報告

108062313黃允暘

使用資料

- 台指期
- 日盤
- 樣本內：2022-04-14 ~ 2022-12-17 (8個月)
- 樣本外：2022-12-17 ~ 2023-04-17 (4個月)
- 手續費：百萬分之33(原百萬分之2加20元)

使用指標

- 威廉指標(Williams %R)

$$\text{Wiliams } \%R = \frac{\text{Highest High} - \text{Close}}{\text{Highest High} - \text{Lowest Low}}$$

```
WL = 65
OB = -30
stop_pct = 1 #表示0.1%
OS = -75
```

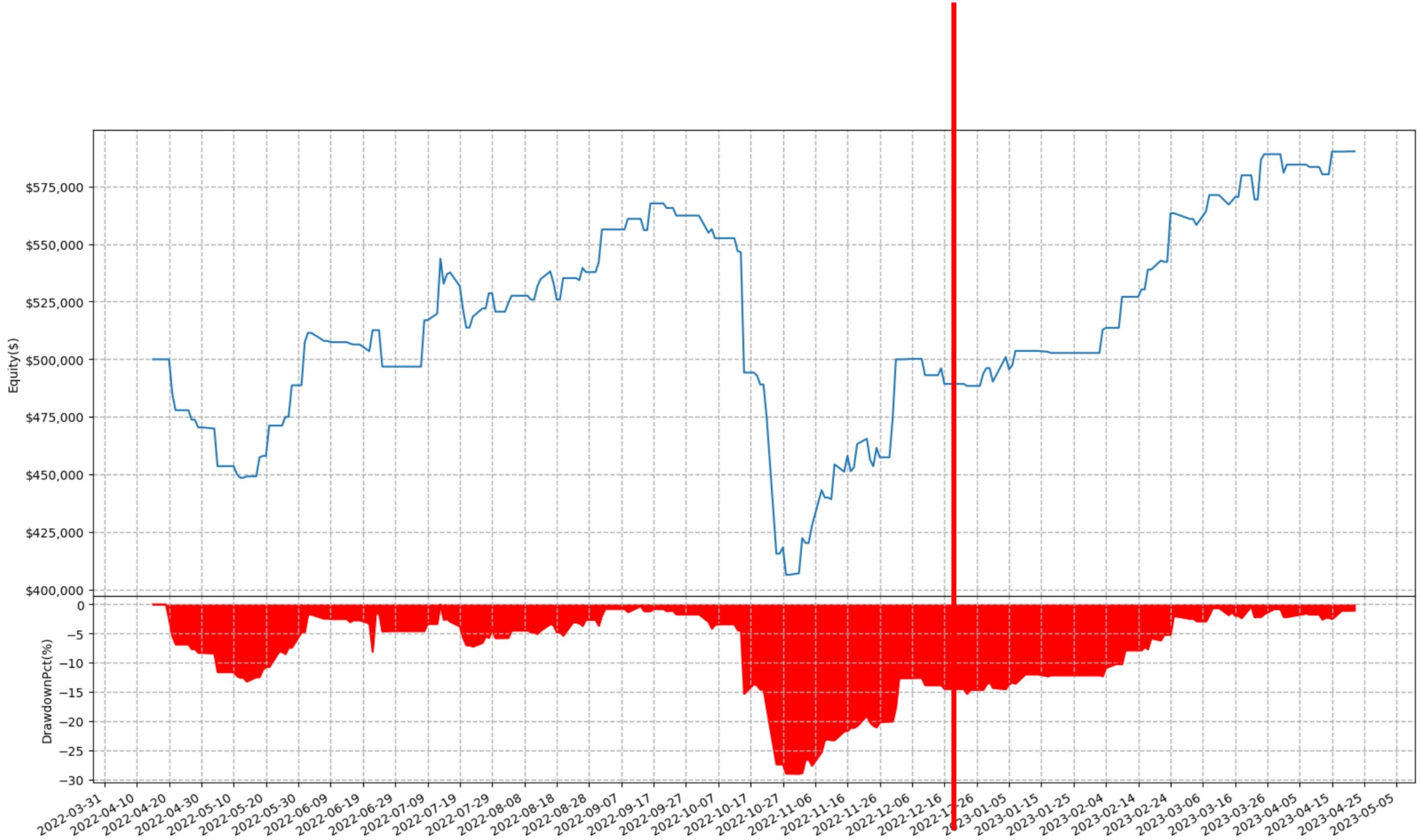
策略

多單策略：

- 進場：
  - WR向上超越超買區(-25)
  - 開盤15分鐘後進場
- 出場：
  - 百分比停損 0.1%
  - WR跌出超買區
  - 13.30平倉

空單策略：

- 進場：
  - WR向下超越超賣區(-70)
  - 開盤15分鐘後進場
- 出場：
  - 百分比停損 0.1%
  - WR向上超出超賣區
  - 13.30平倉



Equity($)
$575,000
$550,000
$525,000
$500,000
$475,000
$450,000
$425,000
$400,000
DrawdownPct(%)
0
-5
-10
-15
-20
-25
-30
2022-03-31
2022-04-10
2022-04-20
2022-04-30
2022-05-10
2022-05-20
2022-05-30
2022-06-09
2022-06-19
2022-06-29
2022-07-09
2022-07-19
2022-07-29
2022-08-08
2022-08-18
2022-08-28
2022-09-07
2022-09-17
2022-09-27
2022-10-07
2022-10-17
2022-10-27
2022-11-06
2022-11-16
2022-11-26
2022-12-06
2022-12-16
2023-01-05
2023-01-15
2023-01-25
2023-02-04
2023-02-14
2023-02-24
2023-03-06
2023-03-16
2023-03-26
2023-04-05
2023-04-15
2023-04-25
2023-05-05

改進方向

1. 增加停損條件
    1. 做多=>跌出三根低點
    2. 做空=>超出三根高點

```
Start                     2022-04-14 08:50:00
End                       2023-04-21 13:45:00
Duration                    372 days 04:55:00
Exposure Time [%]                   17.269076
Equity Final [$]                  590221.2214
Equity Peak [$]                   596430.8308
Return [%]                          18.044244
Buy & Hold Return [%]               -9.875332
Return (Ann.) [%]                   18.280411
Volatility (Ann.) [%]               29.495856
Sharpe Ratio                         0.619762
Sortino Ratio                        0.981815
Calmar Ratio                         0.630935
Max. Drawdown [%]                  -28.973508
Avg. Drawdown [%]                   -3.216289
Max. Drawdown Duration      160 days 23:30:00
Avg. Drawdown Duration       13 days 01:48:00
# Trades                                  291
Win Rate [%]                        34.707904
Best Trade [%]                       1.129359
Worst Trade [%]                     -2.202798
Avg. Trade [%]                       0.007947
Max. Trade Duration           2 days 19:05:00
Avg. Trade Duration           0 days 01:17:00
Profit Factor                        1.118559
Expectancy [%]                       0.008328
SQN                                  0.686321
_strategy                                  WL
_equity_curve                             ...
_trades                         Size  Entry...
dtype: object
```

```
WL = 65
OB = -15
stop_pct = 5 #表示0.5%
OS = -70
```

