報告

108062313黃允暘

使用資料

- 台指期
- 日盤
- 樣本內： 2022-05-22 ~ 2022-01-22(8個月)
- 樣本外： 2023-01-22 ~ 2023-05-22(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)

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

- 簡單移動平均線(SMA)

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

期中策略(5分K)

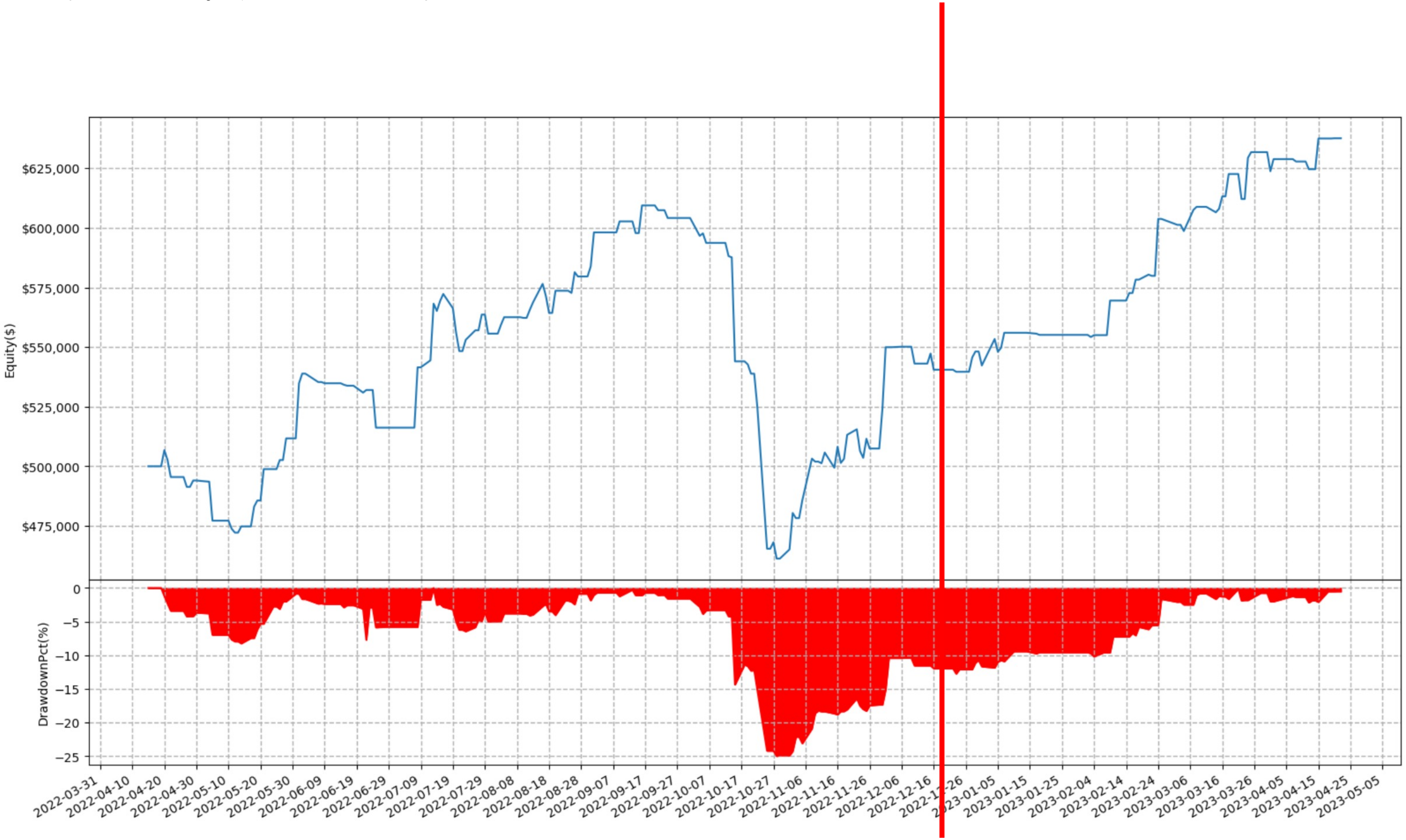
多單策略：

- 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
  - 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
  - WR向上超出超賣區
  - 13.30平倉

