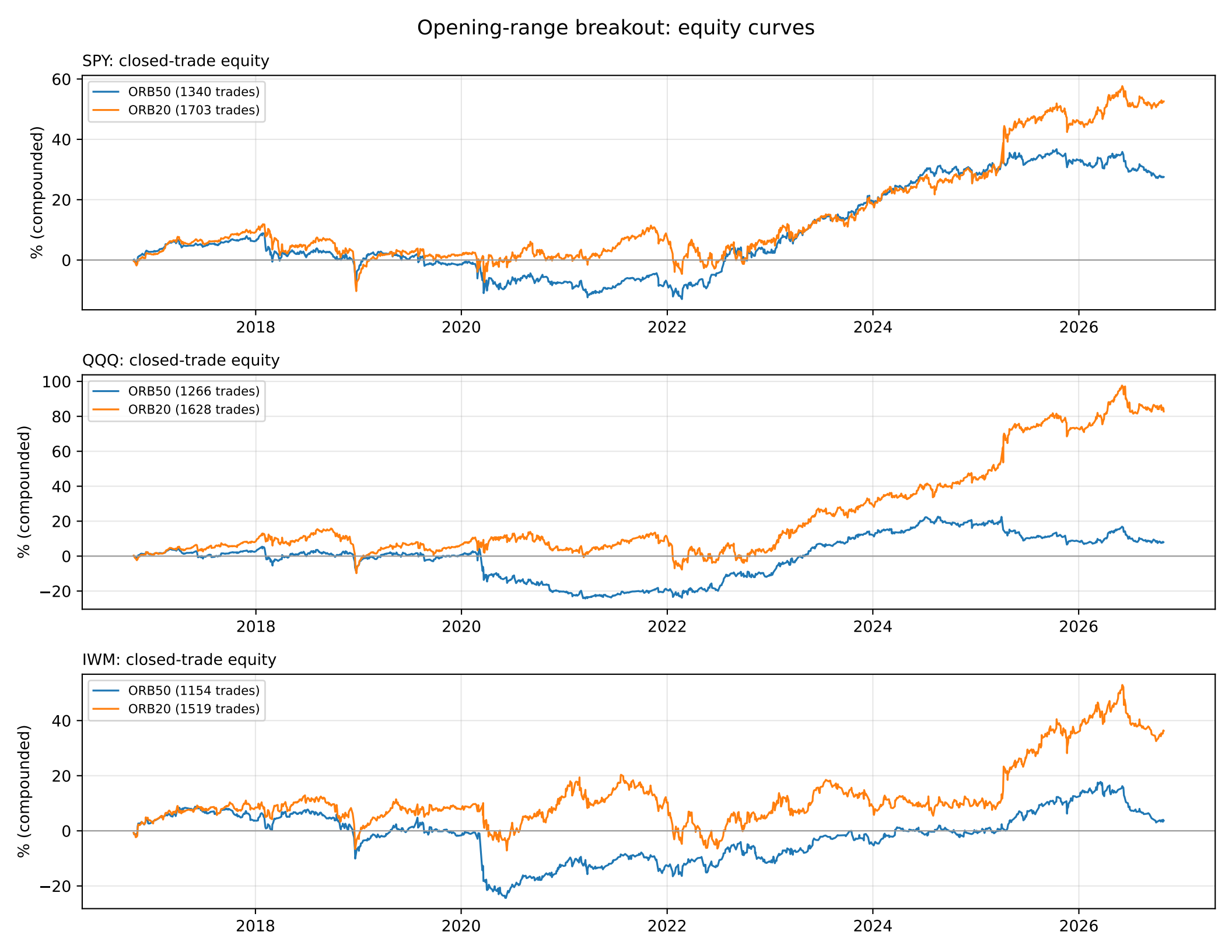
STRATEGY	Opening-range breakout, long only, one trade per day, day trade only.
	Source: Nestor (30 yrs); Gary Smith, How I Trade for a Living (2000), ch.16 rule #1.
RANGE	High of the first 50 minutes: 09:30 through the 10:20 ET bar inclusive (6:30-7:20 PT).
ENTRY	First 1-min bar from 10:21 to 11:59 ET 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 stop, no target, no overnight.
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)
* no stop loss and no short side (Smith's short pattern is a separate rule)
* no tape confirmation (Smith filtered with Dow, Transports, TICK, TRIN)
* 10:20 bar included in the range; the break must come before noon ET

VARIANT **ORB20 = same rule with a 20-minute range (09:30-09:50 ET), noon cutoff (Nestor, 2026-11-02).**

