

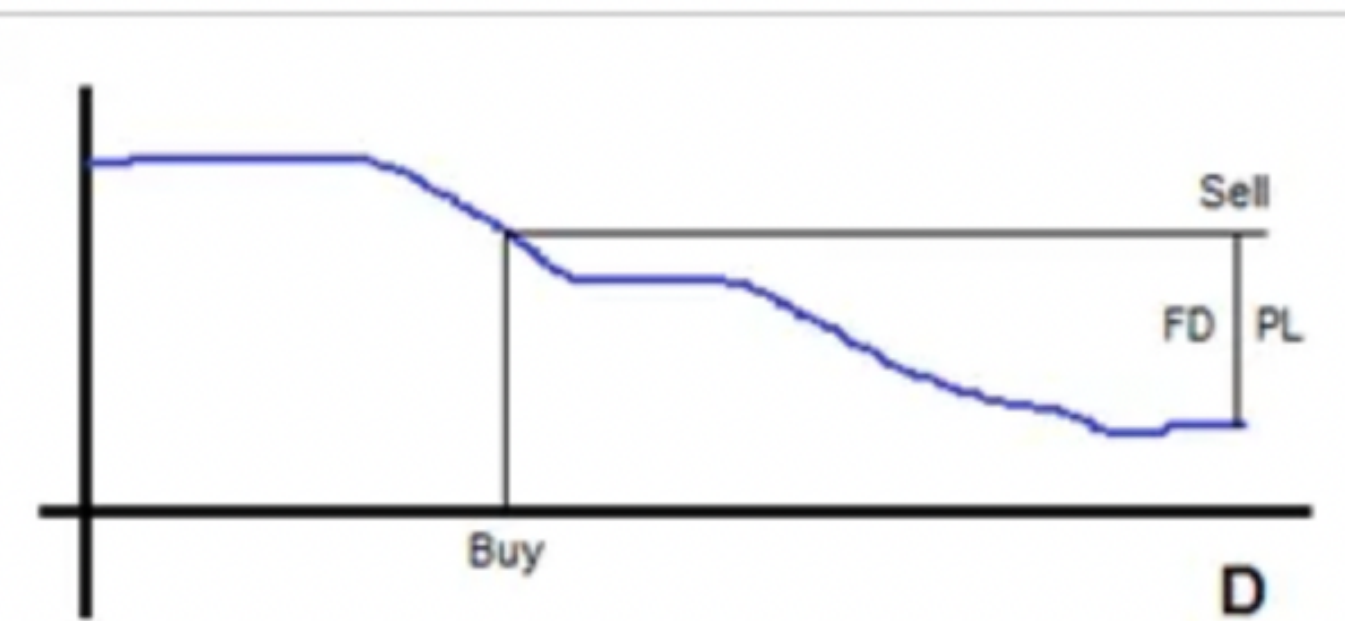
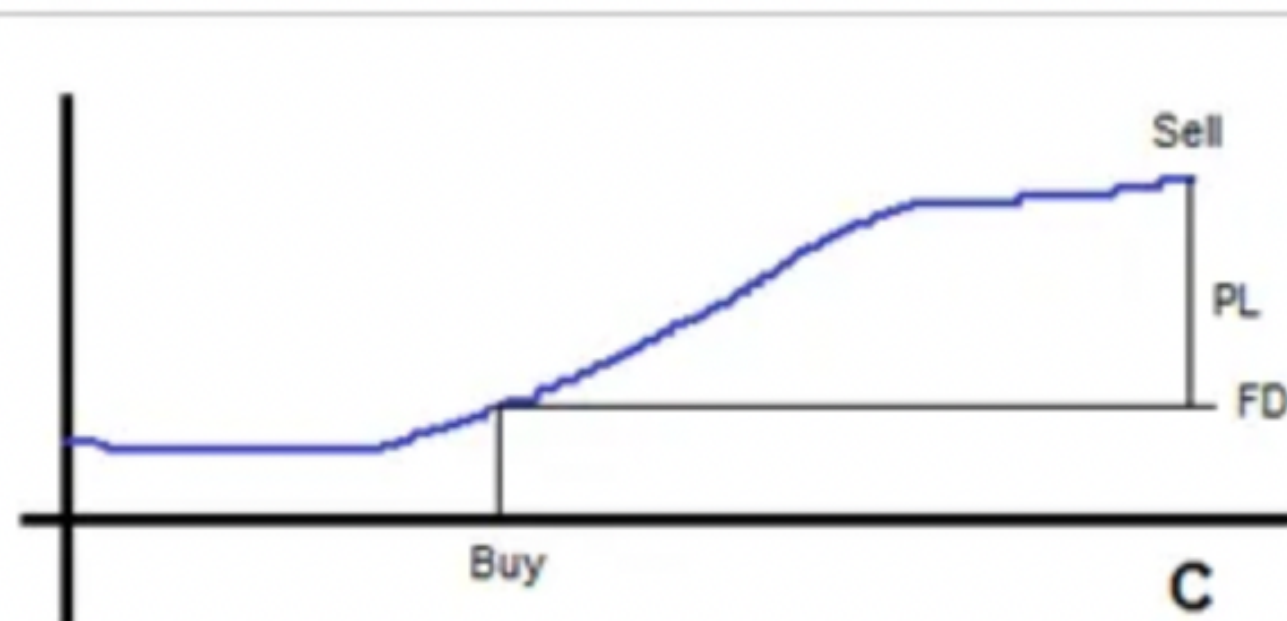
