TRADING STRATEGY

Hieu & Loi

TIMELINE

OVERVIEW

Hypothesis
Strategy Implementation

OPTIMIZATION

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BACKTESTING

Daily Data
5 Minute Data

PAPER TRADING

1 Minute Data

OVERVIEW

Trending

Sideway

$$r^{TSMOM,s}_{t,t+1} = sign(r^{s}_{t-12,t})\frac{40\%}{\sigma^{s}_{t}} r^{s}_{t,t+1}$$

MOMENTUM

LONG

1. Rolling Return of the last X Days is larger than Y (Y>0)

Ex: the stock returns of the last 21 days >0 then go long

2. Price > Z SMA (Z < X)

SHORT

1. Rolling Return of the last X Days is Lower than Y (Y<0)

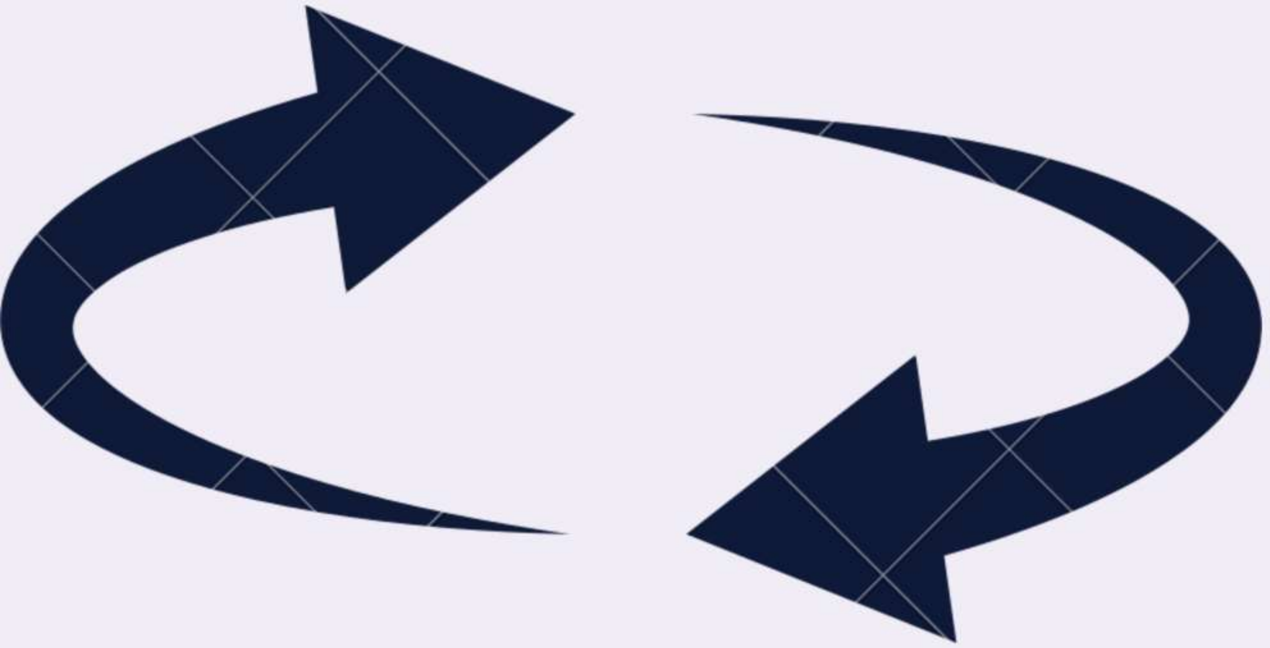
Ex: the stock returns of the last 21 days >0 then go long

2. Price < Z SMA (Z < X)

- **Collaborate 2 types of momentums,**
- **SMA represents shorter terms again confirms the longer terms by the rolling retrun**

Rolling Return = (Price t=x/ Price t=now)-1

MEAN REVERSION



LONG

Price decreases and exceeds X Bollinger Bands and then goes up and cross Y SMA (Y<X)

SHORT

1. Rolling Return of the last X Days is Lower than Y (Y<0)

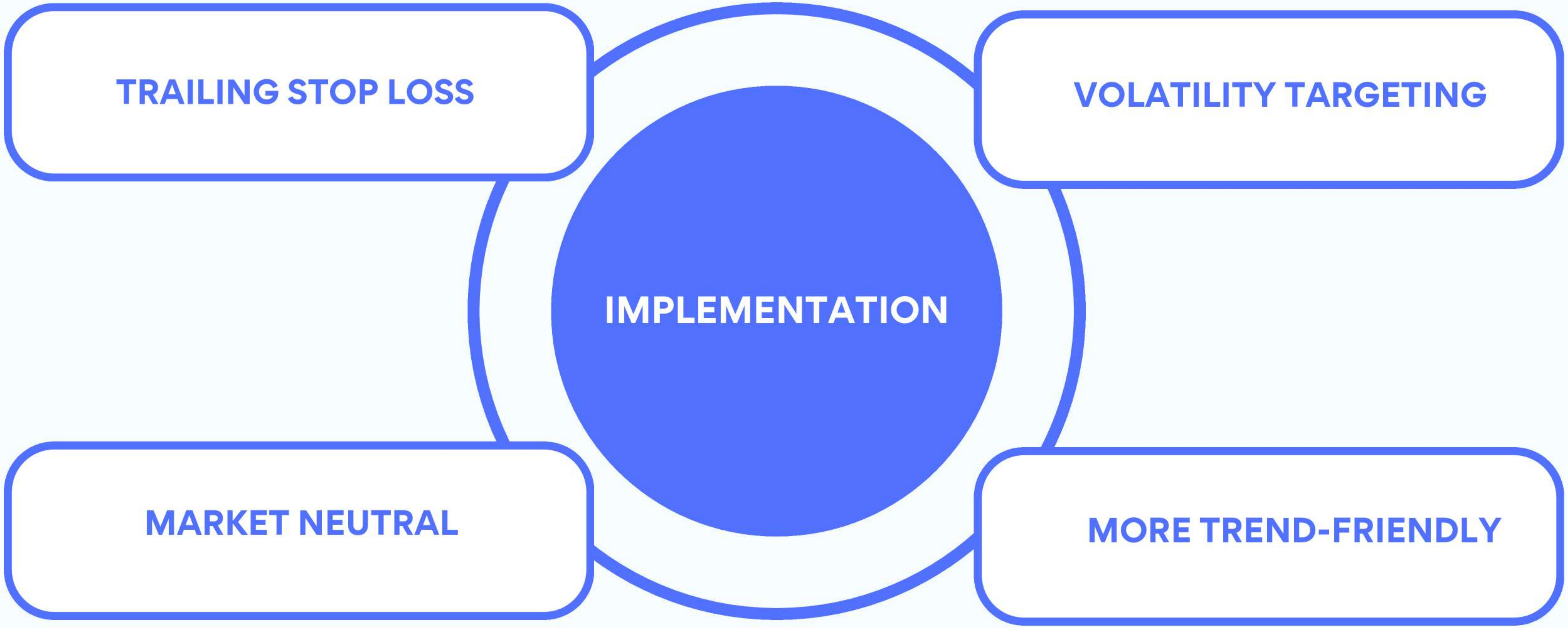
Ex: the stock returns of the last 21 days >0 then go long