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
ORB50 (1340 trades)
ORB20 (1703 trades)
% (compounded)
60
40
20
0
2018
2020
2022
2024
2026
QQQ: closed-trade equity
ORB50 (1266 trades)
ORB20 (1628 trades)
% (compounded)
100
80
60
40
20
0
−20
2018
2020
2022
2024
2026
IWM: closed-trade equity
ORB50 (1154 trades)
ORB20 (1519 trades)
% (compounded)
40
20
0
−20
2018
2020
2022
2024
2026

SPY: year by year

ORB50

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**

ORB20

Year	Trades	Win%	Avg%	Best%	Worst%	Compounded%	MaxDD%
2016	29	51.7	0.06	1.33	-0.63	1.87	-1.66
2017	161	57.8	0.04	0.72	-0.88	6.99	-2.38
2018	174	44.8	-0.09	3.40	-3.65	-14.93	-19.82
2019	161	53.4	0.06	1.50	-2.20	9.75	-3.87
2020	180	55.0	-0.00	3.36	-6.00	-1.11	-9.68
2021	165	57.6	0.04	1.18	-2.45	7.24	-5.40
2022	164	56.7	-0.00	4.17	-3.40	-1.33	-10.12
2023	176	55.7	0.06	2.01	-2.44	11.30	-5.04
2024	172	55.8	0.04	1.19	-2.96	7.63	-5.10
2025	176	58.0	0.08	8.23	-4.87	14.57	-6.27
2026	145	55.9	0.03	1.60	-1.57	4.40	-4.73
ALL	**1703**	**55.0**	**0.03**	**8.23**	**-6.00**	**52.57**	**-19.82**

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

QQQ: year by year

ORB50

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**

ORB20

Year	Trades	Win%	Avg%	Best%	Worst%	Compounded%	MaxDD%
2016	28	50.0	0.03	1.35	-0.93	0.82	-2.64
2017	156	59.6	0.04	1.08	-2.65	7.06	-3.61
2018	169	46.7	-0.08	3.76	-4.02	-13.30	-22.14
2019	151	55.6	0.08	2.17	-2.60	13.35	-7.08
2020	172	59.9	-0.01	3.25	-6.50	-2.46	-9.40
2021	164	60.4	0.05	1.32	-3.15	7.39	-6.09
2022	160	54.4	-0.03	4.66	-4.11	-6.13	-14.57
2023	170	60.6	0.13	2.66	-2.64	24.25	-4.70
2024	159	59.1	0.07	1.53	-3.57	12.05	-5.59
2025	162	62.3	0.11	9.71	-5.35	19.17	-7.32
2026	137	54.7	0.04	1.89	-2.21	5.64	-8.17
ALL	**1628**	**57.2**	**0.04**	**9.71**	**-6.50**	**82.78**	**-22.14**

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

IWM: year by year

ORB50

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**

ORB20

Year	Trades	Win%	Avg%	Best%	Worst%	Compounded%	MaxDD%
2016	26	53.8	0.13	2.42	-1.14	3.48	-1.60
2017	150	54.0	0.03	1.29	-2.18	4.39	-3.21
2018	159	52.8	-0.06	3.58	-3.34	-10.44	-17.27
2019	154	51.3	0.07	1.75	-2.60	11.43	-5.74
2020	161	57.1	0.03	4.57	-6.25	4.00	-15.66
2021	152	57.9	-0.01	2.56	-4.47	-1.69	-10.98
2022	153	57.5	-0.01	3.97	-3.76	-3.13	-15.23
2023	144	55.6	0.02	2.89	-3.12	2.31	-8.06
2024	139	48.2	0.01	2.02	-2.40	1.30	-6.51
2025	155	56.1	0.14	7.69	-3.88	22.51	-8.79
2026	126	50.8	0.01	2.33	-2.40	0.55	-13.35
ALL	**1519**	**54.2**	**0.03**	**7.69**	**-6.25**	**36.30**	**-22.28**

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

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

2016-10-24 to 2026-10-30 | 1340 trades | +27.5% cumulative

TIER 1: TRADE QUALITY

Total trades	**1340**
Win rate	**55.2%**
Profit ratio	**1.10**
Expectancy / trade	**+0.020%**
Avg winner	**+0.41%**
Avg loser	**-0.46%**
R-multiple (avg win / avg loss)	**0.89x**
Max consecutive wins	**11**
Max consecutive losses	**6**
Avg minutes held / avg entry	**316 min / 10:43 ET**
Days traded	**53.2% of sessions**
Trades per year	**133.8**
Time in market	**43.1%**