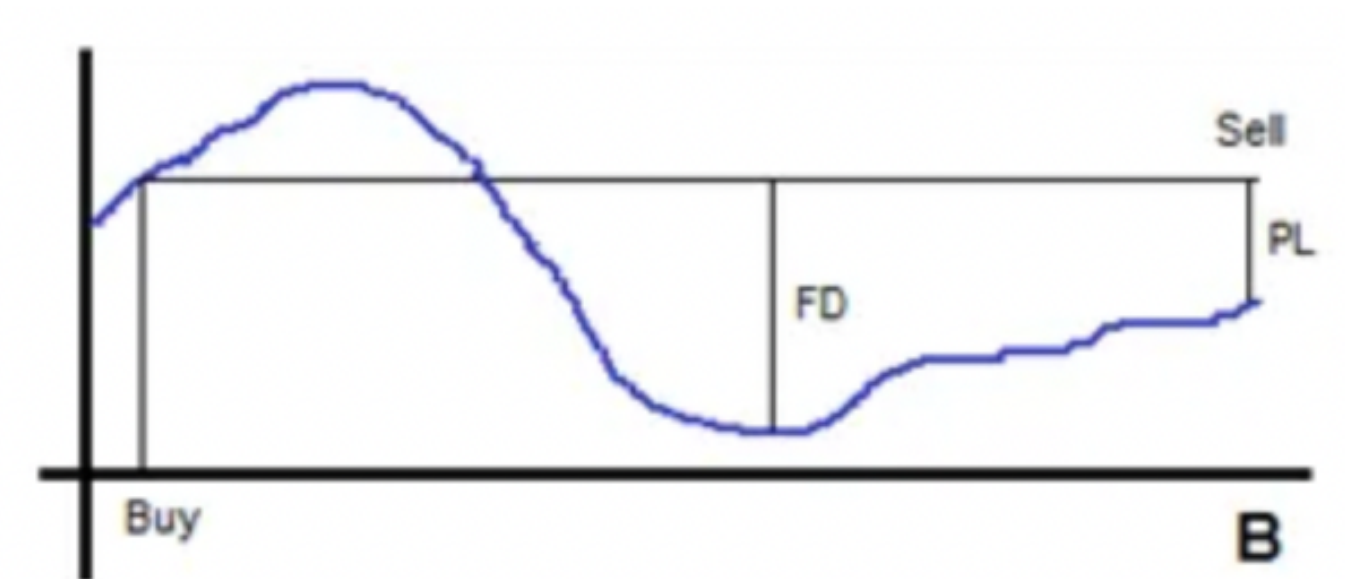
