

# HW4

108062213 顏浩昀

# 使用資料

台指期

日盤 5分K

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

# ADX

$$ADX14 = \frac{((Previous\ ADX14) * (14 - 1)) + Today's\ DX}{14}$$

$$\begin{aligned} diffDI &= ABS( (-DI14) - (+DI14) ) \\ sumDI &= (-DI14) + (+DI14) \\ DX14 &= 100 * (diffDI / sumDI) \end{aligned}$$

$$-DI14 = \frac{-DM14}{TR14}$$

(Same thing for +DI14)

$$Today's\ -DM14 = Previous\ -DM14 - \frac{Previous\ -DM14}{14} + Today's\ -DM14$$

(Same thing for +DM14)

$$Today's\ TR14 = Previous\ TR14 - \frac{Previous\ TR14}{14} + Today's\ TR14$$

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

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

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

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

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

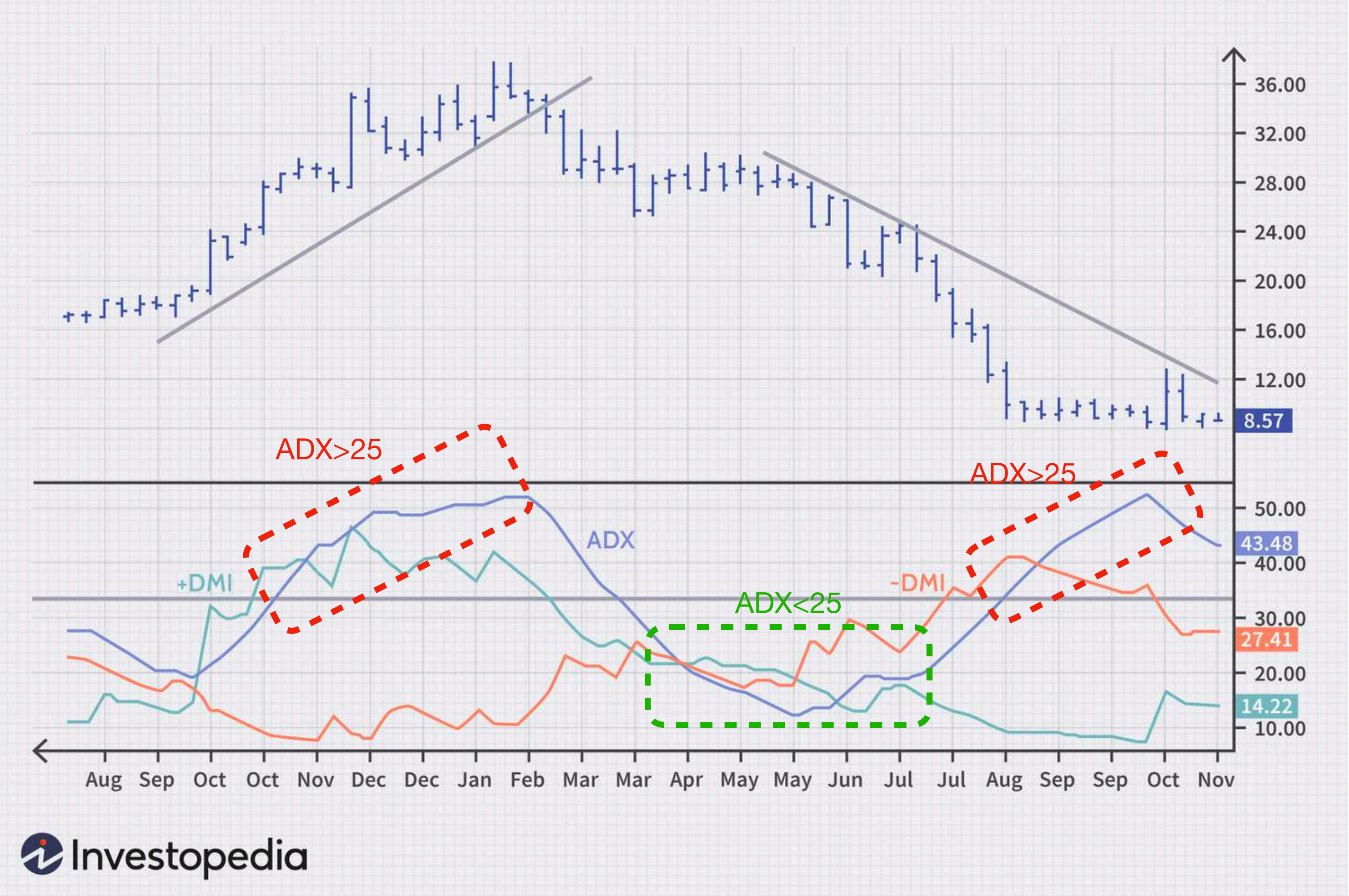
Case 6:  
A| C|  
| | +DM1 = 0  
| | -DM1 = 0  
B| D|