TIER 2: RISK & SIZING

Sharpe ratio	**0.36**
Sortino ratio	**0.47**
Max drawdown	**20.08%**
Max drawdown duration	**1856 days**
MAR (annual return / max DD)	**0.12**
Recovery factor	**1.4x**
Equity curve R2	**0.519**
Kelly / half-Kelly	**5.0% / 2.5%**
Annual return	**+2.46%**
Total return	**+27.5%**

SLIPPAGE SENSITIVITY (round trip)

5 bps	**Win 50% Sharpe -0.52 Net -34.7%**
10 bps	**Win 45% Sharpe -1.39 Net -66.6%**
15 bps	**Win 40% Sharpe -2.26 Net -82.9%**
20 bps	**Win 36% Sharpe -3.13 Net -91.3%**
30 bps	**Win 27% Sharpe -4.88 Net -97.7%**

SPY - Tier 3: Deep Analysis (ORB50)

WORST 5 TRADES

1. -6.00% 2020-03-20 entry 10:40 ET @ 243.55 -> close 228.94
2. -4.00% 2018-02-05 entry 10:22 ET @ 275.20 -> close 264.18
3. -3.39% 2025-11-20 entry 10:37 ET @ 675.41 -> close 652.53
4. -3.38% 2020-03-16 entry 10:31 ET @ 247.79 -> close 239.41
5. -3.12% 2024-12-18 entry 10:21 ET @ 605.19 -> close 586.30

BEST 5 TRADES

1. +3.40% 2018-12-26 entry 11:56 ET @ 237.85 -> close 245.94
2. +3.34% 2022-10-13 entry 10:47 ET @ 354.14 -> close 365.96
3. +3.33% 2020-03-02 entry 10:49 ET @ 299.11 -> close 309.08
4. +2.72% 2020-03-17 entry 11:09 ET @ 247.45 -> close 254.19
5. +2.53% 2022-02-24 entry 10:21 ET @ 417.74 -> close 428.31

BY ENTRY TIME

10:21-10:59: 1037 trades, win 55.3%, avg +0.014%, sum +14.7%
11:00-11:59: 303 trades, win 55.1%, avg +0.042%, sum +12.6%

BY WEEKDAY

Mon: 250 trades, win 55.2%, avg +0.024%, sum +5.9%
Tue: 266 trades, win 54.1%, avg +0.044%, sum +11.7%
Wed: 282 trades, win 55.0%, avg -0.022%, sum -6.3%
Thu: 276 trades, win 53.3%, avg +0.009%, sum +2.4%
Fri: 266 trades, win 58.6%, avg +0.051%, sum +13.5%

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

2016-10-24 to 2026-10-30 | 1266 trades | +8.0% cumulative

TIER 1: TRADE QUALITY

Total trades	**1266**
Win rate	**56.5%**
Profit ratio	**1.03**
Expectancy / trade	**+0.010%**
Avg winner	**+0.52%**
Avg loser	**-0.65%**
R-multiple (avg win / avg loss)	**0.80x**
Max consecutive wins	**12**
Max consecutive losses	**7**
Avg minutes held / avg entry	**315 min / 10:43 ET**
Days traded	**50.3% of sessions**
Trades per year	**126.4**
Time in market	**40.6%**

TIER 2: RISK & SIZING

Sharpe ratio	**0.13**
Sortino ratio	**0.16**
Max drawdown	**28.18%**
Max drawdown duration	**1964 days**
MAR (annual return / max DD)	**0.03**
Recovery factor	**0.3x**
Equity curve R2	**0.153**
Kelly / half-Kelly	**1.9% / 1.0%**
Annual return	**+0.77%**
Total return	**+8.0%**

SLIPPAGE SENSITIVITY (round trip)

5 bps	**Win 53% Sharpe -0.52 Net -42.7%**
10 bps	**Win 49% Sharpe -1.16 Net -69.6%**
15 bps	**Win 45% Sharpe -1.80 Net -83.9%**
20 bps	**Win 42% Sharpe -2.44 Net -91.4%**
30 bps	**Win 35% Sharpe -3.73 Net -97.6%**

QQQ - Tier 3: Deep Analysis (ORB50)

WORST 5 TRADES

1. -6.50% 2020-03-20 entry 10:56 ET @ 182.60 -> close 170.74
2. -6.03% 2025-04-08 entry 10:22 ET @ 442.95 -> close 416.24
3. -5.00% 2020-03-16 entry 10:27 ET @ 178.50 -> close 169.58
4. -4.58% 2025-11-20 entry 10:37 ET @ 613.79 -> close 585.67
5. -4.30% 2018-02-05 entry 10:21 ET @ 165.27 -> close 158.17