策略

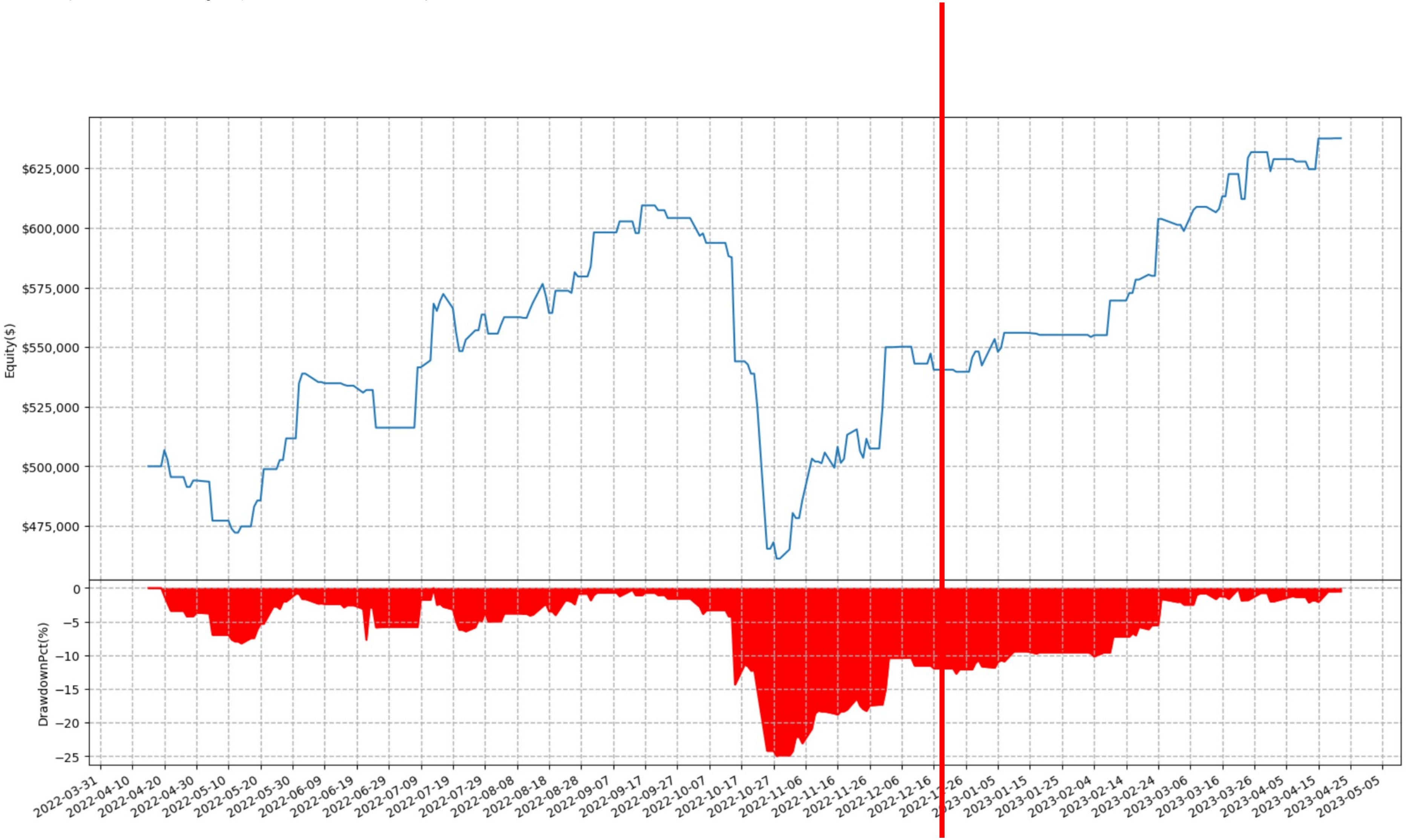
多單策略：

- 進場：
  - WR向上超越超買區
  - 開盤15分鐘後進場
- 出場：
  - 百分比停損 0.5%
  - 跌破3根低點停利停損
  - WR跌出超買區
  - 13.30平倉

空單策略：

- 進場：
  - WR向下超越超賣區
  - 開盤15分鐘後進場
- 出場：
  - 百分比停損 0.5%
  - 超出3根高點停利停損
  - WR向上超出超賣區
  - 13.30平倉