2. Price < Z SMA (Z < X)

- **Limit the chance of cutting an extreme trends (which results in huge losses)**
- **SMA represents shorter terms again confirms the longer terms by the rolling retrun**

Rolling Return = (Price t=x/ Price t=now)-1

STRATEGY


TRAILING STOP LOSS
VOLATILITY TARGETING
IMPLEMENTATION
MARKET NEUTRAL
MORE TREND-FRIENDLY

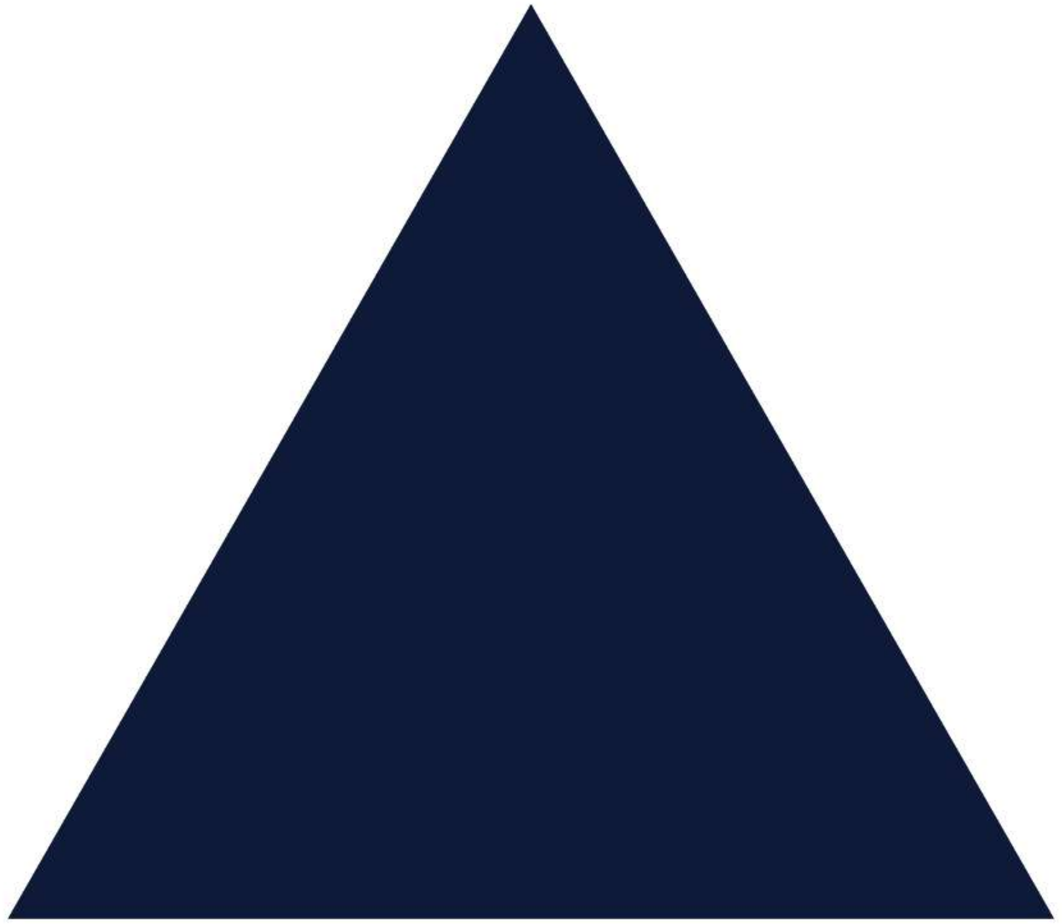
OPTIMIZATION

IN SAMPLE(60%) | VAL (10%) | OUT SAMPLE (30%)

3 OBJECTIVES

Objective Value

= Shape Ratio (IS) + 50 * max(0, sharpe_diff - sharpe_diff_max) + 200 * max(0, drawdown_is - max_drawdown))
→ **Penalty for Underperformance**



Maximum Drawdown

Sharpe Difference (IS-VAL)