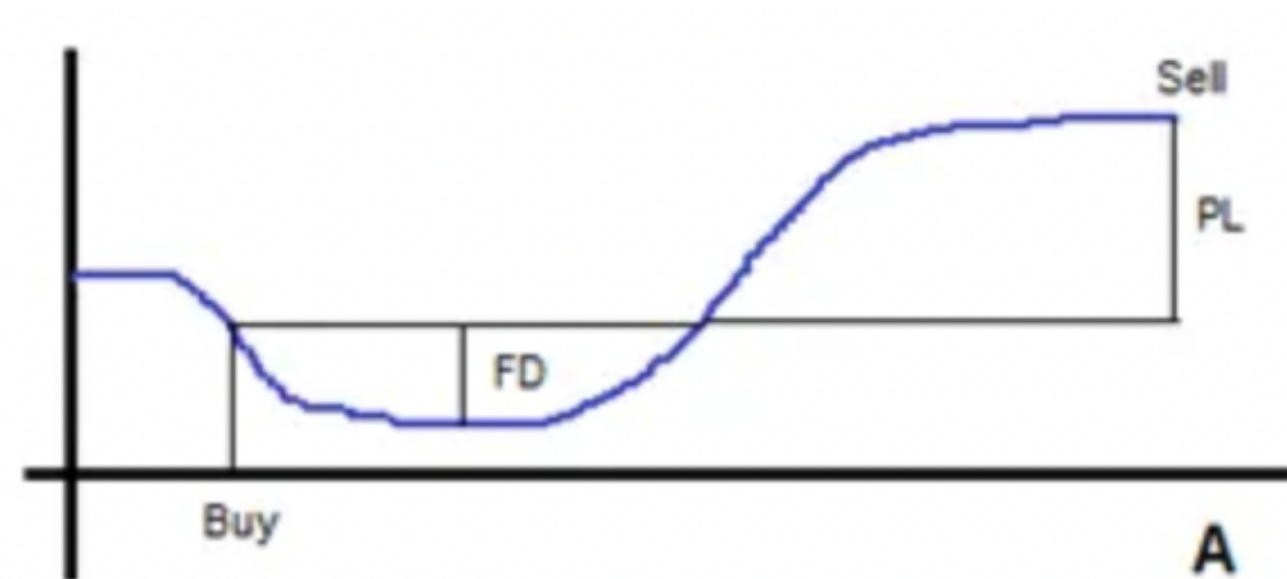
# THE OPTIMAL STOP LOSS FORMULA

