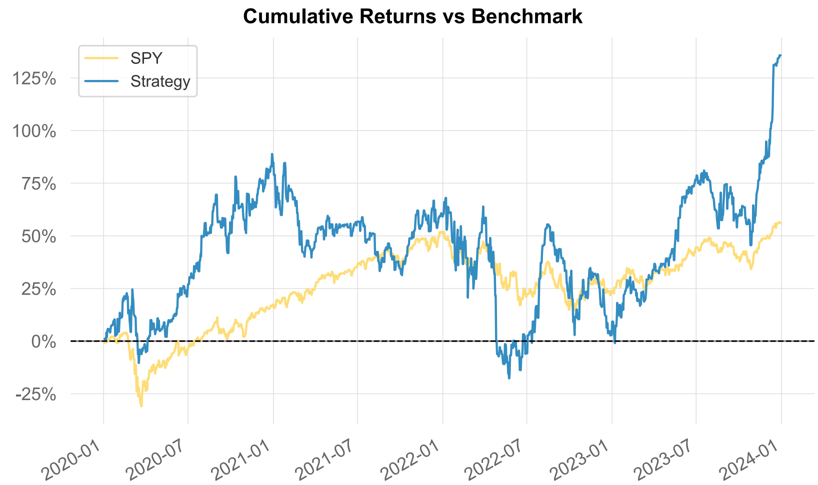
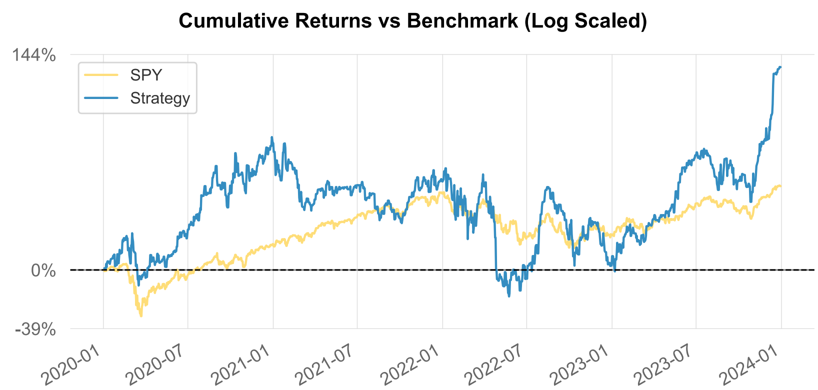
MLTrader Compared to SPY 3 Jan, 2020 - 30 Dec, 2023

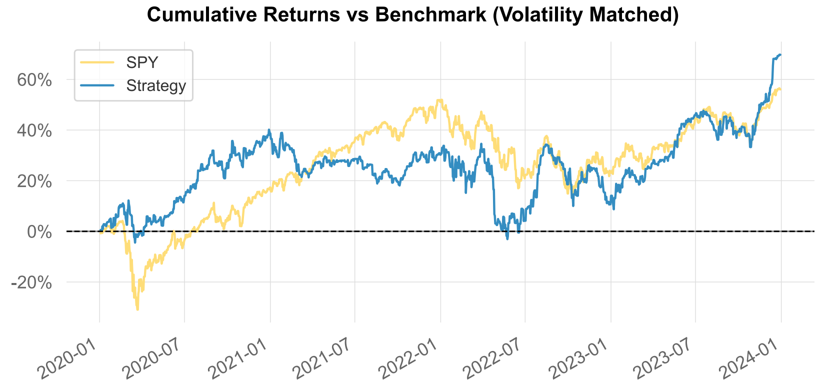
Benchmark is SPY | Generated by QuantStats (v. 0.2.0)