OPTIMIZATION

Strategy 2 > Strategy 1

PARAMETERS

Daily Data

Strategy 1

SMA	**12**
BB	**42**
BB-STD	**1.23**
CUT LOSS	**1.28%**
VOL-TARGET	**TRUE**

Strategy 2

SMA	**7**
UP	**0%**
DOWN	**0%**
CUT LOSS	**.96%**
LOOKBACK	**29**
VOL-TARGET	**TRUE**

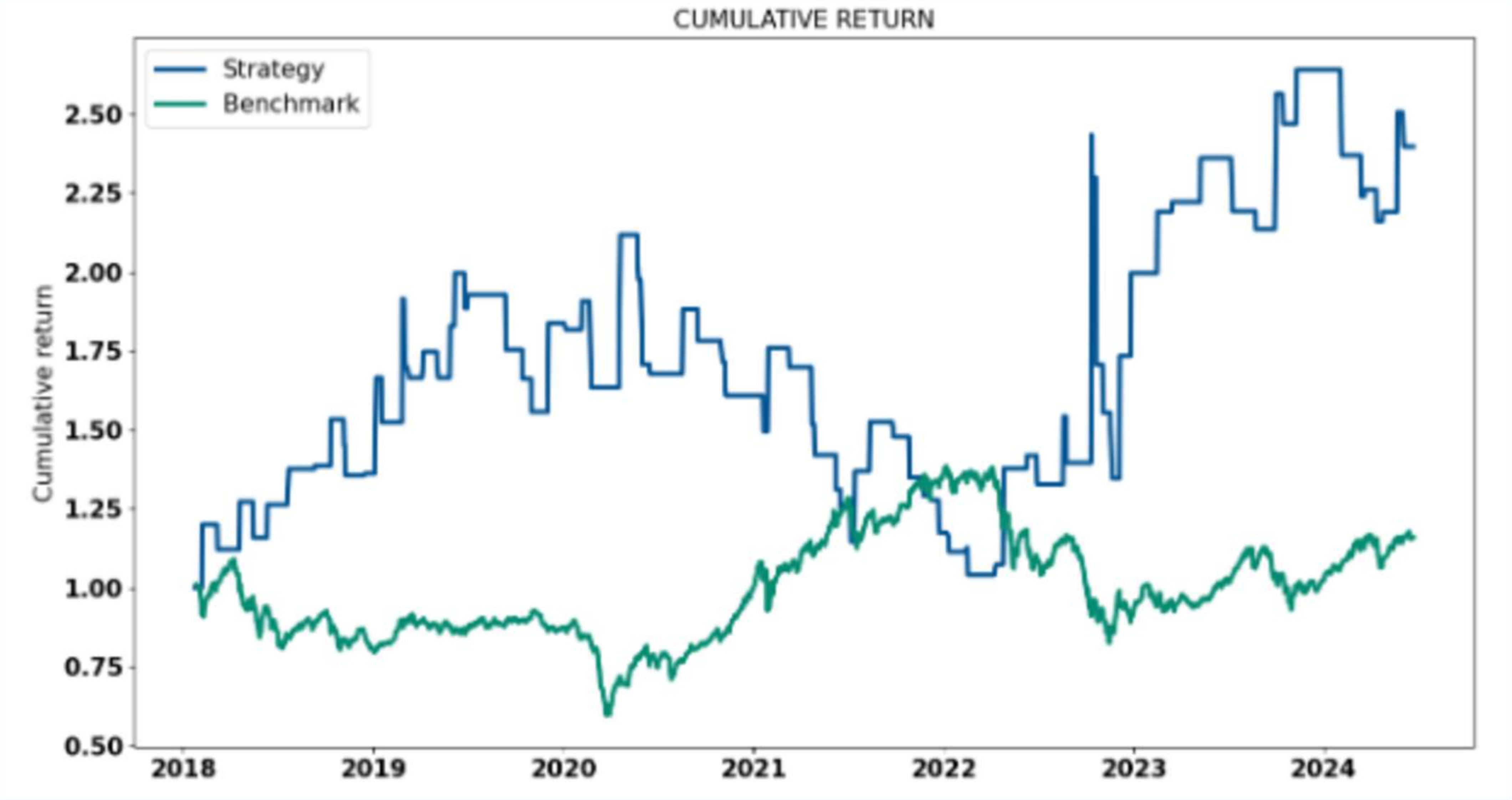
BACKTESTING

Strategy 1 - Daily Data

In Sample		Out Sample	
4%	ANNUAL RETURN	1.5%	ANNUAL RETURN
-0.0	SHARPE RATIO	-0.1	SHARPE RATIO
45.8%	MAX DRAWDOWN	18%	MAX DRAWDOWN

BACKTESTING

Strategy 1 - Daily Data



14%	ANNUAL RETURN
0.2	SHARPE RATIO
50%	MAX DRAWDOWN

BACKTESTING

Strategy 2 - Daily Data

In Sample		Out Sample	
67.8%	ANNUAL RETURN	47.2%	ANNUAL RETURN
0.84	SHARPE RATIO	0.71	SHARPE RATIO
57.3%	MAX DRAWDOWN	28.4%	MAX DRAWDOWN

