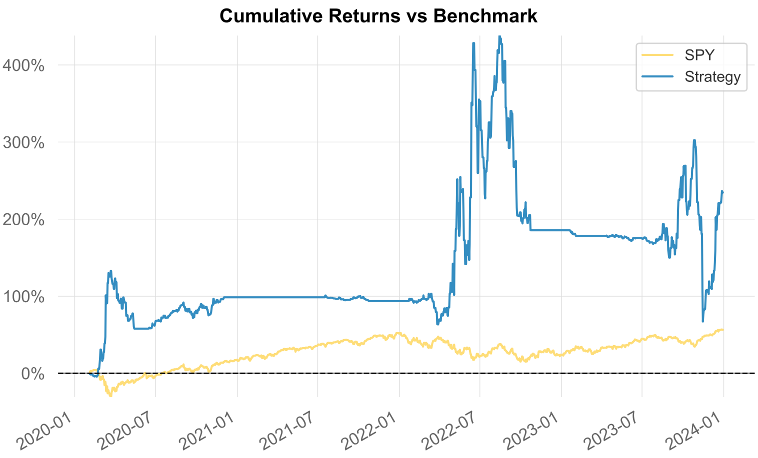
MLTrader Compared to SPY 4 Feb, 2020 - 30 Dec, 2023

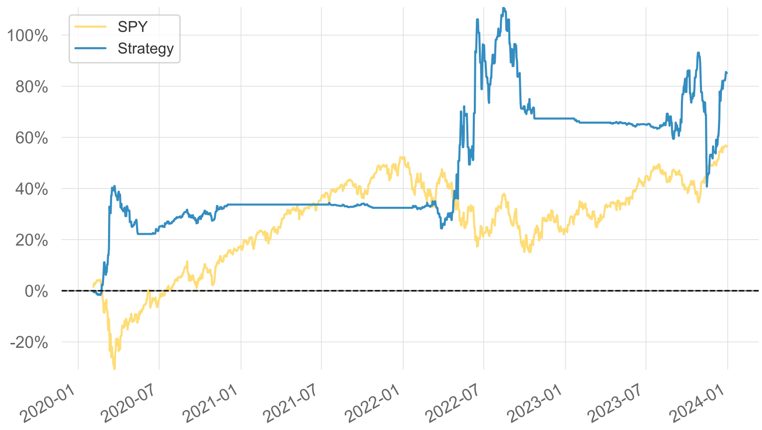
Benchmark is SPY | Generated by QuantStats (v. 0.3.3)



Annual Return ⓘ

36.24%

Total Return ⓘ	Max Drawdown ⓘ
234%	-68.94%
RoMaD ⓘ	Longest DD Days ⓘ
0.53	768
Sharpe ⓘ	Sortino ⓘ
0.72	1.22

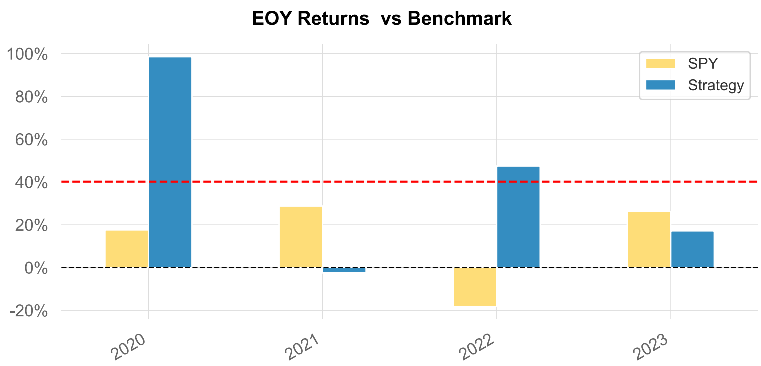


Parameters Used

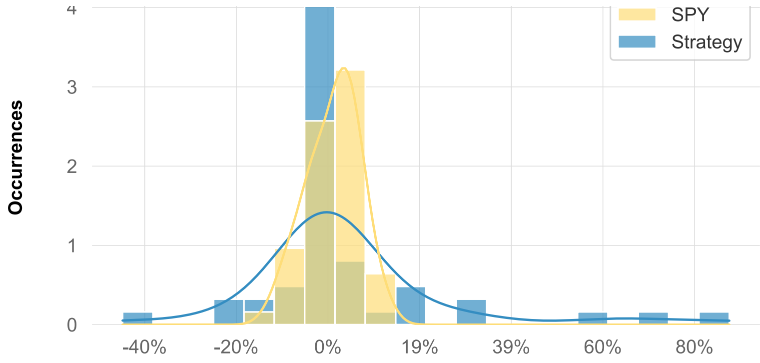
Parameter	Value
symbol	SPY
cash_at_risk	0.5