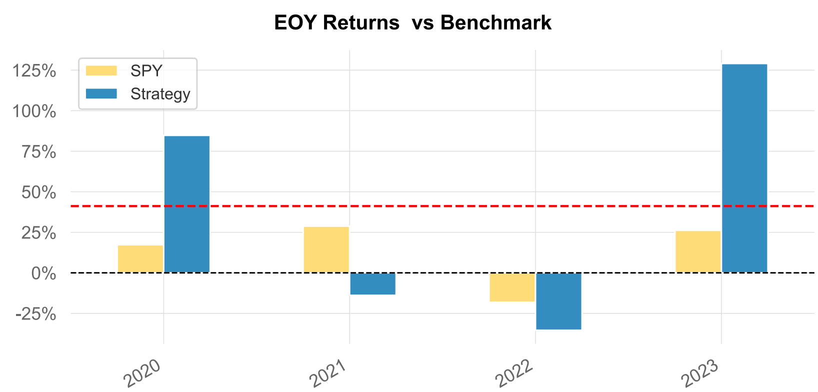


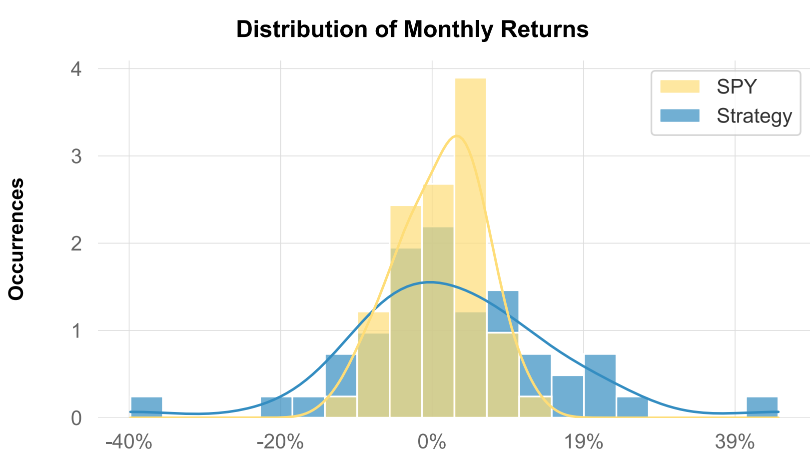


Key Performance Metrics

Metric	SPY	Strategy
Risk-Free Rate	5.24%	5.24%
Time in Market	69.0%	63.0%
Total Return	56.05%	135.69%
CAGR% (Annual Return)	11.79%	23.96%
Sharpe	0.38	0.59
ROMaD	0.35	0.42
Corr to Benchmark	1.0	0.3
Prob. Sharpe Ratio	21.82%	27.45%
Smart Sharpe	0.36	0.55
Sortino	0.53	0.85
Smart Sortino	0.5	0.8
Sortino/√2	0.37	0.6
Smart Sortino/√2	0.35	0.57
Omega	1.12	1.12
Max Drawdown	-33.68%	-56.46%
Longest DD Days	708	1064
Volatility (ann.)	22.61%	45.71%
R^2	0.09	0.09
Information Ratio	0.02	0.02
Calmar	0.35	0.42
Skew	-0.57	-0.16
Kurtosis	16.3	6.49
Expected Daily	0.03%	0.06%
Expected Monthly	0.93%	1.8%
Expected Yearly	11.77%	23.9%
Kelly Criterion	-0.46%	2.28%
Risk of Ruin	0.0%	0.0%

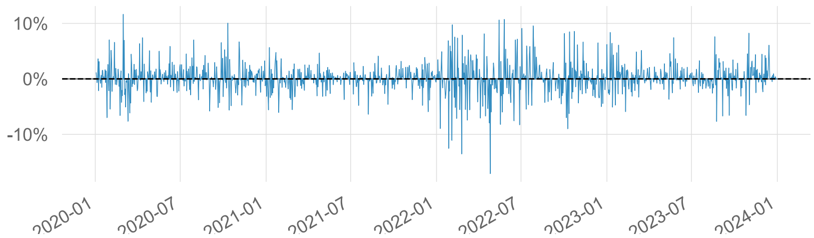




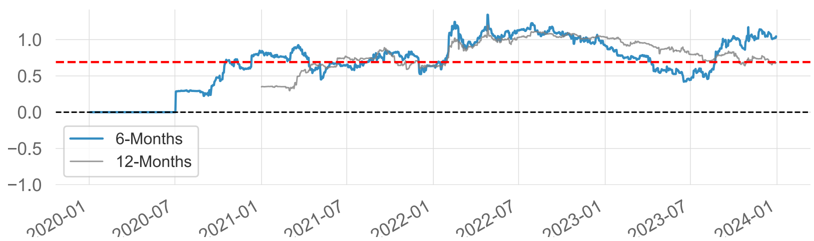


Daily Value-at-Risk	-1.91%	-3.85%
Expected Shortfall (cVaR)	-1.91%	-3.85%
Max Consecutive Wins	4	6
Max Consecutive Losses	4	5
Gain/Pain Ratio	0.12	0.14
Gain/Pain (1M)	0.64	0.75
Payoff Ratio	0.85	0.95
Profit Factor	1.12	1.14
Common Sense Ratio	1.11	1.26
CPC Index	0.51	0.57
Tail Ratio	0.99	1.1
Outlier Win Ratio	10.45	5.29
Outlier Loss Ratio	5.37	2.52
MTD	4.57%	23.03%
3M	11.64%	48.01%
6M	9.33%	33.4%
YTD	26.21%	129.1%
1Y	25.88%	128.91%
3Y (ann.)	10.67%	12.4%
5Y (ann.)	11.79%	23.96%
10Y (ann.)	11.79%	23.96%
All-time (ann.)	11.79%	23.96%
Best Day	9.06%	11.64%
Worst Day	-10.94%	-17.08%
Best Month	12.7%	45.72%
Worst Month	-12.44%	-39.82%
Best Year	28.77%	129.1%
Worst Year	-18.16%	-35.38%
Avg. Drawdown	-2.09%	-5.87%
Avg. Drawdown Days	21	44
Recovery Factor	1.63	2.26
Ulcer Index	0.1	0.24
Serenity Index	0.29	0.3