BACKTESTING

Strategy 2 - Daily Data

58% ANNUAL RETURN

.74 SHARPE RATIO

57% MAX DRAWDOWN

BACKTESTING

Strategy Combined - Daily Data

In Sample

37.2% ANNUAL RETURN

0.77 SHARPE RATIO

30% MAX DRAWDOWN

Out Sample

26.6% ANNUAL RETURN

0.51 SHARPE RATIO

25% MAX DRAWDOWN

BACKTESTING

Strategy Combined - Daily Data

41%	ANNUAL RETURN
.79	SHARPE RATIO
39%	MAX DRAWDOWN
0.14	CORRELATION
0.5	WEIGHT

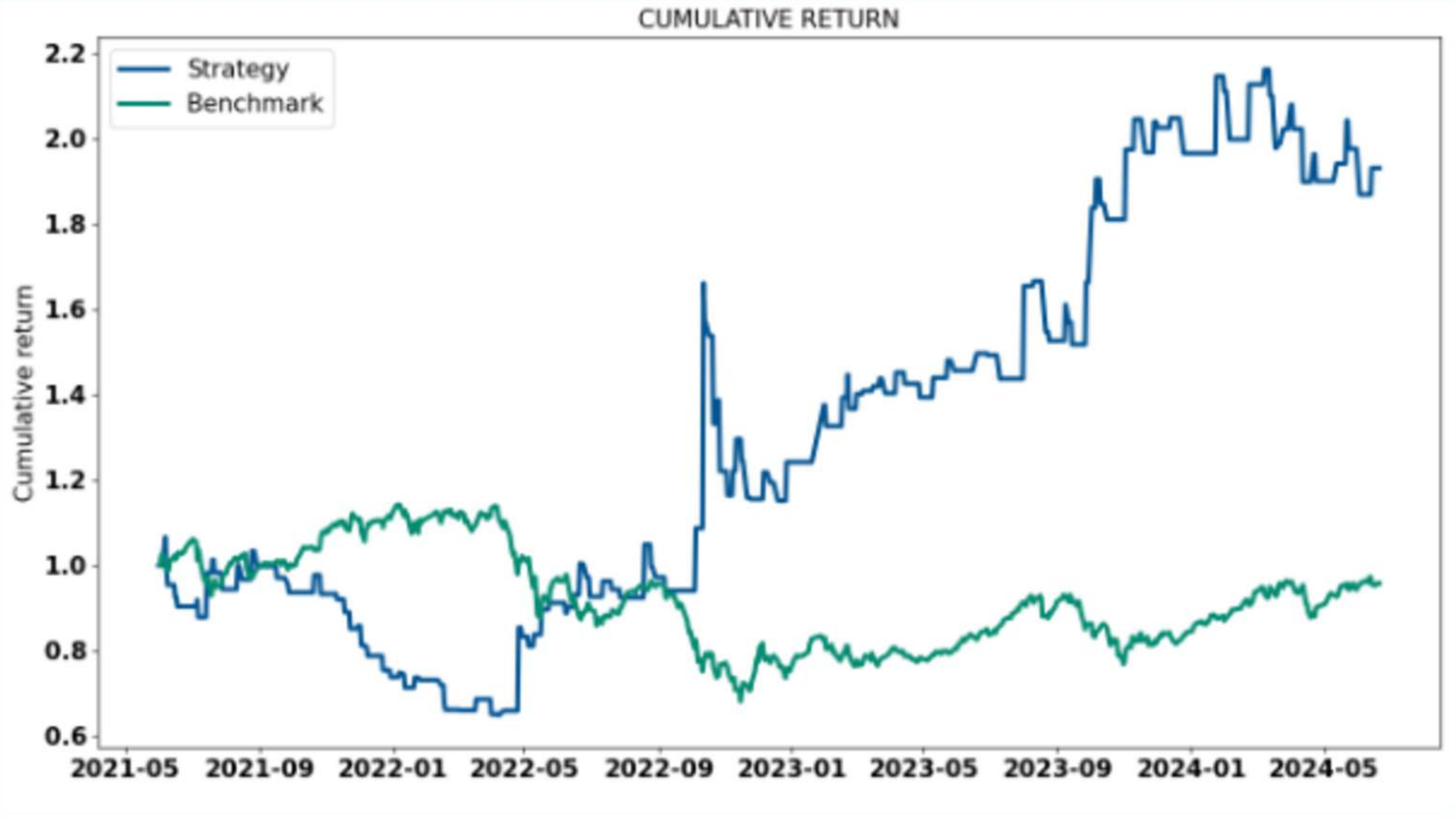
BACKTESTING

Strategy Combined Beginning 06/21 - Daily Data

24% ANNUAL RETURN

.4 SHARPE RATIO

39% MAX DRAWDOWN



PARAMETERS

Minute Data

Strategy 1

SMA	**91**