By Anita  
2023.11.16

# The Optimal Stop Loss Formula

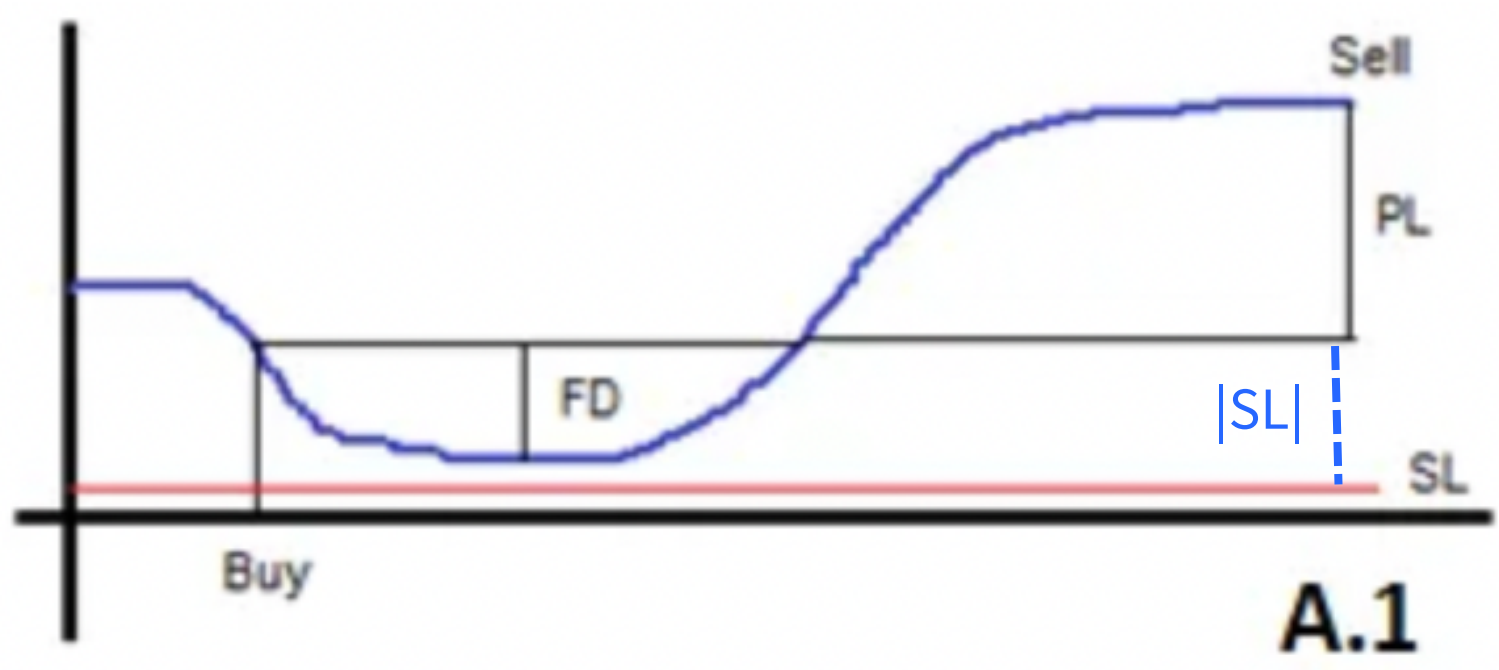
$$\text{Max}(\text{TotalProfit}(x)) = \text{Max} \sum_{i=1}^N \begin{cases} P_i, & x > D_i \\ -x, & x \leq D_i \end{cases}$$

PL : Profit or Loss (sell price - buy price) +/-  
 FD : Max fall in price (buy price - lower price) >=0

