HW4

108062213 顏浩昀

使用資料

台指期

日+夜盤

樣本內:2022-03-13 ~ 2022-11-20(8個月)

樣本外:2022-11-13 ~ 2023-03-20(4個月)

手續費:百萬分之33

ADX

```
       ((Previous ADX14)*(14-1))+ Today's DX
ADX14 = -----------------------------------
                      14
```

```
diffDI = ABS( (-DI14) - (+DI14) )
sumDI  = (-DI14) + (+DI14)

DX14 = 100 * (diffDI / sumDI)
```

```
               -DM14
    -DI14 =   --------
                TR14

(Same thing for +DI14)
```

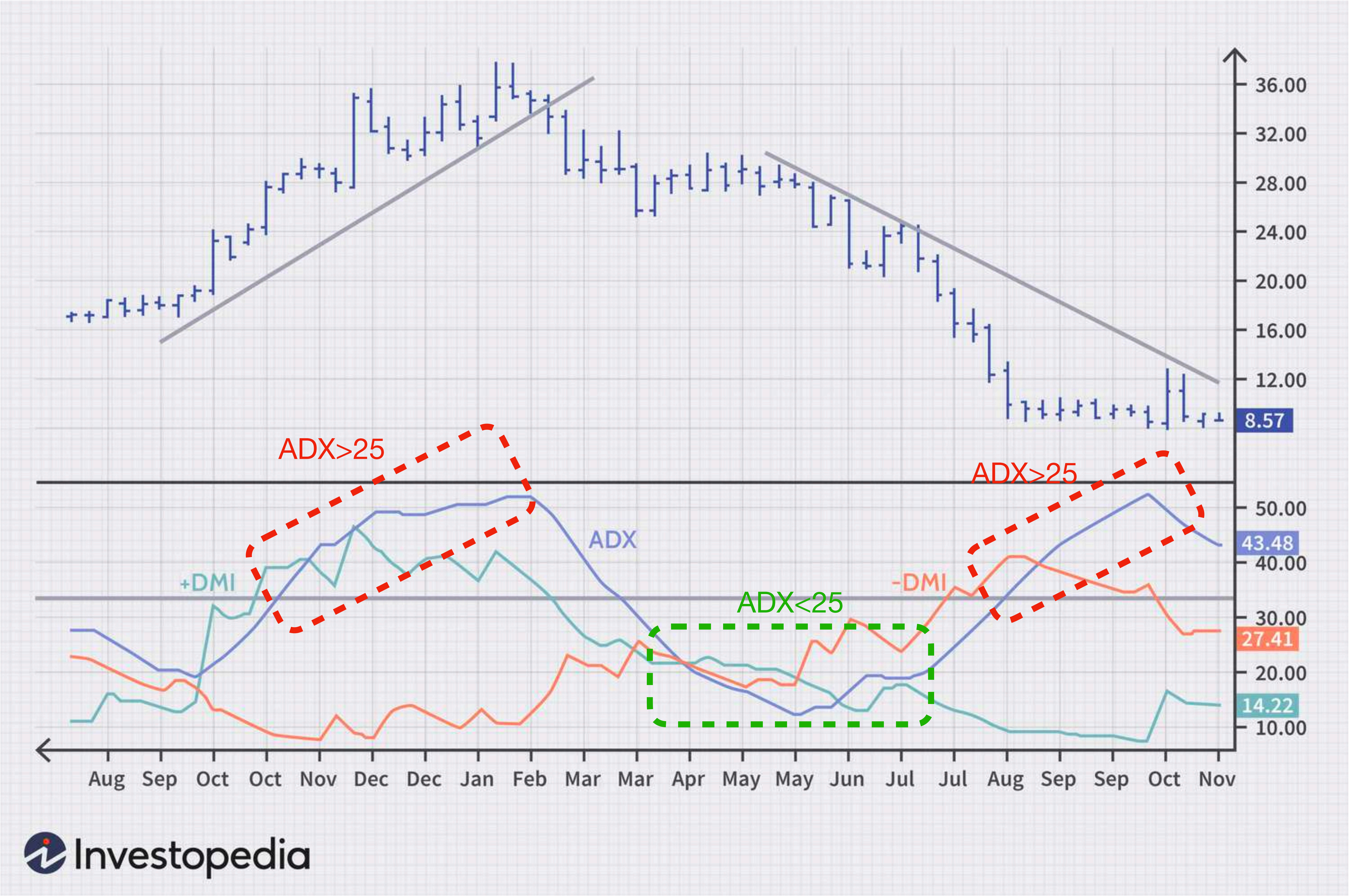
```
                                       Previous -DM14
 Today's -DM14 = Previous -DM14 -   -------------- + Today's -DM1
                                          14


(Same thing for +DM14)
```

```
                                      Previous TR14
 Today's TR14 = Previous TR14 -  -------------- + Today's TR1
                                         14
```

```
Case 1:                       Case 2:
   C|                         A|
    |                          | C|
    | +DM1 = (C-A)            B|  | +DM1 = 0
    | -DM1 = 0                    | -DM1 = (B-D)
A|  |                            D|
 | D|
B|

Case 3:                       Case 4:
   C|                            C|
    |                         A|  |
    | +DM1 = (C-A)             |  | +DM1 = 0
    | -DM1 = 0                B|  | -DM1 = (B-D)
A|  |                             |
 |  |                            D|
B|  |
   D|

Case 5:                       Case 6:
A|                            A| C|
 | C| +DM1 = 0                 |  |  +DM1 = 0
 |  | -DM1 = 0                 |  |  -DM1 = 0
 | D|                          |  |
B|                            B| D|


Case 7:


   C|
A|  |
 |  | +DM=0
B|  | -DM=0
   D|
```

