

HW3 Report

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使用資料

- 台指期
- 日盤
- 樣本內：2022-03-14~2022-11-14
- 樣本外：2022-11-14~2023-03-13
- 手續費：百萬分之3
- 起始金額：50萬

使用指標

```
1 lower_bound = 20 # oversold area
2 higher_bound = 80 # overbought area
3 half = 50
4 kd_period = 7
5 div = 4 # stoch slowd_period
```

- KD指標 (Stochastic oscillator) in TA-Lib

$$\%K = \left(\frac{close - low_n}{high_n - low_n} \right) * 100$$

$$\%D = SMA(\%K(m))$$

$$K = SMA(\%K(m))$$

$$D = SMA(K(m))$$

%K, %D是快線，K,D是慢線。我使用的是慢線



```
6 n1 = 9 # fast ema
7 n2 = 32 # slow ema
8 macd_period = 5
```

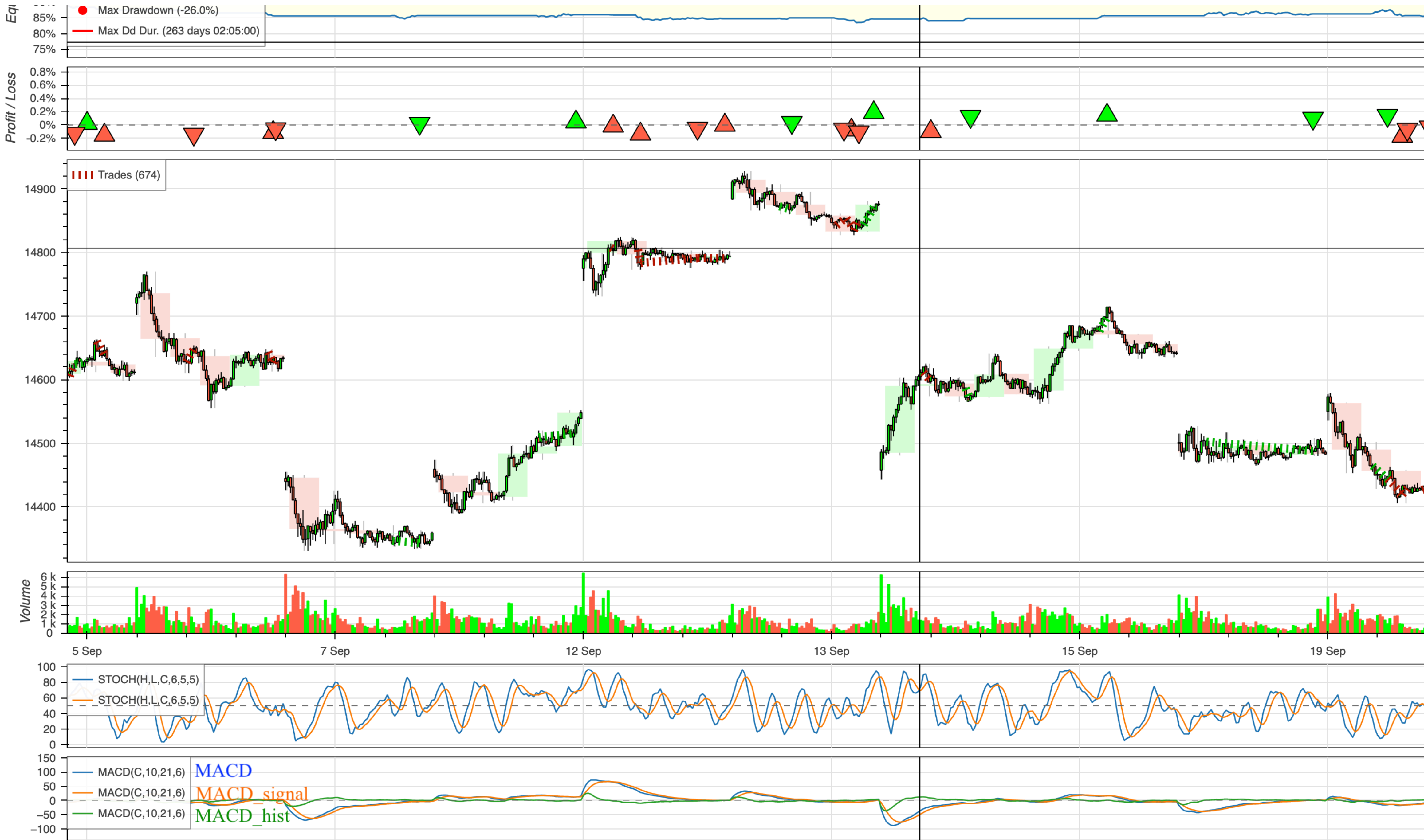
使用指標

- MACD in TA-Lib

$$MACD = EMA(n) - EMA(m)$$

$$MACD_signal = EMA(MACD(t))$$

$$MACD_hist = MACD - MACD_signal$$



策略

- Buy

1. Time = 9:15~13:29

2. KD處在超賣且有short（先close再buy）：

K crossover D 或 MACD crossover MACD_signal 或 MACD_hist crossover 0

3. KD沒有超買：K crossover D 且 MACD crossover MACD_signal 或 MACD_hist crossover 0

Case1. no position: $K > 45$ 且 $D > 47$

Case2. 有short position（close再buy）： $K > 50$ 且 $D > 50$

```
1 lower_bound = 20 # oversold area