BB	**124**
BB-STD	**2.4**
CUT LOSS	**0.7%**
VOL-TARGET	**FALSE**

Strategy 2

SMA	**97**
UP	**0.9%**
DOWN	**-0%**
CUT LOSS	**1.2%**
LOOKBACK	**289**
VOL-TARGET	**FALSE**

BACKTESTING

Strategy 1 - Minute Data

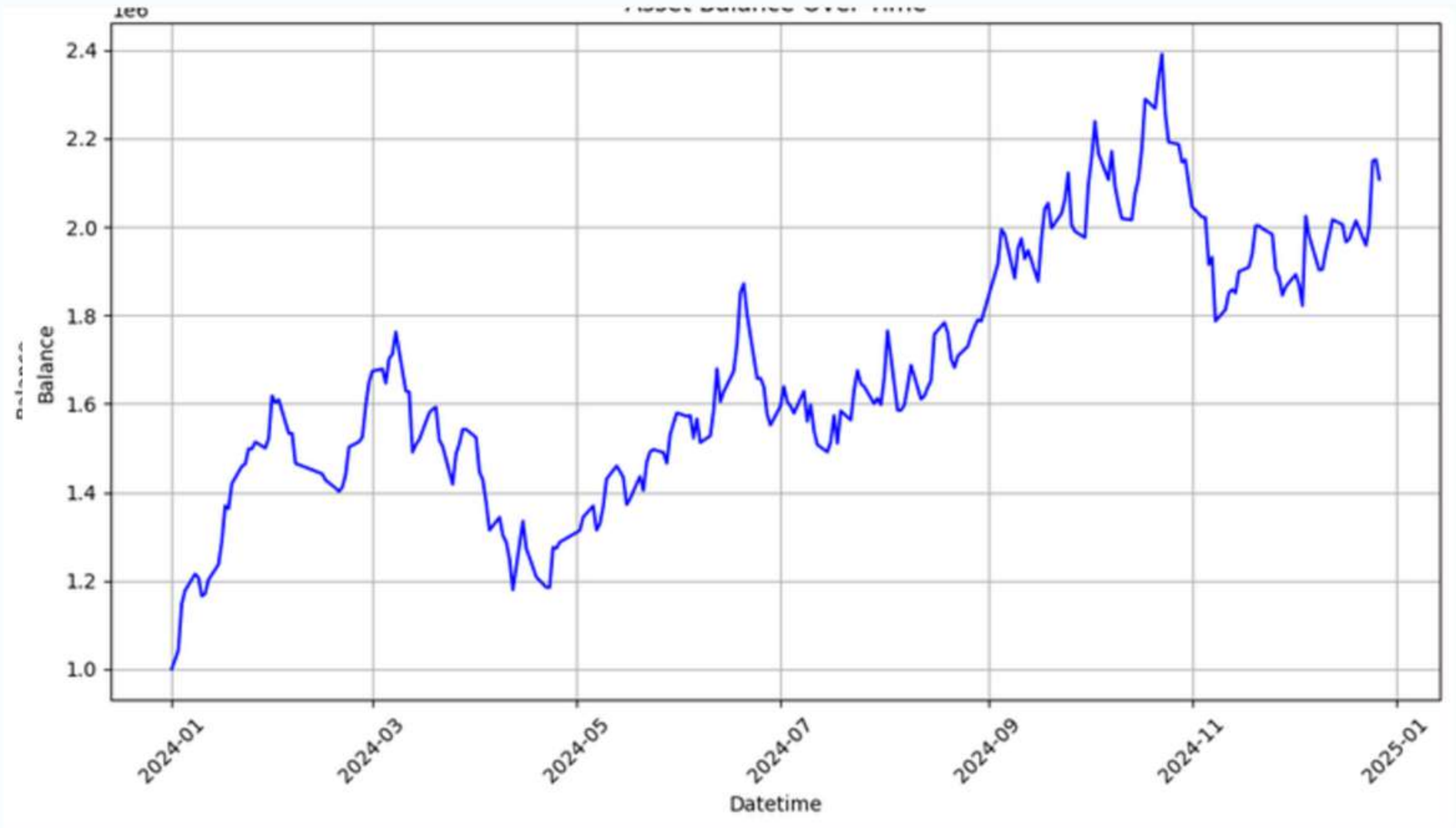
2.4 SHARPE RATIO

24% MAX DRAWDOWN

In Sample

1.61 SHARPE RATIO

34% MAX DRAWDOWN



Out Sample

BACKTESTING

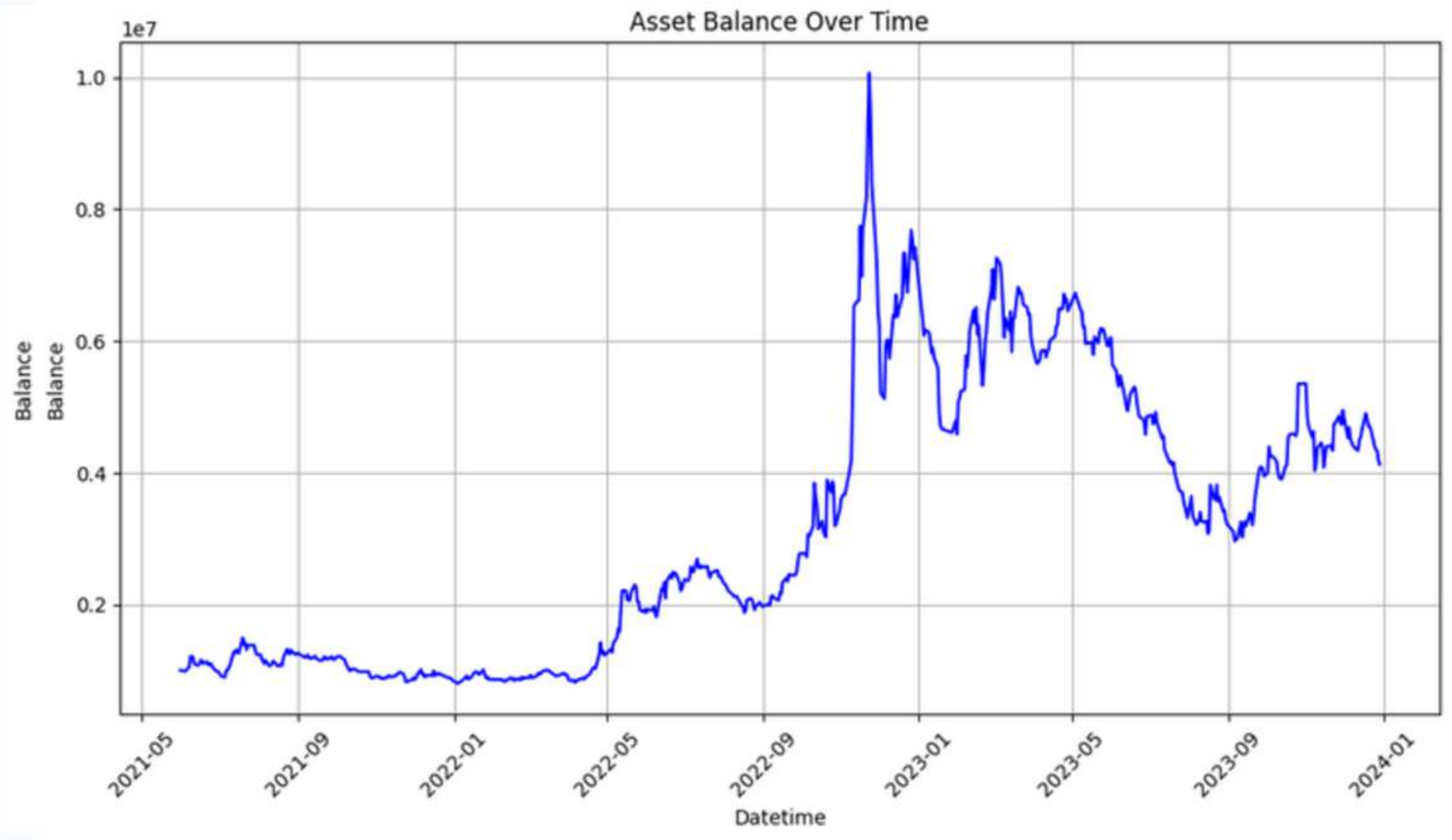
Strategy 2 - Minute Data

1.0 SHARPE RATIO

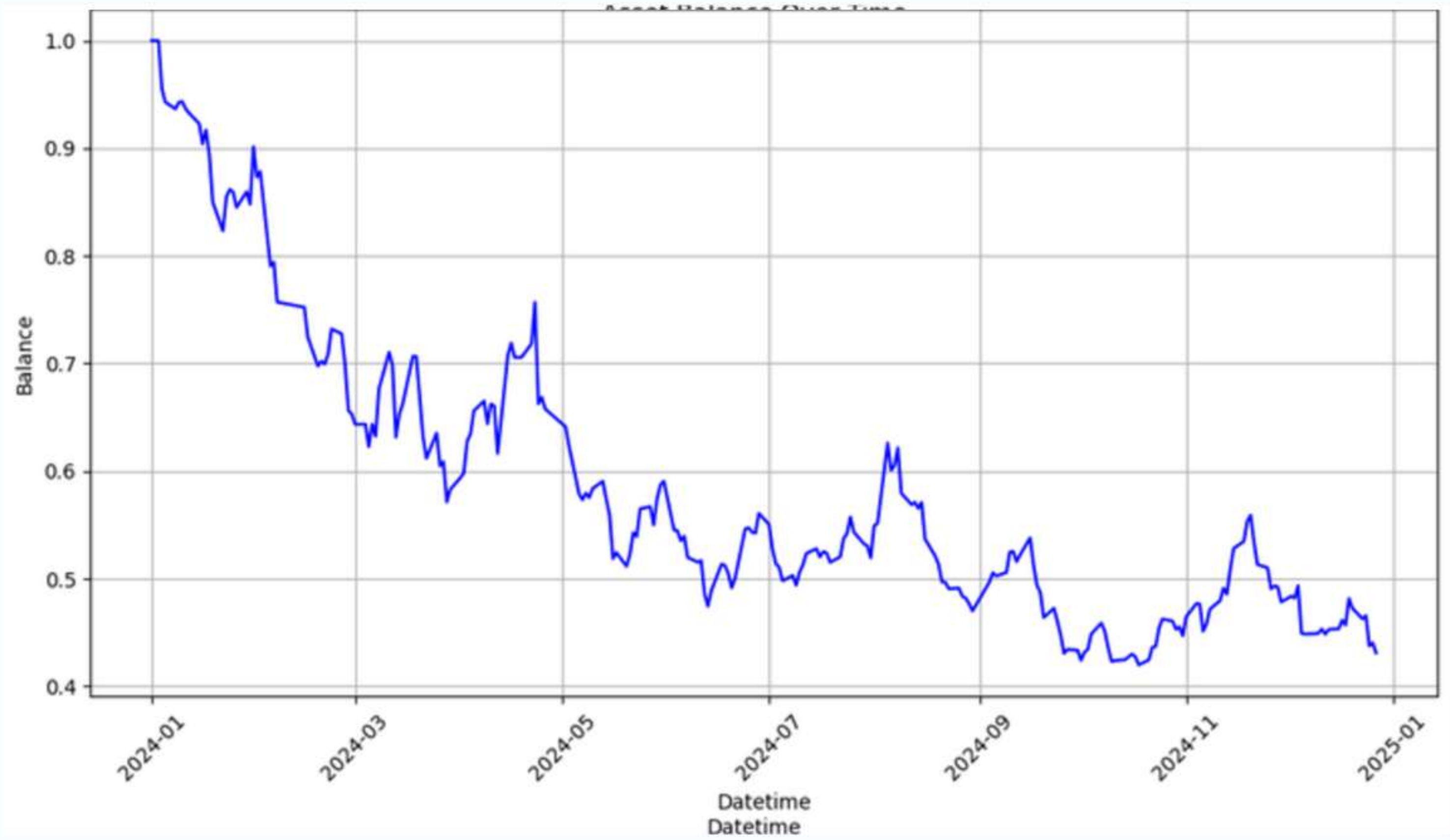
68% MAX DRAWDOWN

-1.4 SHARPE RATIO

59% MAX DRAWDOWN



In Sample



Out Sample

Paper Trading

SCOPE