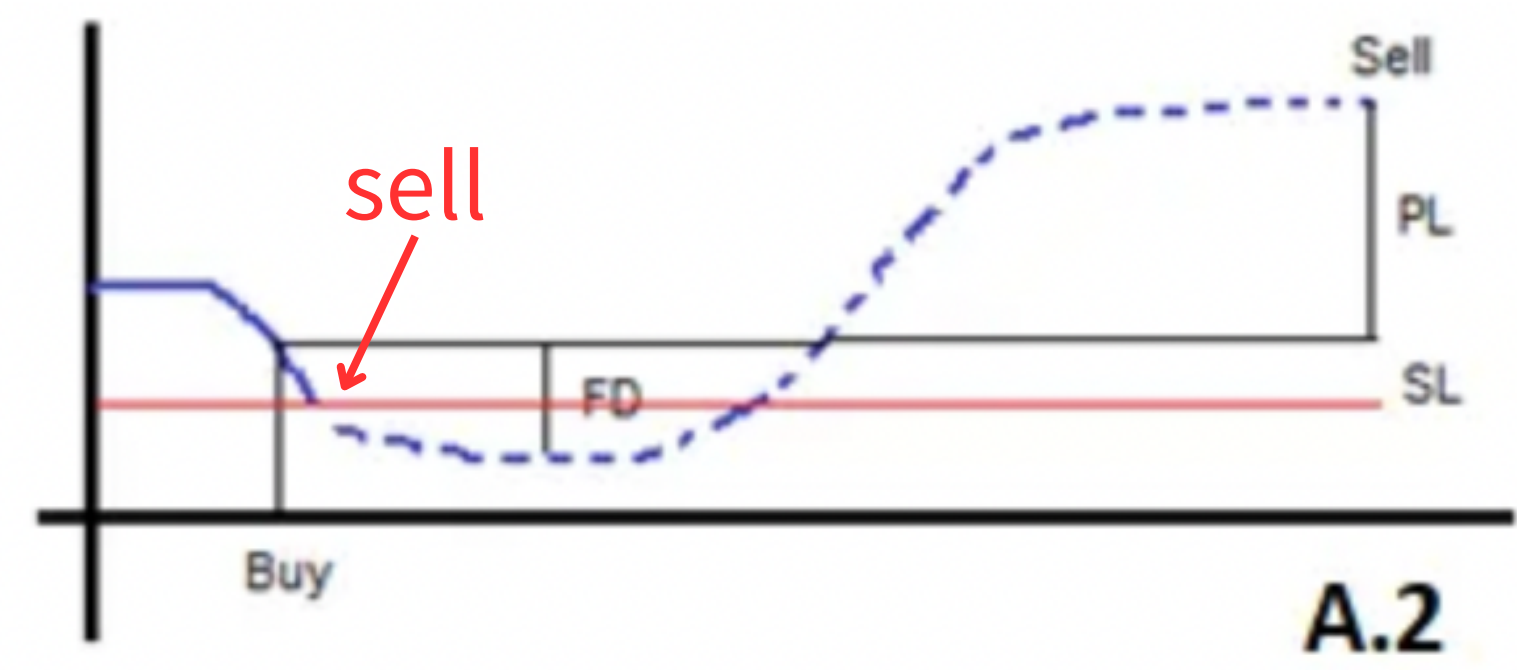


# The Optimal Stop Loss Formula

SL : stop loss



$PL > 0$

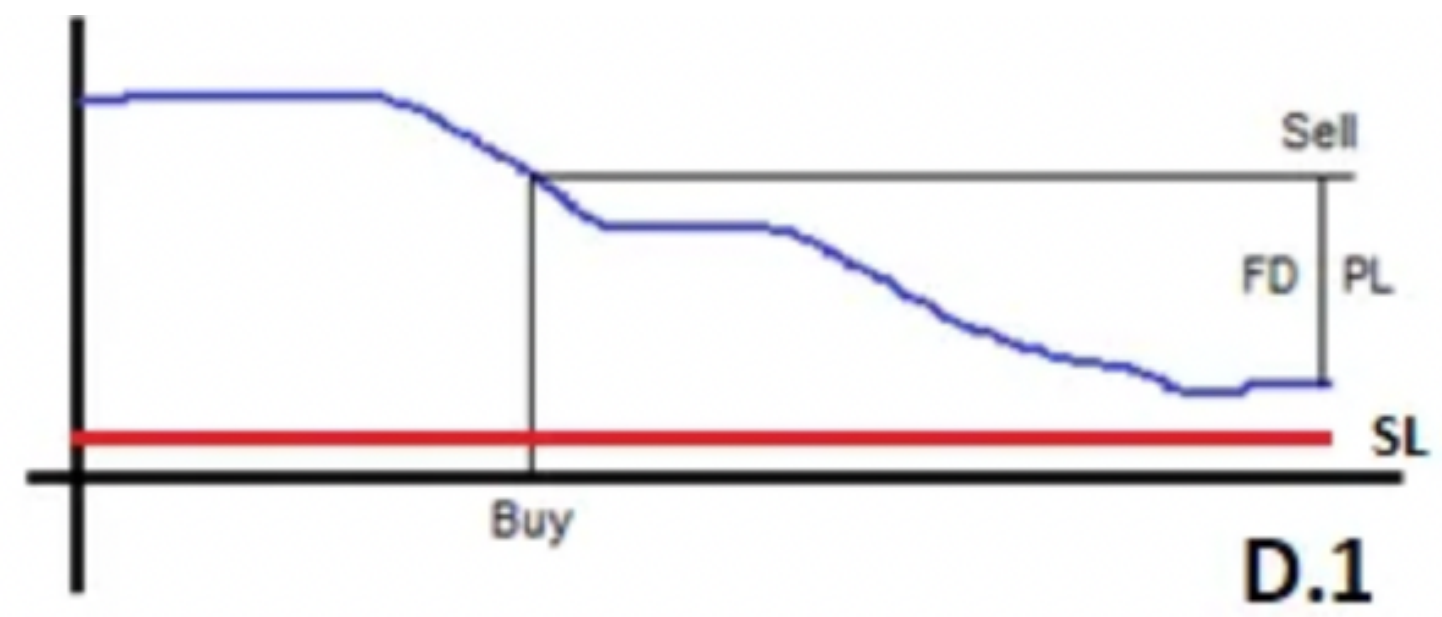


$PL < 0, PL = -SL$

**Conclude:** if  $|SL| > |FD|$  then profit = PL  
else profit =  $-|SL|$

# The Optimal Stop Loss Formula

SL : stop loss



$PL < 0$



$PL < 0, PL = -SL$

**Conclude:** if  $|SL| > |FD|$  then profit = PL  
else profit =  $-|SL|$

# The Optimal Stop Loss Formula

P : PL (Profit or loss)

D : |FD|

x : |SL|

T : Final result

$$T_i(x) = \begin{cases} P_i, & x > D_i \\ -x, & x \leq D_i \end{cases}$$

Total profit is sum of the Trade

$$TotalProfit(x) = \sum_{i=1}^N \begin{cases} P_i, & x > D_i \\ -x, & x \leq D_i \end{cases}$$

Goal : Maximize profit

$$Max(TotalProfit(x)) = Max \sum_{i=1}^N \begin{cases} P_i, & x > D_i \\ -x, & x \leq D_i \end{cases}$$



# The Optimal Stop Loss Formula

x fluctuate between 0 and max(D)