樣本內+樣本外


$625,000
$600,000
$575,000
$550,000
$525,000
$500,000
$475,000
Equity($)
0
−5
−10
−15
−20
−25
DrawdownPct(%)
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
```

期末策略 (5分K)

```
WL = 65
OB = -15
stop_pct = 1 #表示0.x%
OS = -80
L = 2

n1 = 15
n2 = 55
```

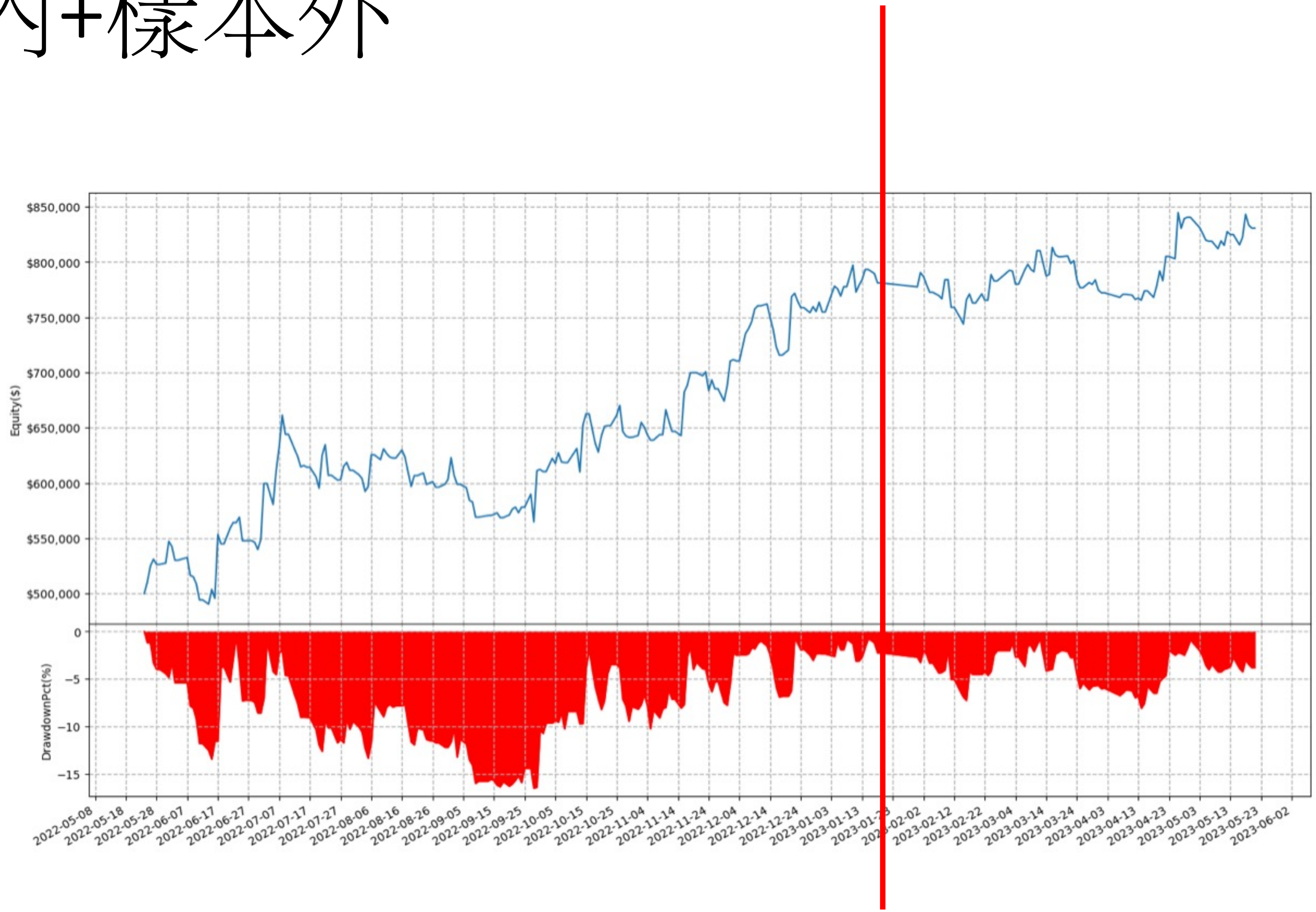
多單策略：

- 進場：
  - WR向上超越超買區
  - SMA黃金交叉
  - 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
  - SMA死亡交叉
  - 13.30平倉

空單策略：

- 進場：
  - WR向下超越超賣區
  - SMA死亡交叉
  - 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
  - SMA黃金交叉
  - 13.30平倉