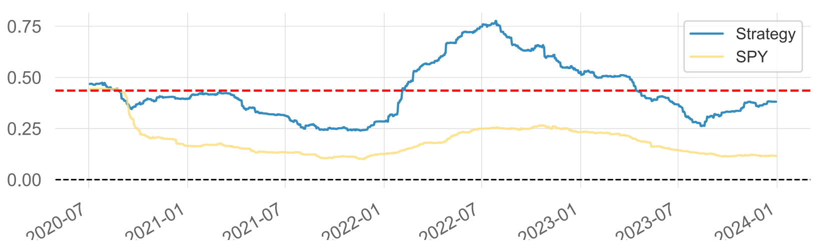
Daily Returns



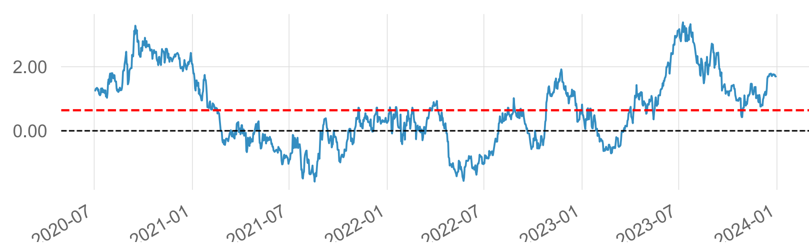
Rolling Beta to Benchmark



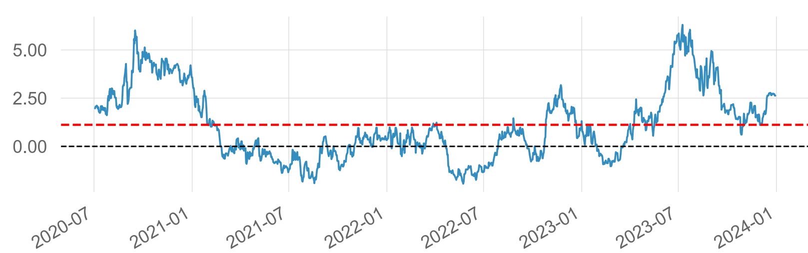
Rolling Volatility (6-Months)



Rolling Sharpe (6-Months)



Rolling Sortino (6-Months)



Avg. Up Month	5.43%	12.53%
Avg. Down Month	-5.72%	-10.14%
Win Days	53.84%	52.31%
Win Month	62.5%	56.25%
Win Quarter	68.75%	56.25%
Win Year	75.0%	50.0%
Beta	-	0.6
Alpha	-	0.24
Correlation	-	29.71%
Treynor Ratio	-	217.12%

EOY Returns vs Benchmark

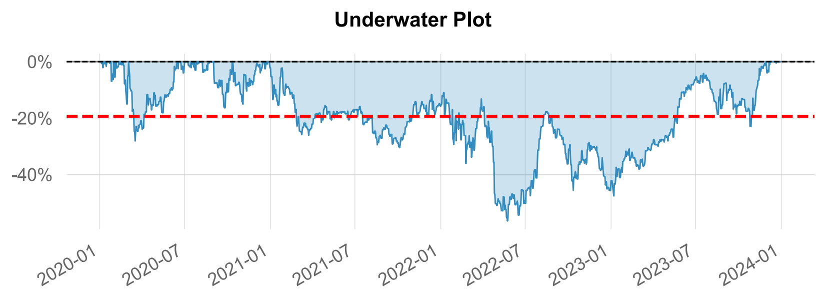
Year	SPY	Strategy	Multiplier	Won
2020	17.33%	84.77%	4.89	+
2021	28.77%	-13.84%	-0.48	-
2022	-18.16%	-35.38%	1.95	-
2023	26.21%	129.10%	4.93	+

Worst 10 Drawdowns

Started	Recovered	Drawdown	Days
2020-12-30	2023-11-28	-56.46%	1064
2020-03-04	2020-06-13	-28.10%	102
2020-09-01	2020-10-10	-16.33%	40
2020-10-13	2020-12-15	-15.07%	64
2020-02-21	2020-03-02	-14.99%	11
2020-01-26	2020-01-30	-6.99%	5
2020-02-02	2020-02-04	-5.46%	3
2023-11-30	2023-12-05	-3.96%	6
2020-06-23	2020-06-30	-3.95%	8
2020-08-09	2020-08-22	-3.78%	14

Parameters Used

Parameter	Value
symbols	['AMD', 'AAPL', 'AMZN', 'F', 'BAC']
cash_at_risk	0.5



	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2020	10.51	-5.56	-7.62	9.02	6.78	10.30	20.60	13.54	-7.72	0.68	9.45	7.17
2021	-9.96	-10.91	-0.73	7.79	-2.17	1.01	-4.34	-3.98	-6.57	13.30	2.15	2.28
2022	-11.13	-5.43	16.54	-39.82	4.75	-4.21	45.72	2.77	-14.56	7.18	0.27	-20.53
2023	21.24	-4.60	12.55	3.08	18.72	7.80	-0.40	-1.05	-8.55	-4.57	26.06	23.03


Strategy - Return Quantiles
80%
60%
39%
19%
0%
-20%
-40%
Daily
Weekly
Monthly
Quarterly
Yearly