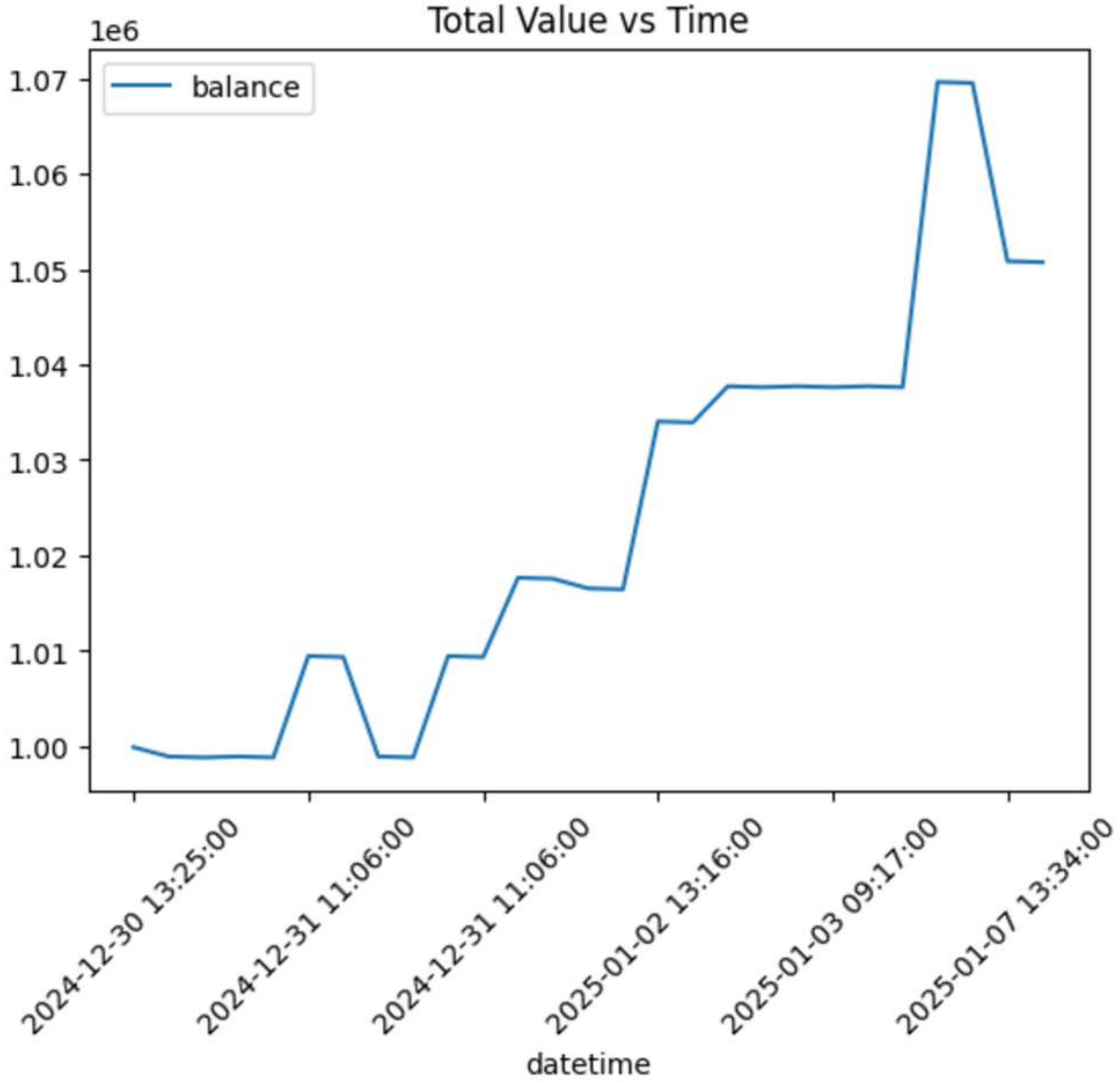
1. **Trading Period**:
   - **From**: 30th December 2024
   - **To**: 8th January 2024
   - **Actual Trading Days**: 8 (excluding holidays or non-trading days).
2. **Initial Balance**: 1 Billion VND.
3. **Data Grouping and Time Frame**
   - **Time Frame:** 1-minute intervals.
   - All matched data is aggregated into **OHLC format** (Open, High, Low, Close) for analysis.
4. **Trading Logic**
   - **Position Entry and Exit**:
     - Use the **Close Price** of each 1-minute time frame for opening and closing positions.
   - **Margin for Each Position**: 25% of the position size

