**Short term reversals – weekly analysis**

Step 1: Calculation of real-time drawdowns:

Let’s take the price on Day 1 as peak and trough. On every Wednesday, we check the prices for the past one week (till last Thursday). If the highest price (say on Day t) is greater than the previous peak, it is set as the new peak and drawdowns are calculated with this as the benchmark. Next, we check for trough from Day t+1 to Wednesday. If it is lower than the previous trough, it is set as the candidate trough. If the candidate trough repeats (we have done two analyses: repeating twice & thrice), then drawdowns are calculated with this price as benchmark.

Below is the example of real-time drawdown calculation for candidate trough repeating twice

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| --- | --- | --- | --- | --- | --- |
| **Date** | **PRC** | **log\_returns** | **PPDD** | **CDT** | **DD** |
| 1/11/1950 | 17.09 |  | 0 |  | 0 |
| 1/12/1950 | 16.76 | -0.019498402 | -0.019498402 |  | -0.019498402 |
| 1/13/1950 | 16.67 | -0.005384398 | -0.0248828 |  | 0 |
| 1/16/1950 | 16.719999 | 0.002994851 | -0.021887949 |  | 0.002994851 |
| 1/17/1950 | 16.860001 | 0.008338464 | -0.013549485 |  | 0.011333315 |
| 1/18/1950 | 16.85 | -0.000593355 | -0.01414284 | 13/01/1950 | 0.01073996 |
| 1/19/1950 | 16.870001 | 0.001186299 | -0.012956541 |  | 0.011926259 |
| 1/20/1950 | 16.9 | 0.001776666 | -0.011179875 |  | 0.013702925 |
| 1/23/1950 | 16.92 | 0.001182732 | -0.009997143 |  | 0.014885657 |
| 1/24/1950 | 16.860001 | -0.003552342 | -0.013549485 |  | 0.011333315 |
| 1/25/1950 | 16.74 | -0.007142947 | -0.020692432 | 13/01/1950 | 0.004190368 |

Abbreviations: PRC-price, PPDD-Peak to peak drawdown, CDT-Candidate trough, DD-Realtime drawdown.

On 1/18/1950 (Wednesday), past one week prices are checked. Here, the peak is on 1/11/1950. So, drawdowns are calculated with 17.09 as benchmark. These numbers can be seen under PPDD (peak-to-peak drawdown) column. The lowest is 16.67 (this is taken as candidate trough).

On 1/25/1950 (Wednesday), past one week prices are checked. The peak is still on 1/11/1950. So, drawdowns are calculated with 17.09 as benchmark. Here, the candidate trough repeated twice. Hence, we take 16.67 as benchmark and estimate the drawdowns. The corrected drawdowns (real-time) can be seen under DD column.

Step 2: On each Wednesday, we check for similar drawdowns in the historical data and calculate the average cumulative return for next 5 trading days.

eg. if my drawdown is 0.00419 on 1/25/1950, I will look for the days with 0.00319 <= drawdowns <= 0.00519 in past data and calculate next 5 days average return. This is our predicted return for the next one week.

**Step 3:**

Unlevered strategy**:** If thepredicted return is positive, we will stay in the market (Return = market return). Else, out of the market (Return = riskfree return).

Levered strategy**:** If thepredicted return is positive, we will stay in the market (Return = 1.5\*market return-0.5\*riskfree return). Else, out of the market (Return = -0.5\*market return+1.5\*riskfree return).