Key Performance Metrics

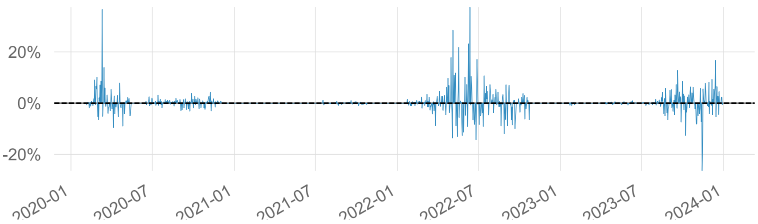
Metric	SPY	Strategy
Risk-Free Rate	5.21%	5.21%
Time in Market	69.0%	38.0%
Total Return	56%	234%
CAGR% (Annual Return)	12.14%	36.24%
Sharpe	0.39	0.72
RoMaD	0.36	0.53
Corr to Benchmark	1.0	-0.21
Prob. Sharpe Ratio	22.94%	34.38%
Smart Sharpe	0.37	0.68
Sortino	0.55	1.22
Smart Sortino	0.52	1.15
Sortino/√2	0.39	0.86
Smart Sortino/√2	0.36	0.81
Omega	1.25	1.25



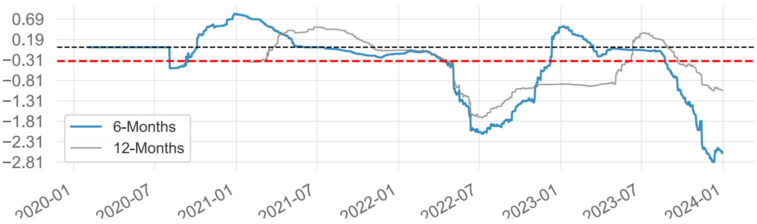
Distribution of Monthly Returns



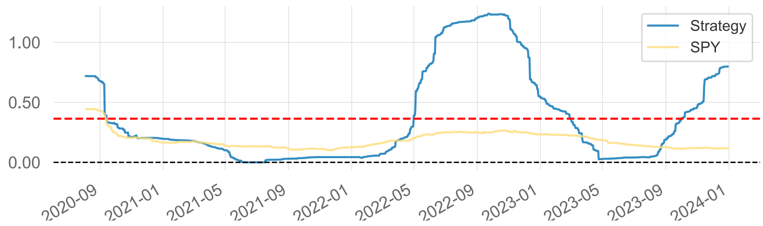
Daily Returns



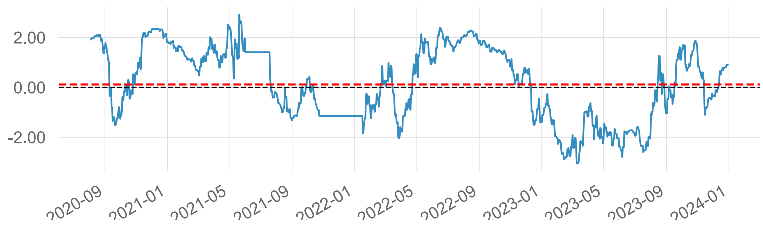
Rolling Beta to Benchmark



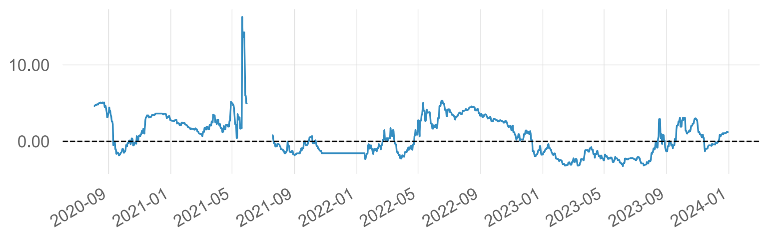
Rolling Volatility (6-Months)



Rolling Sharpe (6-Months)

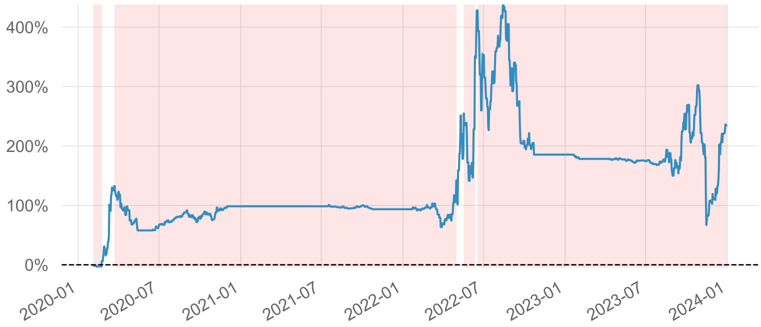


Rolling Sortino (6-Months)