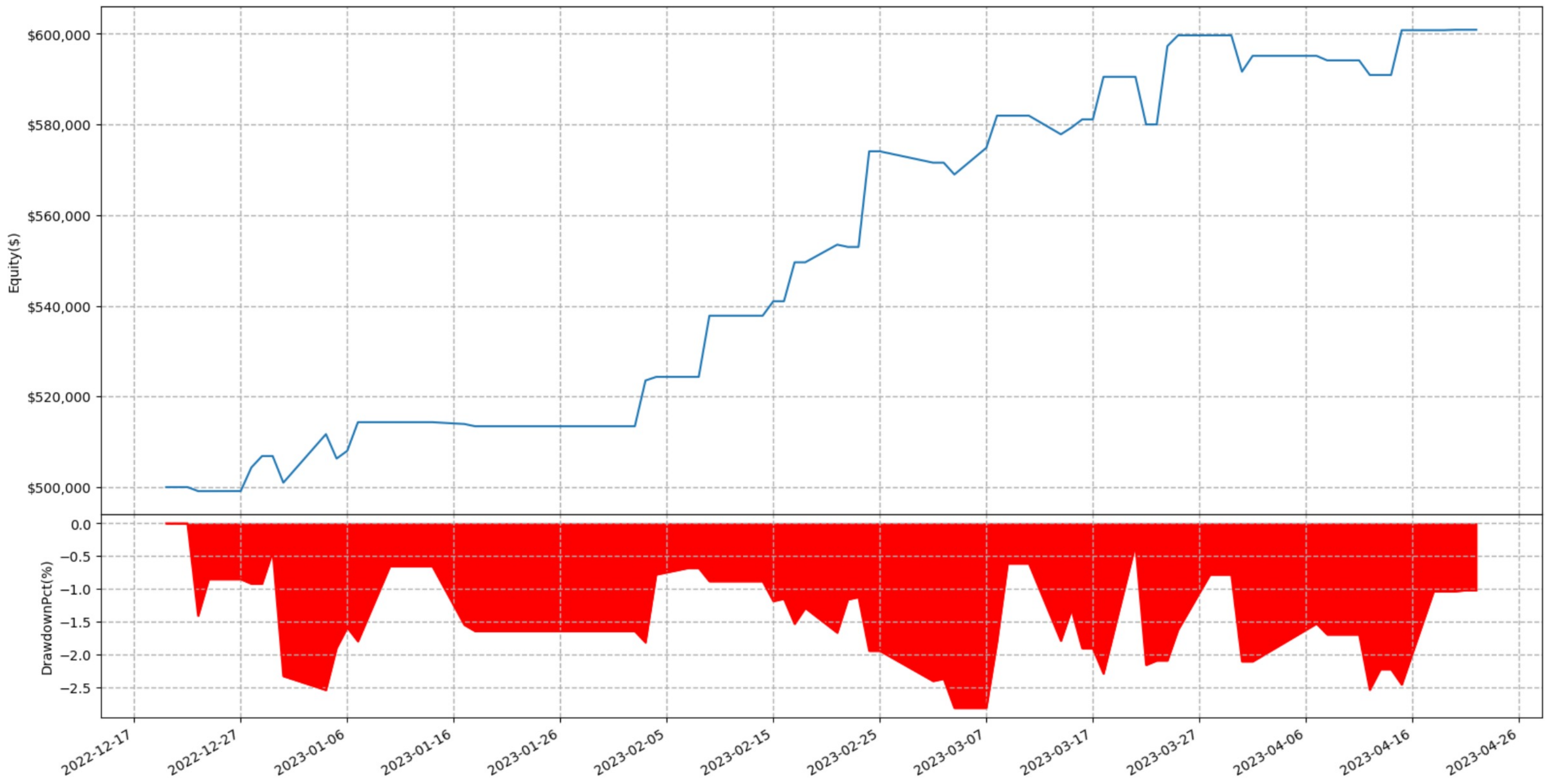
樣本內+樣本外



Equity($)
$625,000
$600,000
$575,000
$550,000
$525,000
$500,000
$475,000
DrawdownPct(%)
0
−5
−10
−15
−20
−25
2022-03-31
2022-04-10
2022-04-20
2022-04-30
2022-05-10
2022-05-20
2022-05-30
2022-06-09
2022-06-19
2022-06-29
2022-07-09
2022-07-19
2022-07-29
2022-08-08
2022-08-18
2022-08-28
2022-09-07
2022-09-17
2022-09-27
2022-10-07
2022-10-17
2022-10-27
2022-11-06
2022-11-16
2022-11-26
2022-12-06
2022-12-16
2023-01-05
2023-01-15
2023-01-25
2023-02-04
2023-02-14
2023-02-24
2023-03-06
2023-03-16
2023-03-26
2023-04-05
2023-04-15
2023-04-25
2023-05-05

```
Start                     2022-04-14 08:50:00
End                       2023-04-21 13:45:00
Duration                    372 days 04:55:00
Exposure Time [%]                   14.103079
Equity Final [$]                  637621.2214
Equity Peak [$]                   640830.8308
Return [%]                          27.524244
Buy & Hold Return [%]               -9.875332
Return (Ann.) [%]                   27.898356
Volatility (Ann.) [%]                28.47416
Sharpe Ratio                         0.979778
Sortino Ratio                        1.752039
Calmar Ratio                         1.117214
Max. Drawdown [%]                  -24.971365
Avg. Drawdown [%]                   -2.031925
Max. Drawdown Duration      180 days 21:55:00
Avg. Drawdown Duration        9 days 20:55:00
# Trades                                  291
Win Rate [%]                        37.113402
Best Trade [%]                       0.968368
Worst Trade [%]                     -2.202798
Avg. Trade [%]                       0.013383
Max. Trade Duration           2 days 19:05:00
Avg. Trade Duration           0 days 01:09:00
Profit Factor                        1.206688
Expectancy [%]                       0.013764
SQN                                  1.051569