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6 n1 = 9 # fast ema
7 n2 = 32 # slow ema
8 macd_period = 5
```


策略

- Sell

1. Time = 9:15~13:29

2. KD處在超買且有long（先close再sell）：

D crossover K 或 MACD_signal crossover MACD 或 0 crossover MACD_hist

3. KD沒有超賣：D crossover K 且 MACD_signal crossover MACD 或 0 crossover MACD_hist

Case1. no position: $K < 65$ 且 $D < 62$

Case2. 有long position（先close再sell）： $K < 50$ 且 $D < 50$

```
1 lower_bound = 20 # oversold area
2 higher_bound = 80 # overbought area
3 half = 50
4 kd_period = 7
5 div = 4 # stoch slowd_period
6 n1 = 9 # fast ema
7 n2 = 32 # slow ema
8 macd_period = 5
```


策略

- Close (long)

1. Time \geq 13:30

- 2.任何時候，D crossover K或MACD_signal crossover MACD或0 crossover MACD_hist

3. D crossover K且KD介於20~50且

MACD_signal crossover MACD或 MACD_hist $<$ 0或MACD $<$ 0

- 3.停損停利

Case1. 一般狀況：停損0.3%、停利1.5%

Case2. 在超賣時做的多單：停損0.3%、停利2%

```
1 lower_bound = 20 # oversold area
2 higher_bound = 80 # overbought area
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4 kd_period = 7
5 div = 4 # stoch slowd_period
6 n1 = 9 # fast ema
7 n2 = 32 # slow ema
8 macd_period = 5
```

策略

- Close (short)