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)





# RSI

$$RSI = 100 * (\text{prevGain} / (\text{prevGain} + \text{prevLoss}))$$



# 最終策略

```
1 adx_period = 30
2 rsi_period = 22
3 overbought = 70
4 oversold = 30
```

## 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. 連3支K棒向上，ADX>25，多單
10. 連3支K棒向下，ADX>25，空單

```
Start                2022-04-14 08:50:00
End                  2023-04-14 13:45:00
Duration              365 days 04:55:00
Exposure Time [%]    34.303279
Equity Final [$]      654083.6448
Equity Peak [$]       726888.3072
Return [%]            30.816729
Buy & Hold Return [%] -7.959137
Return (Ann.) [%]     31.973979
Volatility (Ann.) [%] 50.339077
Sharpe Ratio          0.635172
Sortino Ratio         1.356126
Calmar Ratio          1.437095
Max. Drawdown [%]    -22.249033
Avg. Drawdown [%]    -1.755554
Max. Drawdown Duration 184 days 22:20:00
Avg. Drawdown Duration 4 days 20:49:00
# Trades              448
Win Rate [%]          40.848214
Best Trade [%]         1.706686
Worst Trade [%]        -0.717167
Avg. Trade [%]         0.011451
Max. Trade Duration   0 days 04:05:00
Avg. Trade Duration   0 days 00:55:00
Profit Factor          1.132915
Expectancy [%]         0.011886
SQN                    0.8377
_strategy              myStrategy
_equity_curve           ...
_trades                 Size Entry...
dtype: object
```