_strategy                                  WL
_equity_curve                             ...
_trades                          Size  Entry...
dtype: object
```

樣本外



$600,000
$580,000
$560,000
$540,000
$520,000
$500,000
Equity($)
0.0
−0.5
−1.0
−1.5
−2.0
−2.5
DrawdownPct(%)
2022-12-17
2022-12-27
2023-01-06
2023-01-16
2023-01-26
2023-02-05
2023-02-15
2023-02-25
2023-03-07
2023-03-17
2023-03-27
2023-04-06
2023-04-16
2023-04-26

```
Start                     2022-12-19 08:50:00
End                       2023-04-21 13:45:00
Duration                    123 days 04:55:00
Exposure Time [%]                   17.741228
Equity Final [$]                   600906.724
Equity Peak [$]                   607116.3334
Return [%]                          20.181345
Buy & Hold Return [%]                8.641202
Return (Ann.) [%]                    83.95978
Volatility (Ann.) [%]               25.821827
Sharpe Ratio                         3.251504
Sortino Ratio                       15.552232
Calmar Ratio                        29.764718
Max. Drawdown [%]                   -2.820782
Avg. Drawdown [%]                   -0.968612
Max. Drawdown Duration       22 days 00:45:00
Avg. Drawdown Duration        3 days 12:44:00
# Trades                                   84
Win Rate [%]                        41.666667
Best Trade [%]                       0.777723
Worst Trade [%]                     -0.235343
Avg. Trade [%]                       0.038879
Max. Trade Duration           0 days 03:55:00
Avg. Trade Duration           0 days 00:44:00
Profit Factor                        2.097804
Expectancy [%]                       0.039019
SQN                                  2.120527
_strategy                                  WL
_equity_curve                             ...
_trades                         Size  EntryB...
dtype: object
```