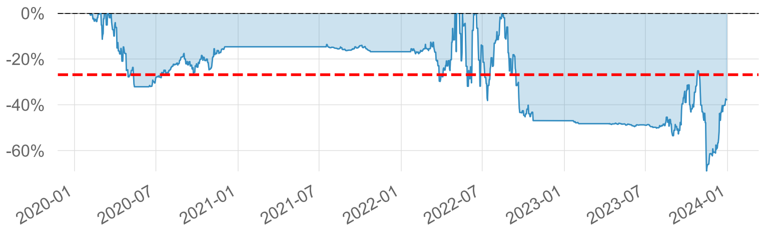
Strategy - Worst 5 Drawdown Periods

Metric	SPY	Strategy
Max Drawdown	-33.68%	-68.94%
Longest DD Days	708	768
Volatility (ann.)	22.79%	59.61%
R^2	0.05	0.05
Information Ratio	0.03	0.03
Calmar	0.36	0.53
Skew	-0.57	2.97
Kurtosis	16.09	44.13
Expected Daily%	0.03%	0.08%
Expected Monthly%	0.96%	2.6%
Expected Yearly%	11.83%	35.23%
Daily Value-at-Risk	-1.92%	-5.0%
Expected Shortfall (cVaR)	-1.92%	-5.0%
MTD	4.57%	59.06%
3M	11.64%	1.95%
6M	9.33%	21.59%
YTD	26.21%	17.15%
1Y	25.88%	17.15%
3Y (ann.)	10.67%	19.59%
5Y (ann.)	12.14%	36.24%
10Y (ann.)	12.14%	36.24%
All-time (ann.)	12.14%	36.24%
Best Day	9.06%	37.47%
Worst Day	-10.94%	-26.38%
Best Month	12.7%	87.58%
Worst Month	-12.44%	-44.83%
Best Year	28.77%	98.55%
Worst Year	-18.16%	-2.5%
Avg. Drawdown	-2.17%	-19.36%
Avg. Drawdown Days	22	116
Recovery Factor	1.63	2.71
Ulcer Index	0.1	0.31
Serenity Index	0.29	0.35
Avg. Up Month	5.31%	13.78%
Avg. Down Month	-3.9%	-8.6%
Win Days	766.73	730.2



Metric	SPY	Strategy
Loss Days	659.27	695.8
Win Days%	53.77%	51.21%
Win Month%	63.83%	47.22%
Win Quarter%	68.75%	50.0%
Win Year%	75.0%	75.0%
Beta	-	-0.56
Alpha	-	0.56
Correlation	-	-21.29%
Treynor Ratio	-	-411.65%

Underwater Plot

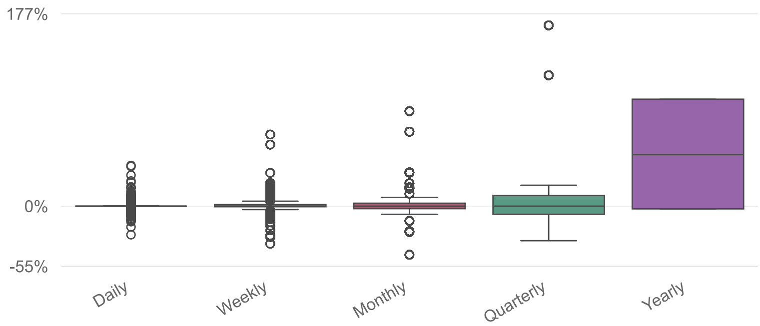


	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2020	0.00	30.82	68.68	-23.87	-5.98	4.48	5.74	8.08	-3.85	-3.01	11.39	1.35
2021	0.00	0.00	0.00	0.00	0.00	0.00	-0.22	-1.69	2.53	-3.06	0.00	0.00
2022	0.48	1.03	-13.54	21.00	17.48	87.58	2.69	-13.60	-23.20	-7.53	0.00	0.00
2023	-1.51	-1.00	0.00	-0.55	-0.41	-0.22	-2.34	-6.92	31.21	16.17	-44.83	59.06

EOY Returns vs Benchmark

Year	SPY	Strategy	Multiplier	Won
2020	17.60%	98.55%	5.60	+
2021	28.77%	-2.50%	-0.09	-
2022	-18.16%	47.47%	-2.61	+
2023	26.21%	17.15%	0.65	-

Strategy - Return Quantiles



Worst 10 Drawdowns

Started	Recovered	Drawdown	Days
2022-08-16	2023-12-30	-68.94%	502
2022-06-19	2022-08-13	-38.16%	56
2020-03-24	2022-04-30	-32.14%	768
2022-05-19	2022-06-11	-31.94%	24
2022-05-12	2022-05-17	-20.83%	6
2022-05-03	2022-05-04	-16.81%	2
2020-03-01	2020-03-07	-11.40%	7
2020-03-12	2020-03-14	-5.17%	3
2020-02-05	2020-02-22	-3.67%	18
2020-03-18	2020-03-21	-2.00%	4