ADX

ADX Value	Trend Strength
0-25	Non-trending market or range-bound market
25-50	Strong trend
50-75	Very strong trend
75-100	Extremely strong trend (rarely happens and can be considered unsustainable)



PLUS_DI / MINOR_DI

```
          -DM14
-DI14 = ---------
           TR14

(Same thing for +DI14)
```

RSI

```
RSI = 100 * (prevGain/(prevGain+prevLoss))
```

```
adx_period = 30
rsi_period = 12
overbought = 70
oversold = 30
```

策略

進場

1. Time: 9:15~13:15 (避免收盤前再進行交易)
2. RSI>overbought & ADX下破25，空單
3. RSI<oversold & ADX下破25，多單
4. RSI下破overbought & ADX突破25，空單
5. RSI突破oversold & ADX突破25，多單
6. RSI>45，ADX>25，RSI沒背離，多單
7. RSI<55，ADX>25，RSI沒背離，空單
8. ADX>25，RSI背離 -> 價錢反向做多/做空
9. Three White Soldier，ADX>25，多單
10. Three Black Crow，ADX>25，空單

```
Start                     2022-04-25 08:50:00
End                       2023-04-22 05:00:00
Duration                    361 days 20:10:00
Exposure Time [%]                    5.684309
Equity Final [$]                  642358.3506
Equity Peak [$]                    689334.503
Return [%]                           28.47167
Buy & Hold Return [%]               -6.675448
Return (Ann.) [%]                   24.045715
Volatility (Ann.) [%]               28.513521
Sharpe Ratio                         0.843309
Sortino Ratio                        1.903114
Calmar Ratio                         2.044058
Max. Drawdown [%]                  -11.763716
Avg. Drawdown [%]                   -2.294803
Max. Drawdown Duration      262 days 19:10:00
Avg. Drawdown Duration       15 days 23:49:00
# Trades                                  107
Win Rate [%]                        47.663551
Best Trade [%]                       1.832178
Worst Trade [%]                      -0.70968
Avg. Trade [%]                       0.045772
Max. Trade Duration           0 days 04:10:00
Avg. Trade Duration           0 days 02:18:00
Profit Factor                        1.336504
Expectancy [%]                       0.046731
SQN                                  1.045989
_strategy                          myStrategy
_equity_curve                             ...
_trades                         Size  Entry...
dtype: object
```