# Trade	D	P	Balance	T(x)	Balance T(x)
1	2	5	5	5	5
2	1	4	9	4	9
3	8	-7	2	-2.1	6.9
4	2	2	4	2	8.9
5	1	3	7	3	11.9

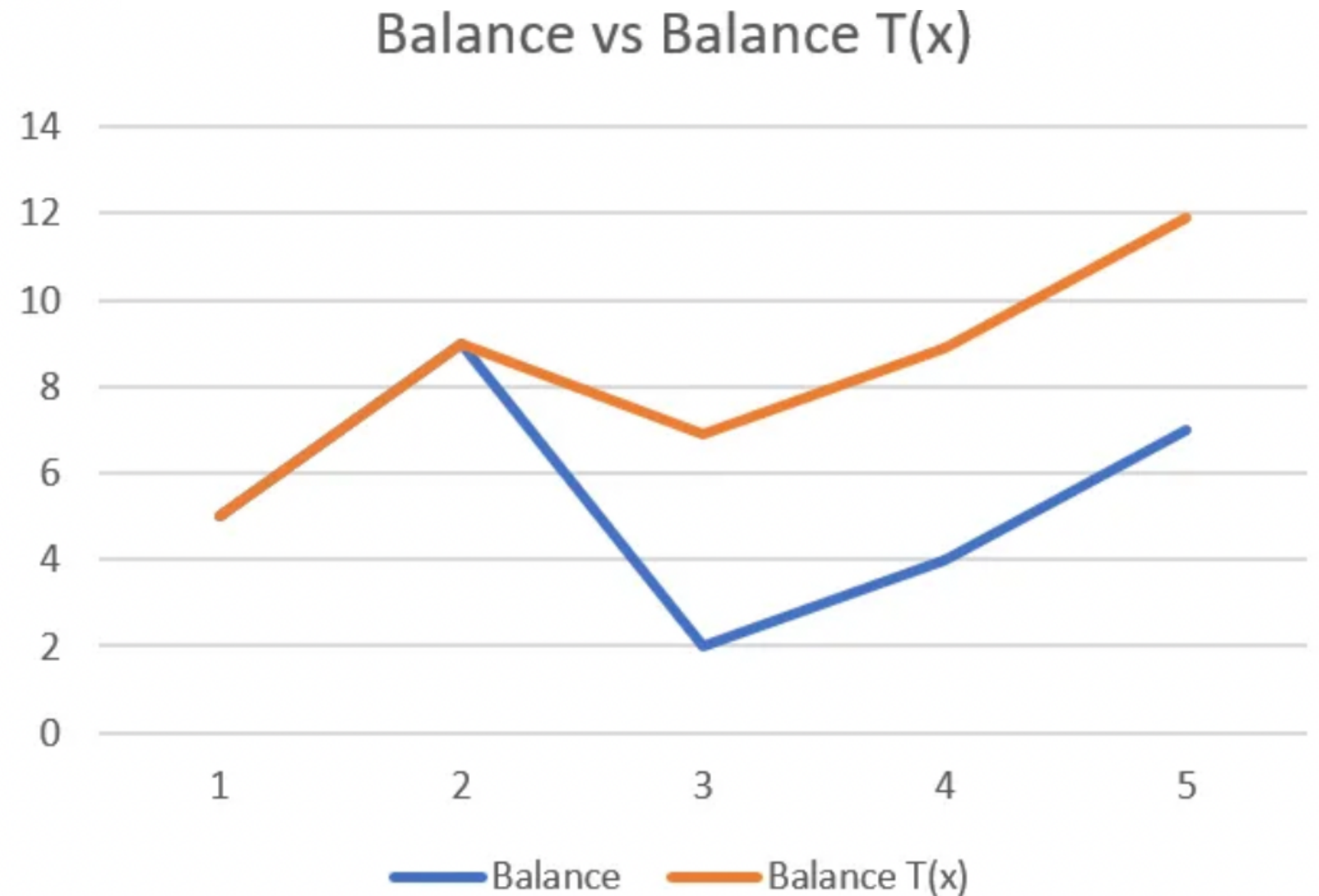
x= 2.1

x belong [0,8]

因為需要考慮未達停損的情況，  
所以 8\* 任意比例

ex 1.1 --> x belong [0,8.8]

比較BalanceT(x)找出最佳x



# Dual thrust Strategy

Before

```
LP 回測結果 ===== v1.0.0.4
Report Time      : 2023-10-25 18:04:54

Total Closed Trades : 398

Net Profit       : 14.857025

Fee (USDC)      : 10.072108

PNL (USDC)      : 4.784916

IL (USDC)       : -17.081366

Percent Profitable : 57.54%

Profit Factor    : 1.68

Max Drawdown    : -2.17

Avg Trade       : 0.04

Sharpe Ratio    : 13.62
```

x = 9.8114

After

```
LP 回測結果 ===== v1.0.0.4
Report Time      : 2023-11-22 17:17:49

Total Closed Trades : 398

Net Profit       : 3.828241

Fee (USDC)      : 2.593494

PNL (USDC)      : 1.234747

IL (USDC)       : -4.427472

Percent Profitable : 57.54%

Profit Factor    : 1.68

Max Drawdown    : -0.55

Avg Trade       : 0.01

Sharpe Ratio    : 13.58

Sortino Ratio   : 28.20
```

# RSI Strategy

Before

```
LP 回測結果 ===== v1.0.0.4
Report Time      : 2023-11-22 17:44:41

Total Closed Trades : 84

Net Profit       : 15.588453

Fee (USDC)      : 6.228600

PNL (USDC)      : 9.359854

IL (USDC)       : -16.831166

Percent Profitable : 60.71%

Profit Factor    : 4.12

Max Drawdown    : -1.35

Avg Trade       : 0.19

Sharpe Ratio    : 34.94

Sortino Ratio   : 146.81
```

x = 5.1822

```
LP 回測結果 ===== v1.0.0.4
Report Time      : 2023-11-22 17:48:36

Total Closed Trades : 84

Net Profit       : 3.959071

Fee (USDC)      : 1.584796

PNL (USDC)      : 2.374275

IL (USDC)       : -4.294755

Percent Profitable : 60.71%

Profit Factor    : 4.14

Max Drawdown    : -0.34

Avg Trade       : 0.05

Sharpe Ratio    : 34.83

Sortino Ratio   : 147.47
```

After





**THANK FOR**  
*thank for*  
**LISTENING**  
*listening*