Grid Strategy Trading Logic

Elements:

Object: XXXYYY daily return

Asset: hold N XXX , YYY in the initial time (as the wealth benchmark)

Central line (using model to estimate the long term effective return of XXXYYY and then do normalization?)

Time horizon:

Order Type: limit price order

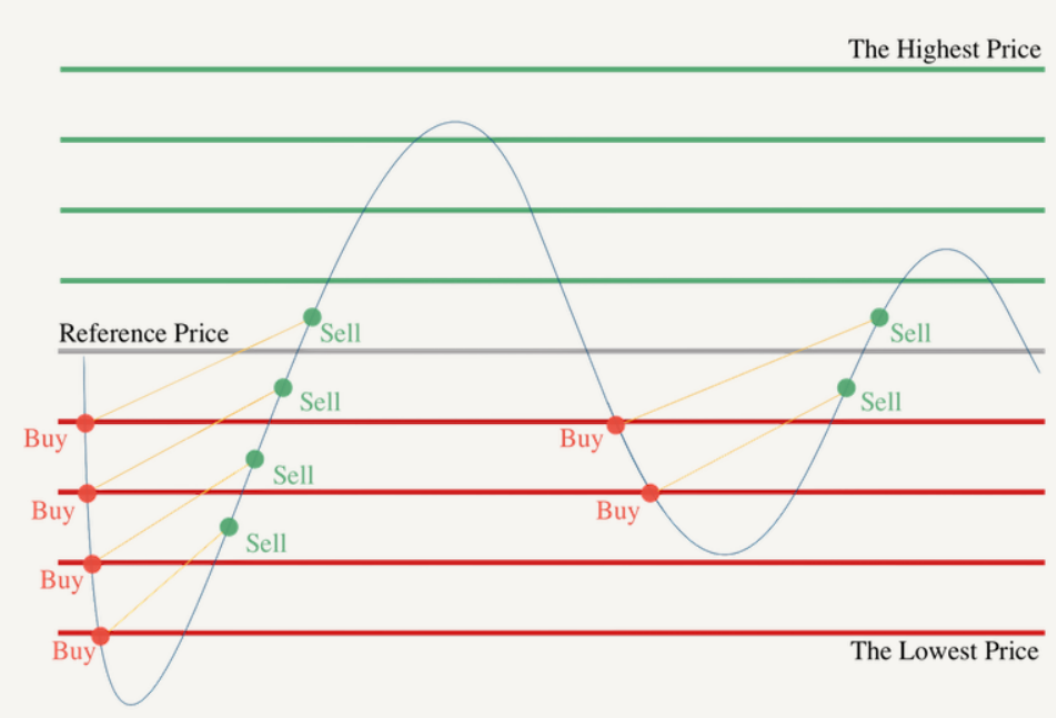
Width: Max Return – Min Return
Max Return = mean + 3 * sigma
Min Return = mean – 3 * sigma
Sigma is the historical volatility of XXXYYY

Number of grid: 10 (5+5)
Width of grid: 0.6* sigma (Arithmetic methods)

Quantity per grid: Equal Weight (constant). Eg. Buy side: YYY/5 ; Sell side: XXX/5

Note:
the grid strategy is suitable for stationary process, so we use return as the object. If we use random walk of asset price, we should combine our judgement of future movements. For example, Pt = Pt-1 + delta, delta follow N(0, sigma^2), which is iid.

The number of grids should not be too much, because the cost of transaction will reduce our alpha. And the width of grid should not be too wide, since it will provide less opportunities for trading then reducing the utilization rate of capital.



Trading Logic:

We use sample for estimate the mean.

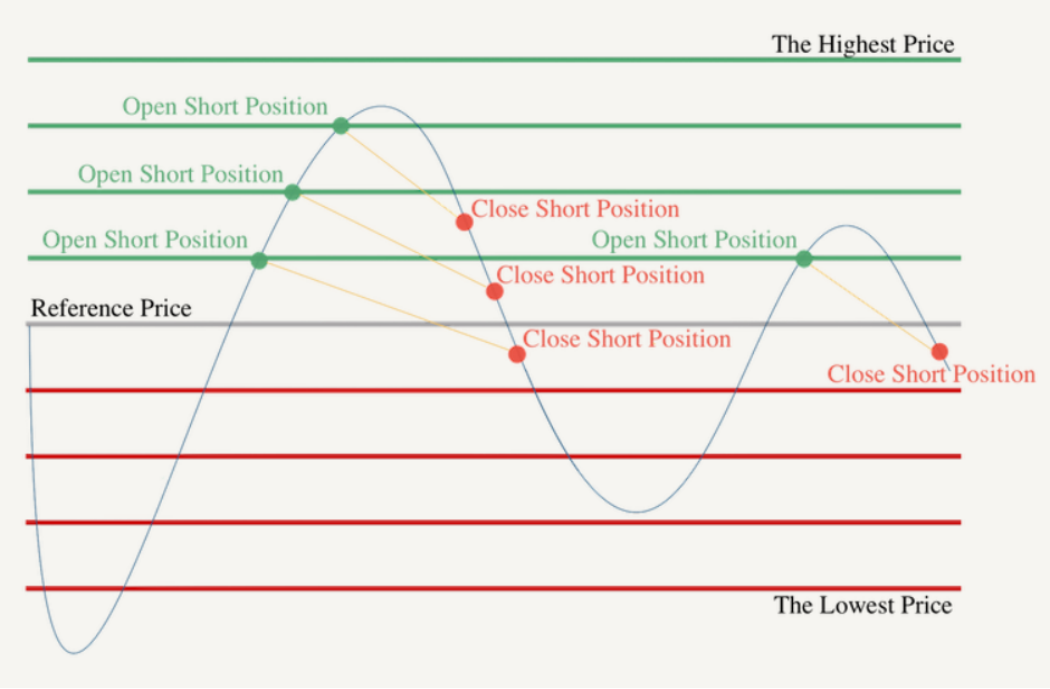
And use the extra data to do the back testing.

For the down direction:

If current return <= down-grid n:
    Buy position

If current return >= down-grid n-1 :
    Sell positon

If current return < mean - 4 * sigma:
    Stop loss


The Highest Price
Open Short Position
Open Short Position
Close Short Position
Open Short Position
Open Short Position
Close Short Position
Reference Price
Close Short Position
Close Short Position
The Lowest Price