策略

```
adx_period = 30
rsi_period = 12
overbought = 70
oversold = 30
```

出場

1. Time: >13:30
2. 停損停利：0.7%/3.5%
3. 已經持有單，但前述進場條件與持單相反時

```
Start                     2022-04-25 08:50:00
End                       2023-04-22 05:00:00
Duration                    361 days 20:10:00
Exposure Time [%]                    5.684309
Equity Final [$]                  642358.3506
Equity Peak [$]                    689334.503
Return [%]                           28.47167
Buy & Hold Return [%]               -6.675448
Return (Ann.) [%]                   24.045715
Volatility (Ann.) [%]               28.513521
Sharpe Ratio                         0.843309
Sortino Ratio                        1.903114
Calmar Ratio                         2.044058
Max. Drawdown [%]                  -11.763716
Avg. Drawdown [%]                   -2.294803
Max. Drawdown Duration      262 days 19:10:00
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# Trades                                  107
Win Rate [%]                        47.663551
Best Trade [%]                       1.832178
Worst Trade [%]                      -0.70968
Avg. Trade [%]                       0.045772
Max. Trade Duration           0 days 04:10:00
Avg. Trade Duration           0 days 02:18:00
Profit Factor                        1.336504
Expectancy [%]                       0.046731
SQN                                  1.045989
_strategy                          myStrategy
_equity_curve                             ...
_trades                         Size  Entry...
dtype: object
```
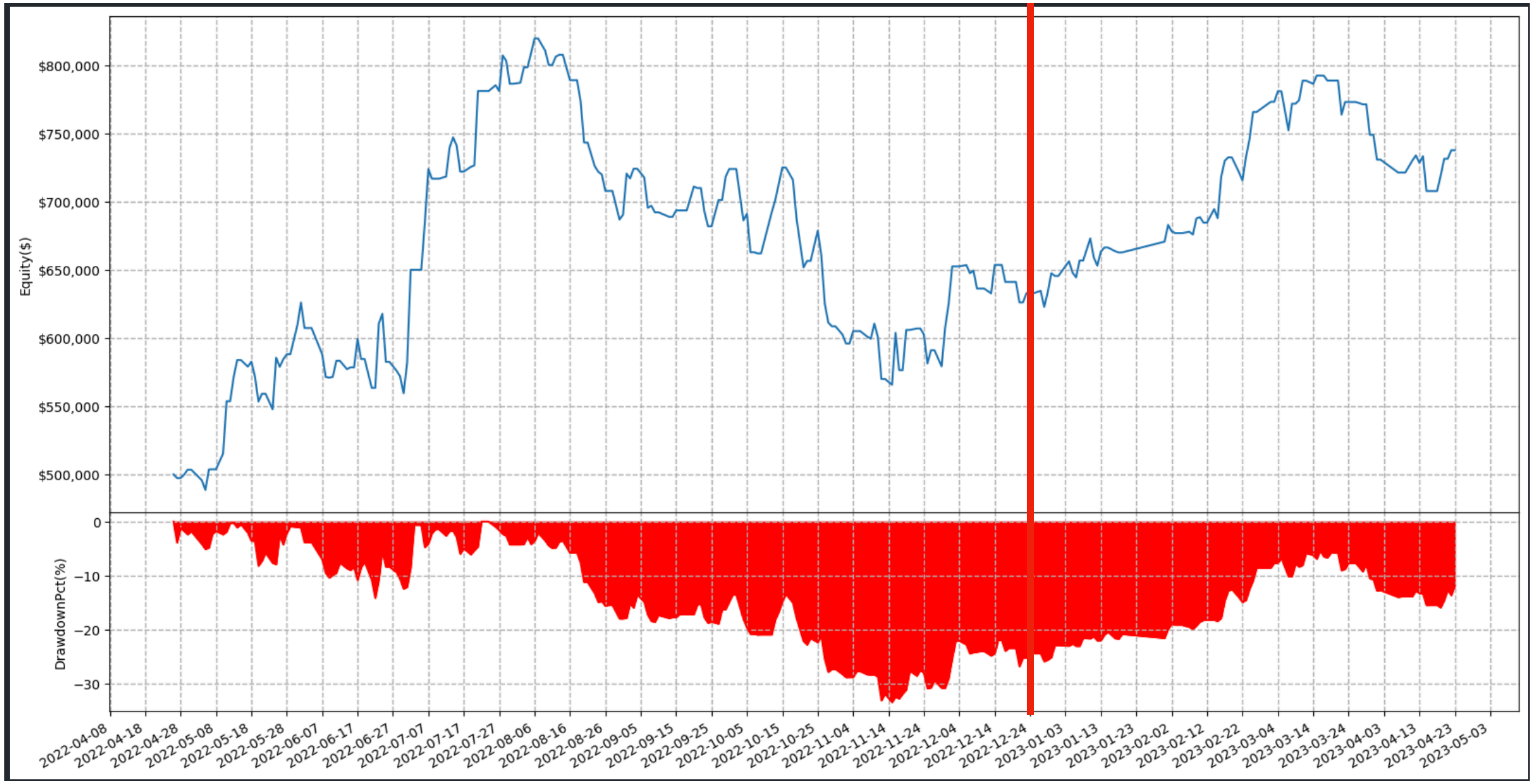
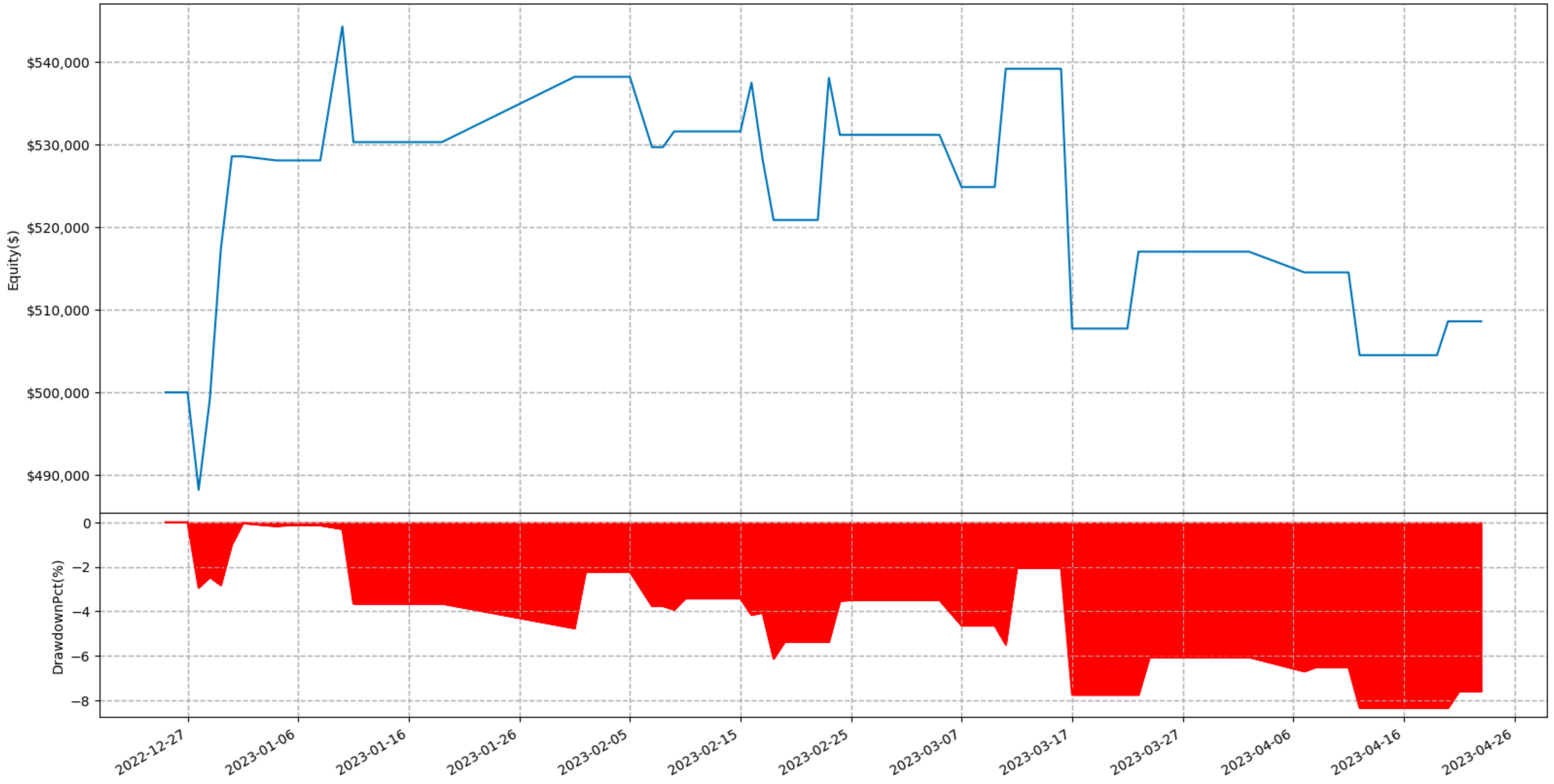