# 最終策略

## 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

1

adx\_period = 30

2

rsi\_period = 22

3

overbought = 70

4

oversold = 30

Start2022-04-14 08:50:00

End2023-04-14 13:45:00

Duration365 days 04:55:00

Exposure Time [%]34.303279

Equity Final [\$]654083.6448

Equity Peak [\$]726888.3072

Return [%]30.816729

Buy & Hold Return [%]-7.959137

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Expectancy [%]0.011886

SQN0.8377

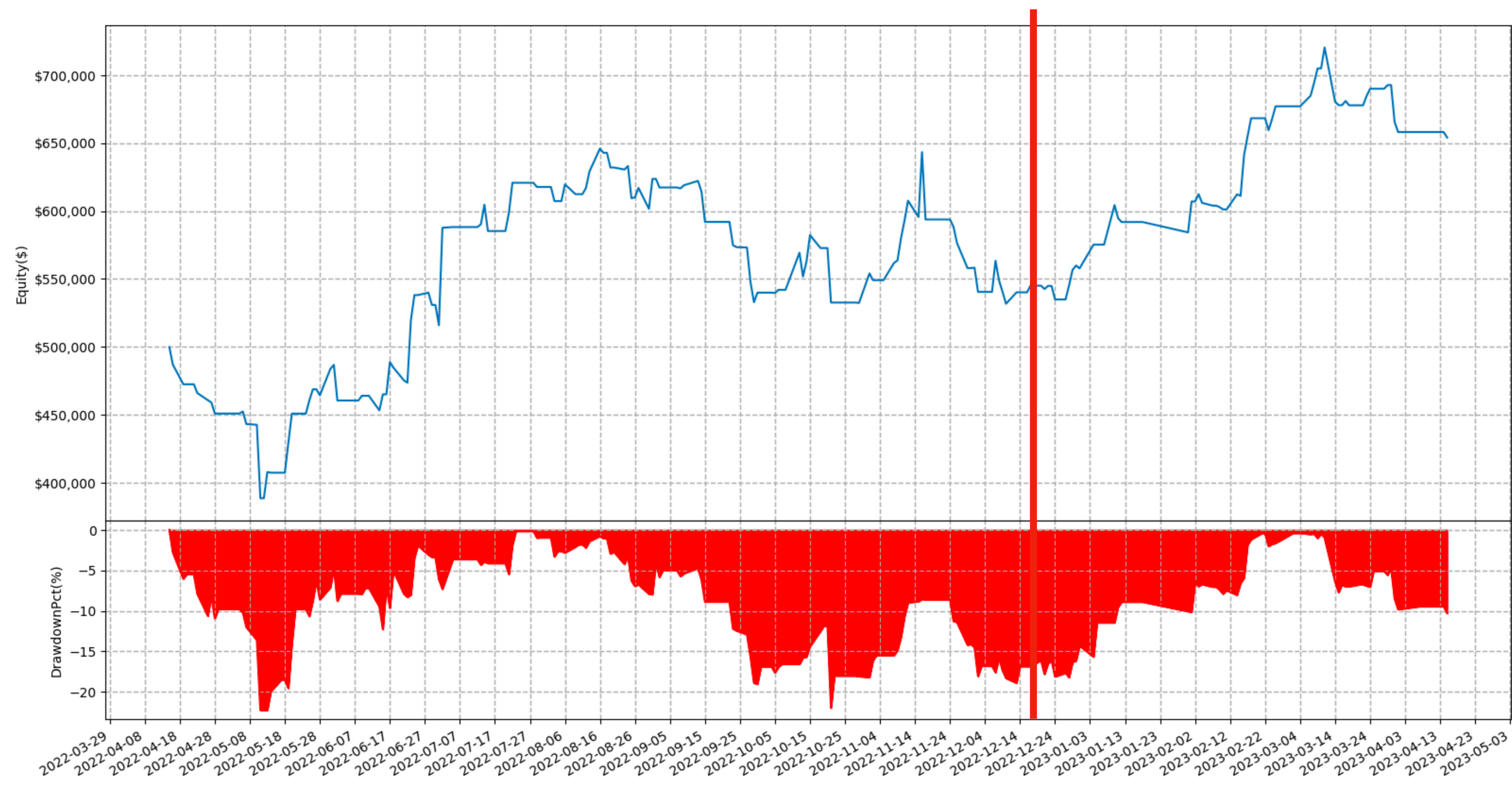
\_strategymyStrategy

\_equity\_curve...

\_tradesSize Entry...