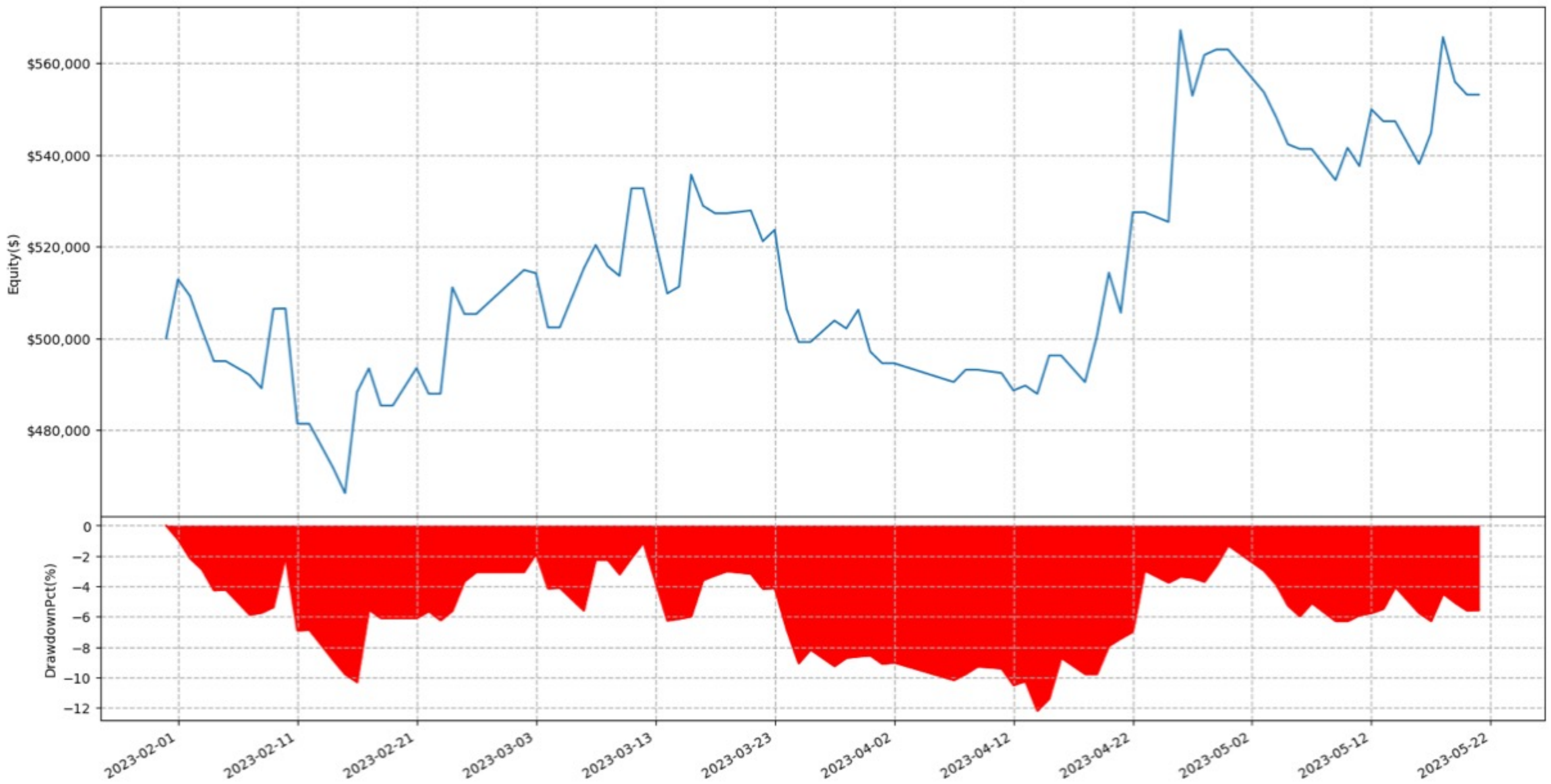
樣本內+樣本外



Equity($)
$850,000
$800,000
$750,000
$700,000
$650,000
$600,000
$550,000
$500,000
DrawdownPct(%)
0
−5
−10
−15
2022-05-08
2022-05-18
2022-05-28
2022-06-07
2022-06-17
2022-06-27
2022-07-07
2022-07-17
2022-07-27
2022-08-06
2022-08-16
2022-08-26
2022-09-05
2022-09-15
2022-09-25
2022-10-05
2022-10-15
2022-10-25
2022-11-04
2022-11-14
2022-11-24
2022-12-04
2022-12-14
2022-12-24
2023-01-03
2023-01-13
2023-02-12
2023-02-22
2023-03-04
2023-03-14
2023-03-24
2023-04-03
2023-04-13
2023-04-23
2023-05-03
2023-05-13
2023-05-23
2023-06-02