結果




```
Start                        2022-03-14 08:50:00
End                          2023-03-20 13:45:00
Duration                       371 days 04:55:00
Exposure Time [%]                       41.67336
Equity Final [$]                    1020623.1416
Equity Peak [$]                     1023724.5968
Return [%]                            104.124628
Buy & Hold Return [%]                 -11.123316
Return (Ann.) [%]                     105.887076
Volatility (Ann.) [%]                  61.809095
Sharpe Ratio                            1.713131
Sortino Ratio                           6.538486
Calmar Ratio                            7.214156
Max. Drawdown [%]                     -14.677681
Avg. Drawdown [%]                      -1.429721
Max. Drawdown Duration        86 days 21:40:00
Avg. Drawdown Duration         3 days 01:11:00
# Trades                                     207
Win Rate [%]                           55.555556
Best Trade [%]                          3.141716
Worst Trade [%]                         -0.71694
Avg. Trade [%]                          0.081582
Max. Trade Duration            0 days 04:10:00
Avg. Trade Duration            0 days 02:26:00
Profit Factor                           1.580888
Expectancy [%]                          0.082872
SQN                                     2.376047
_strategy                             myStrategy
_equity_curve                                ...
_trades                            Size  Entry...
dtype: object
```

樣本外



Start	2022-12-24 00:10:00
End	2023-04-22 05:00:00
Duration	119 days 04:50:00
Exposure Time [%]	5.027456
Equity Final [$]	508595.1402
Equity Peak [$]	550360.005
Return [%]	1.719028
Buy & Hold Return [%]	9.976012
Return (Ann.) [%]	5.001914
Volatility (Ann.) [%]	19.765147
Sharpe Ratio	0.253067
Sortino Ratio	0.377525
Calmar Ratio	0.600267
Max. Drawdown [%]	-8.332819
Avg. Drawdown [%]	-1.221745
Max. Drawdown Duration	101 days 19:00:00
Avg. Drawdown Duration	7 days 14:29:00
# Trades	32
Win Rate [%]	50.0
Best Trade [%]	0.576122
Worst Trade [%]	-0.703277
Avg. Trade [%]	0.011593
Max. Trade Duration	0 days 04:10:00
Avg. Trade Duration	0 days 02:00:00
Profit Factor	1.106926
Expectancy [%]	0.012029
SQN	0.169011
_strategy	myStrategy
_equity_curve	...
_trades	Size EntryB...
dtype: object	