1. Time \geq 13:30

- 2.任何時候，K crossover D或MACD crossover MACD_signal或MACD_hist crossover 0

3. K crossover D且KD介於50~80且

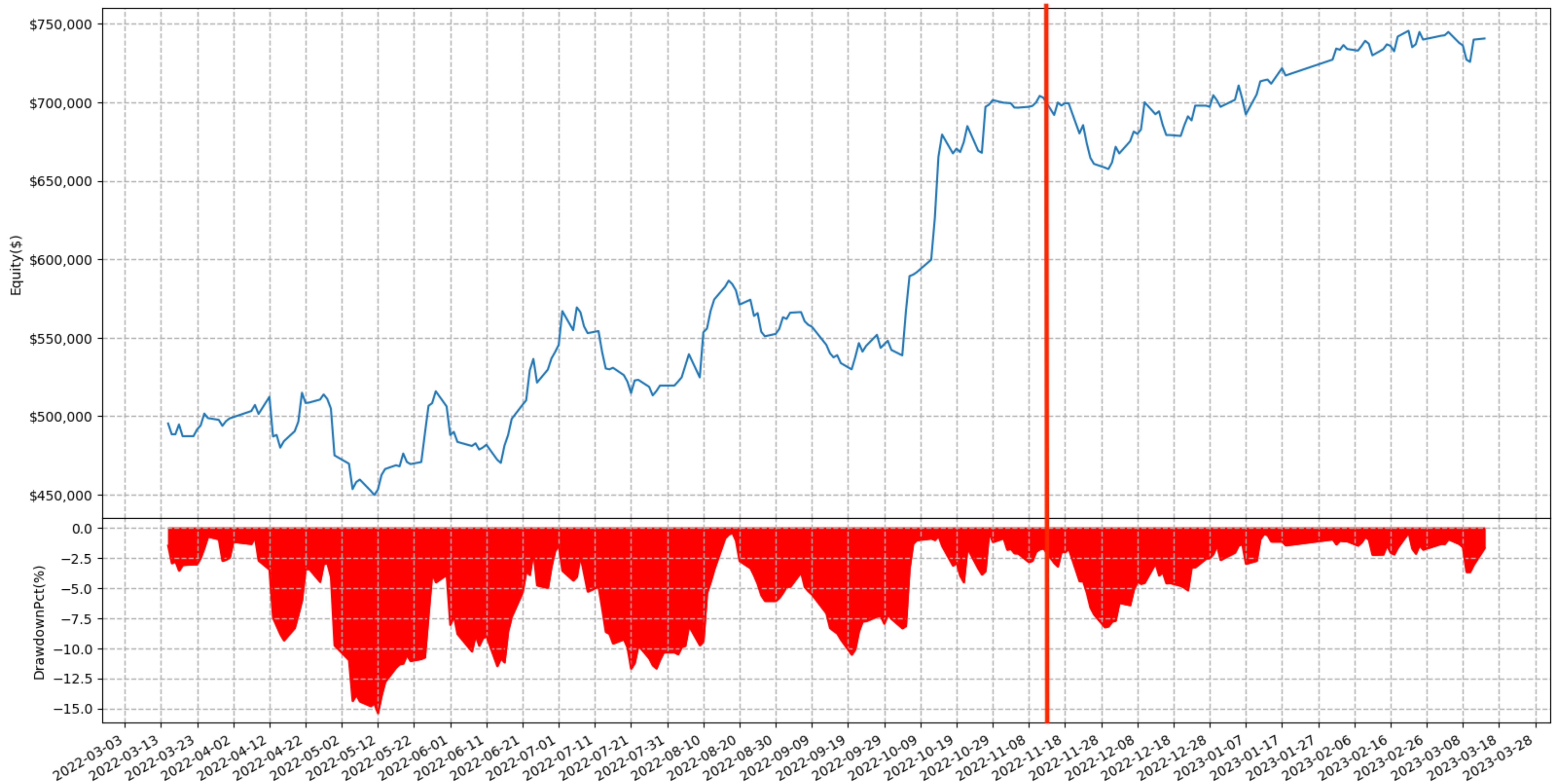
MACD crossover MACD_signal或 MACD_hist $>$ 0或MACD $>$ 0

- 3.停損停利

Case1. 一般狀況：停損0.3%、停利1.5%

Case2. 在超買時做的空單：停損0.3%、停利2%

```
1 lower_bound = 20 # oversold area
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```



1	Start	2022-03-14 08:50:00
2	End	2023-03-13 13:45:00
3	Duration	364 days 04:55:00
4	Exposure Time [%]	28.599727
5	Equity Final [\$]	740703.074
6	Equity Peak [\$]	748152.282
7	Return [%]	48.140615
8	Buy & Hold Return [%]	-10.273458
9	Return (Ann.) [%]	51.533684
10	Volatility (Ann.) [%]	37.194094
11	Sharpe Ratio	1.385534
12	Sortino Ratio	3.454783
13	Calmar Ratio	3.347591
14	Max. Drawdown [%]	-15.394261
15	Avg. Drawdown [%]	-1.767122
16	Max. Drawdown Duration	72 days 01:20:00
17	Avg. Drawdown Duration	6 days 00:44:00
18	# Trades	690
19	Win Rate [%]	48.26087
20	Best Trade [%]	1.111132
21	Worst Trade [%]	-0.318612
22	Avg. Trade [%]	0.012497
23	Max. Trade Duration	0 days 02:20:00
24	Avg. Trade Duration	0 days 00:27:00
25	Profit Factor	1.227057
26	Expectancy [%]	0.012656
27	SQN	1.753497
28	_strategy	myStrategy
29	_equity_curve	Equity DrawdownPct D...
30	_trades	Size EntryBar ExitBar EntryPrice Exi...

可能改進方向

1. 出場條件改變：目前是只要有任何不利的crossover出現，會直接平倉。可能可以設計更好的條件
2. 使用指標改變：KD指標的使用似乎變少，可能可以嘗試使用其他指標，或是以MACD為主，KD為輔