```
Start                     2022-05-23 08:50:00
End                       2023-05-20 05:00:00
Duration                    361 days 20:10:00
Exposure Time [%]                   12.211831
Equity Final [$]                  830725.6964
Equity Peak [$]                   863292.2002
Return [%]                          66.145139
Buy & Hold Return [%]                -0.86191
Return (Ann.) [%]                   54.751341
Volatility (Ann.) [%]                48.43744
Sharpe Ratio                         1.130352
Sortino Ratio                        3.474203
Calmar Ratio                         3.323024
Max. Drawdown [%]                  -16.476358
Avg. Drawdown [%]                   -2.029129
Max. Drawdown Duration      109 days 22:50:00
Avg. Drawdown Duration        4 days 07:47:00
# Trades                                 1071
Win Rate [%]                        33.893557
Best Trade [%]                       1.845072
Worst Trade [%]                     -0.634784
Avg. Trade [%]                       0.010407
Max. Trade Duration           0 days 04:25:00
Avg. Trade Duration           0 days 00:27:00
Profit Factor                        1.170264
Expectancy [%]                       0.010664
SQN                                  1.522052
_strategy                                  WL
_equity_curve                             ...
_trades                         Size  Entr...
dtype: object
```

樣本外(5分K)



$560,000
$540,000
$520,000
$500,000
$480,000
Equity($)
0
−2
−4
−6
−8
−10
−12
DrawdownPct(%)
2023-02-01
2023-02-11
2023-02-21
2023-03-03
2023-03-13
2023-03-23
2023-04-02
2023-04-12
2023-04-22
2023-05-02
2023-05-12
2023-05-22

```
Start                     2023-01-30 08:50:00
End                       2023-05-20 05:00:00
Duration                    109 days 20:10:00
Exposure Time [%]                   11.516121
Equity Final [$]                  553120.6004
Equity Peak [$]                   585687.1042
Return [%]                           10.62412
Buy & Hold Return [%]                4.078335
Return (Ann.) [%]                   32.672075
Volatility (Ann.) [%]               42.996419
Sharpe Ratio                         0.759879
Sortino Ratio                        1.846661
Calmar Ratio                         2.679897
Max. Drawdown [%]                  -12.191541
Avg. Drawdown [%]                   -2.447188
Max. Drawdown Duration       40 days 00:50:00
Avg. Drawdown Duration        4 days 08:23:00
# Trades                                  305
Win Rate [%]                        39.016393
Best Trade [%]                       1.336316
Worst Trade [%]                     -0.371101
Avg. Trade [%]                       0.005405
Max. Trade Duration           0 days 03:50:00
Avg. Trade Duration           0 days 00:28:00
Profit Factor                        1.108052
Expectancy [%]                       0.005558
SQN                                  0.556385
_strategy                                  WL
_equity_curve                             ...
_trades                         Size  Entry...
dtype: object
```