dtype: object

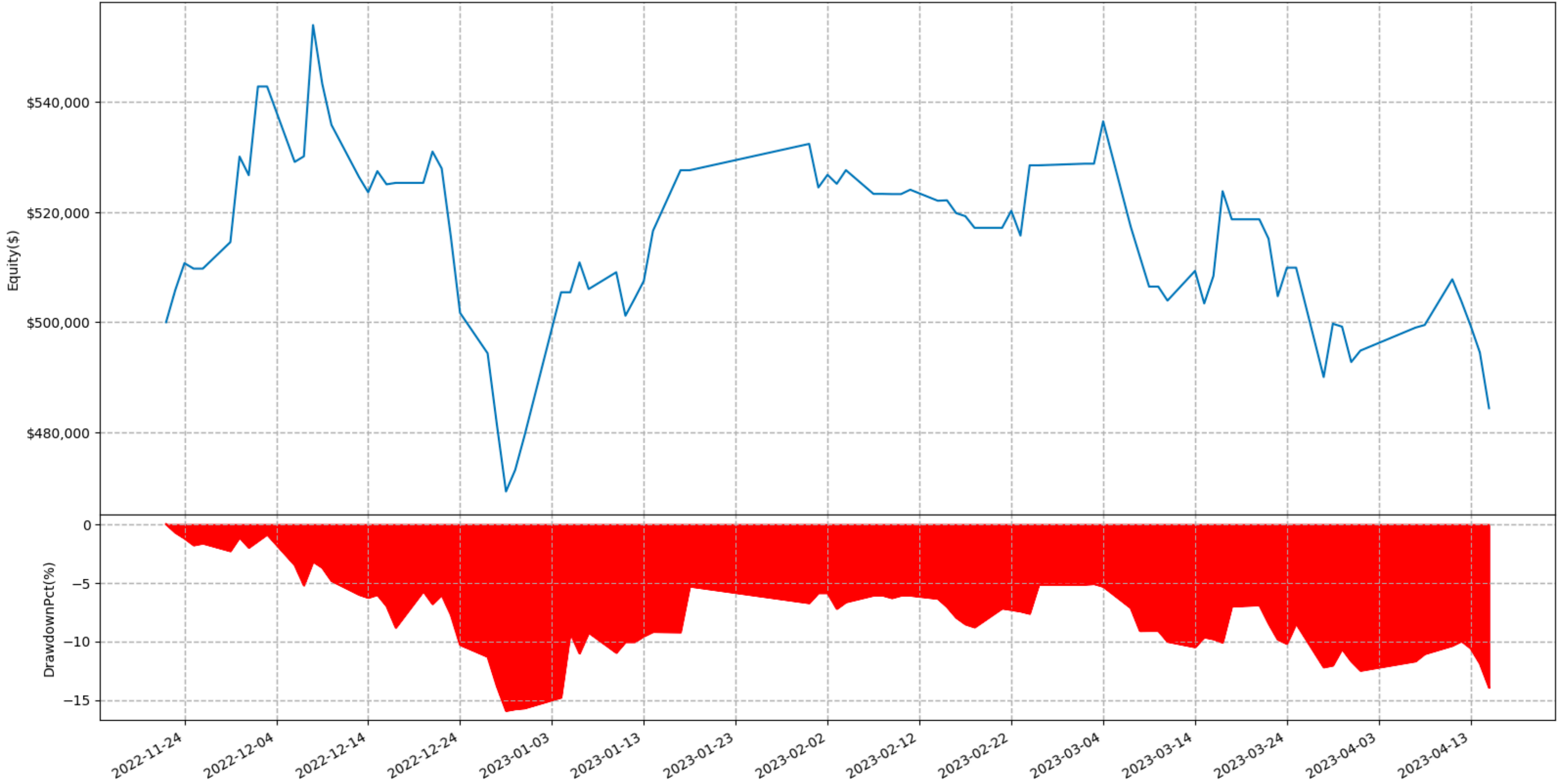
# 最終結果



Start	2022-04-14 08:50:00
End	2023-04-14 13:45:00
Duration	365 days 04:55:00
Exposure Time [%]	34.303279
Equity Final [\$]	654083.6448
Equity Peak [\$]	726888.3072
Return [%]	30.816729
Buy & Hold Return [%]	-7.959137
Return (Ann.) [%]	31.973979
Volatility (Ann.) [%]	50.339077
Sharpe Ratio	0.635172
Sortino Ratio	1.356126
Calmar Ratio	1.437095
Max. Drawdown [%]	-22.249033
Avg. Drawdown [%]	-1.755554
Max. Drawdown Duration	184 days 22:20:00
Avg. Drawdown Duration	4 days 20:49:00
# Trades	448
Win Rate [%]	40.848214
Best Trade [%]	1.706686
Worst Trade [%]	-0.717167
Avg. Trade [%]	0.011451
Max. Trade Duration	0 days 04:05:00
Avg. Trade Duration	0 days 00:55:00
Profit Factor	1.132915
Expectancy [%]	0.011886
SQN	0.8377
_strategy	myStrategy
_equity_curve	...
_trades	Size Entry...
dtype:	object



# 样本外



Start	2022-11-21 08:46:00
End	2023-04-14 13:45:00
Duration	144 days 04:59:00
Exposure Time [%]	24.970696
Equity Final [\$]	484384.2248
Equity Peak [\$]	557154.9342
Return [%]	-3.123155
Buy & Hold Return [%]	10.002069
Return (Ann.) [%]	-8.411707
Volatility (Ann.) [%]	22.839135
Sharpe Ratio	0.0
Sortino Ratio	0.0
Calmar Ratio	0.0
Max. Drawdown [%]	-15.919299
Avg. Drawdown [%]	-1.199704
Max. Drawdown Duration	128 days 01:20:00
Avg. Drawdown Duration	4 days 05:00:00
# Trades	583
Win Rate [%]	35.67753
Best Trade [%]	0.904786
Worst Trade [%]	-0.353106
Avg. Trade [%]	-0.000803
Max. Trade Duration	0 days 01:26:00
Avg. Trade Duration	0 days 00:12:00
Profit Factor	0.980056
Expectancy [%]	-0.000741
SQN	-0.19459
_strategy	myStrategy
_equity_curve	...
_trades	Size Entry...
dtype:	object