BEST 5 TRADES

1. +3.76% 2018-12-26 entry 11:57 ET @ 146.95 -> close 152.47
2. +3.66% 2022-02-24 entry 10:21 ET @ 328.61 -> close 340.65
3. +3.60% 2022-10-13 entry 10:56 ET @ 259.42 -> close 268.75
4. +3.25% 2020-03-02 entry 10:54 ET @ 209.67 -> close 216.48
5. +2.74% 2020-03-17 entry 11:04 ET @ 177.15 -> close 182.01

BY ENTRY TIME

10:21-10:59: 976 trades, win 56.2%, avg -0.000%, sum -0.1%
11:00-11:59: 290 trades, win 57.2%, avg +0.044%, sum +12.7%

BY WEEKDAY

Mon: 244 trades, win 57.8%, avg +0.017%, sum +4.2%
Tue: 256 trades, win 57.0%, avg +0.062%, sum +16.0%
Wed: 262 trades, win 56.9%, avg +0.018%, sum +4.6%
Thu: 263 trades, win 52.5%, avg -0.060%, sum -15.8%
Fri: 241 trades, win 58.5%, avg +0.015%, sum +3.6%

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

2016-10-24 to 2026-10-30 | 1154 trades | +3.7% cumulative

TIER 1: TRADE QUALITY

Total trades	**1154**
Win rate	**56.2%**
Profit ratio	**1.02**
Expectancy / trade	**+0.007%**
Avg winner	**+0.54%**
Avg loser	**-0.68%**
R-multiple (avg win / avg loss)	**0.80x**
Max consecutive wins	**9**
Max consecutive losses	**9**
Avg minutes held / avg entry	**315 min / 10:43 ET**
Days traded	**45.8% of sessions**
Trades per year	**115.2**
Time in market	**37.0%**

TIER 2: RISK & SIZING

Sharpe ratio	**0.09**
Sortino ratio	**0.11**
Max drawdown	**30.52%**
Max drawdown duration	**2987 days**
MAR (annual return / max DD)	**0.01**
Recovery factor	**0.1x**
Equity curve R2	**0.004**
Kelly / half-Kelly	**1.3% / 0.7%**
Annual return	**+0.36%**
Total return	**+3.7%**

SLIPPAGE SENSITIVITY (round trip)

5 bps	**Win 53% Sharpe -0.52 Net -41.8%**
10 bps	**Win 49% Sharpe -1.13 Net -67.3%**
15 bps	**Win 45% Sharpe -1.74 Net -81.7%**
20 bps	**Win 41% Sharpe -2.35 Net -89.7%**
30 bps	**Win 35% Sharpe -3.57 Net -96.8%**

IWM - Tier 3: Deep Analysis (ORB50)

WORST 5 TRADES

1. -6.25% 2020-03-20 entry 10:51 ET @ 108.04 — > *close* 101.29
2. -5.65% 2020-03-16 entry 10:34 ET @ 109.49 — > *close* 103.30
3. -4.73% 2021-12-01 entry 11:02 ET @ 223.86 — > *close* 213.28
4. -4.35% 2020-03-12 entry 10:54 ET @ 116.80 — > *close* 111.72
5. -4.14% 2020-03-09 entry 11:50 ET @ 136.00 — > *close* 130.37

BEST 5 TRADES

1. +3.58% 2018-12-26 entry 11:39 ET @ 127.37 — > *close* 131.93
2. +3.42% 2020-06-15 entry 10:46 ET @ 136.40 — > *close* 141.07
3. +3.27% 2022-10-13 entry 10:55 ET @ 165.96 — > *close* 171.39
4. +2.87% 2022-02-24 entry 11:07 ET @ 192.65 — > *close* 198.18
5. +2.49% 2021-03-25 entry 11:30 ET @ 211.42 — > *close* 216.69

BY ENTRY TIME

10:21-10:59: 883 trades, win 54.9%, avg -0.011%, sum -9.4%
11:00-11:59: 271 trades, win 60.5%, avg +0.065%, sum +17.6%

BY WEEKDAY

Mon: 219 trades, win 56.2%, avg +0.001%, sum +0.2%
Tue: 237 trades, win 57.4%, avg +0.084%, sum +19.8%
Wed: 230 trades, win 54.3%, avg -0.048%, sum -11.0%
Thu: 242 trades, win 55.4%, avg -0.001%, sum -0.4%
Fri: 226 trades, win 58.0%, avg -0.002%, sum -0.5%