RESULTS

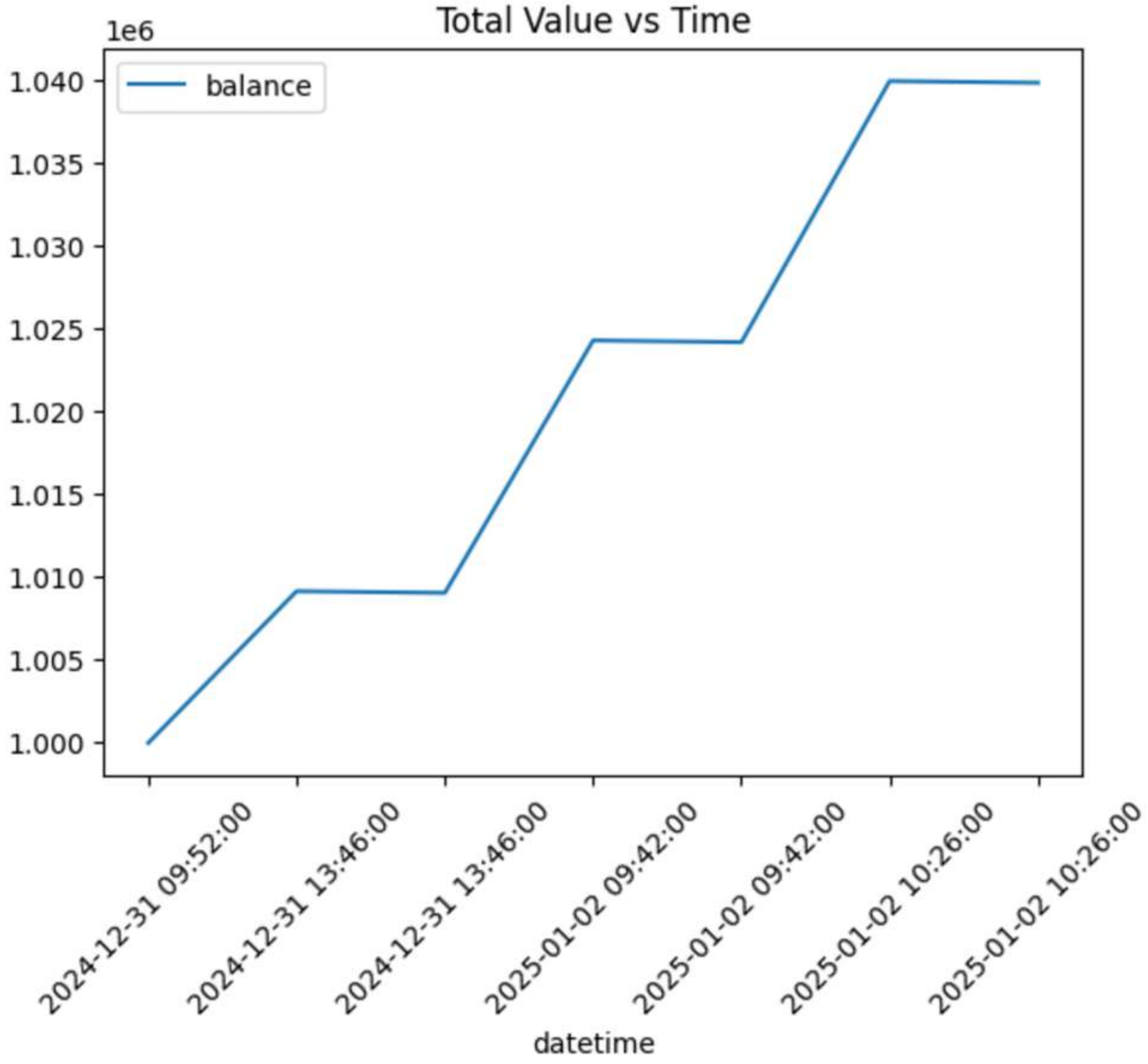
RESULTS

Balance over each trade

Strategy 1



Strategy 2



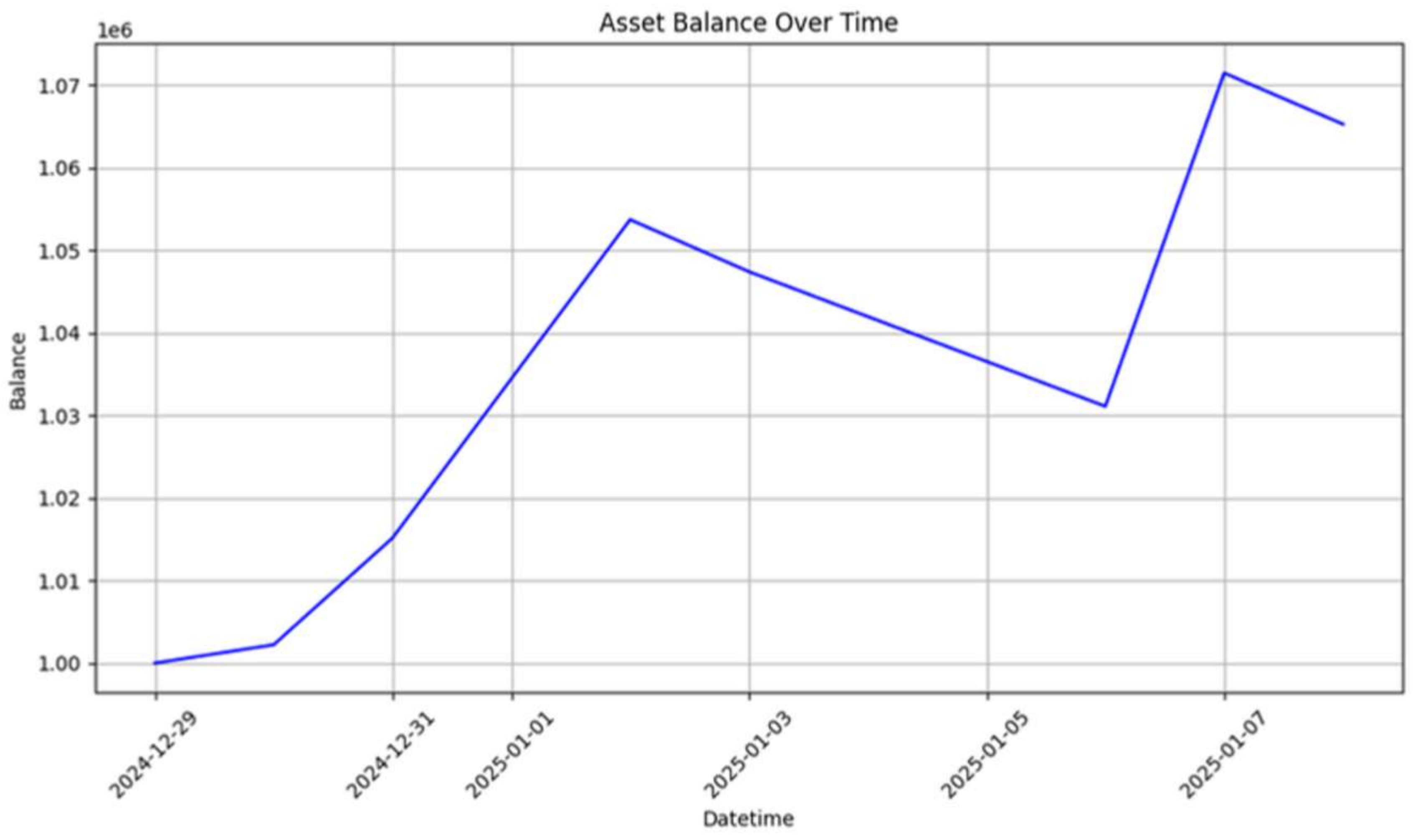
COMPARE

Strategy 1
Strategy 2
Profit
1.06530
0.96393
0.0
0.2
0.4
0.6
0.8
1.0
1.2
Strategy 1
Strategy 2
MDD
0.02147
0.08194
0.00
0.02
0.04
0.06
0.08
0.10
Strategy 1
Strategy 2
Sharpe
6.60251
-2.58117
-4
-2
0
2
4
6
8

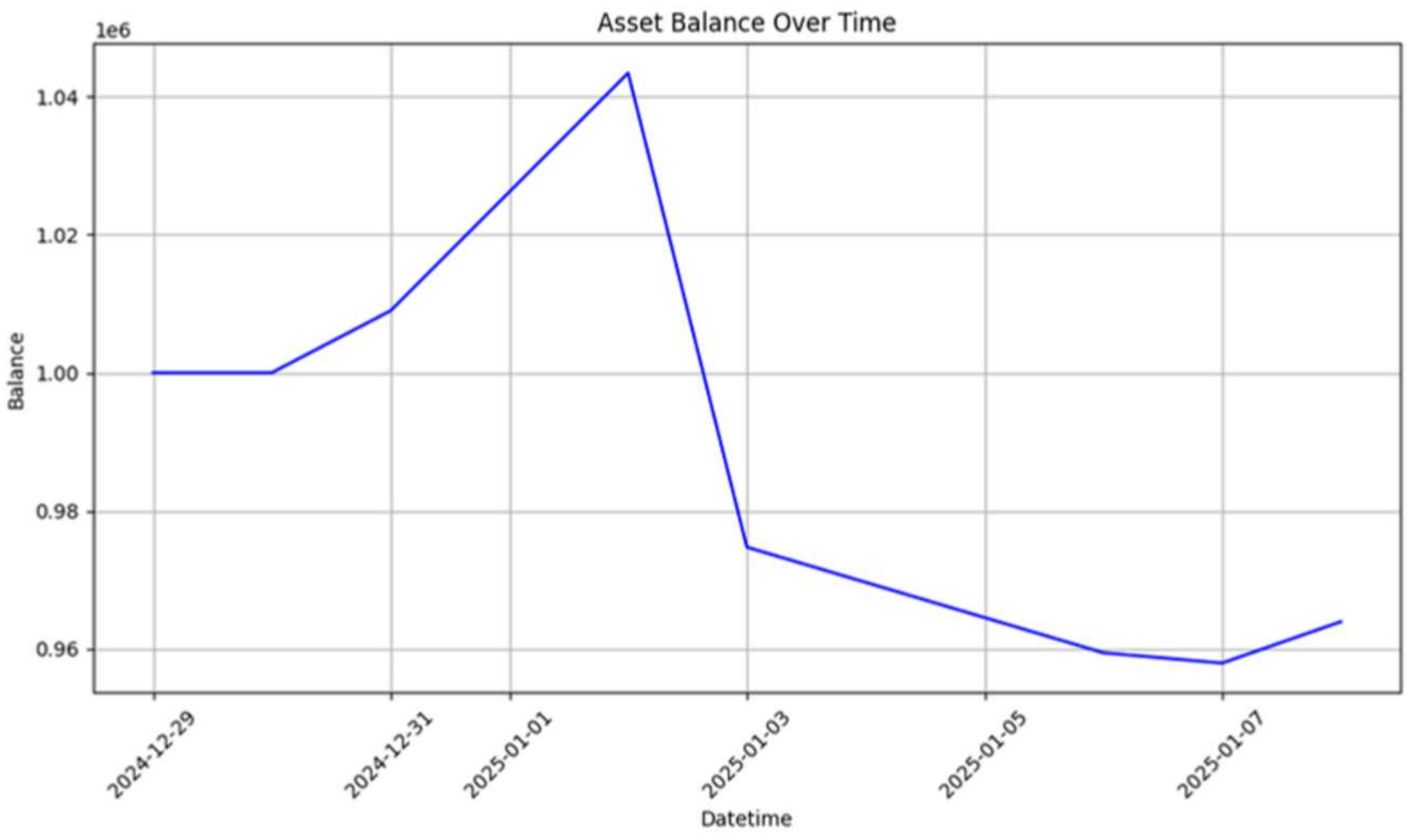
COMPARE

Balance over each trade

Strategy 1



Strategy 2



CONCLUSION

1. Both strategies show suboptimal performance on daily charts, as the **Sharpe ratio remains below 1**.
2. On 1-minute charts, however, **Strategy 1 outperforms Strategy 2**.
3. Additionally, the **Sharpe ratio for Strategy 1 exceeds 1** in both **In-Sample** and **Out-Sample** testing, highlighting the **potential applicability** of this algorithm.