Solution Description - Part (2)

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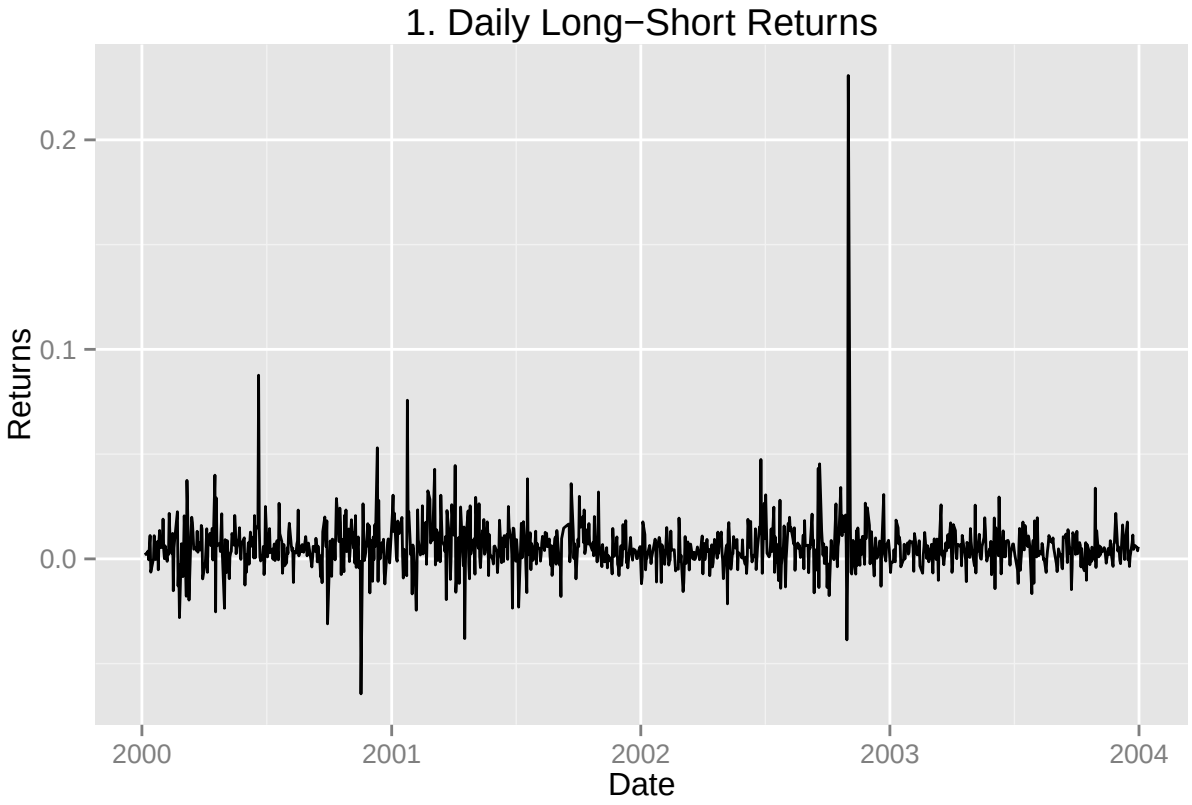
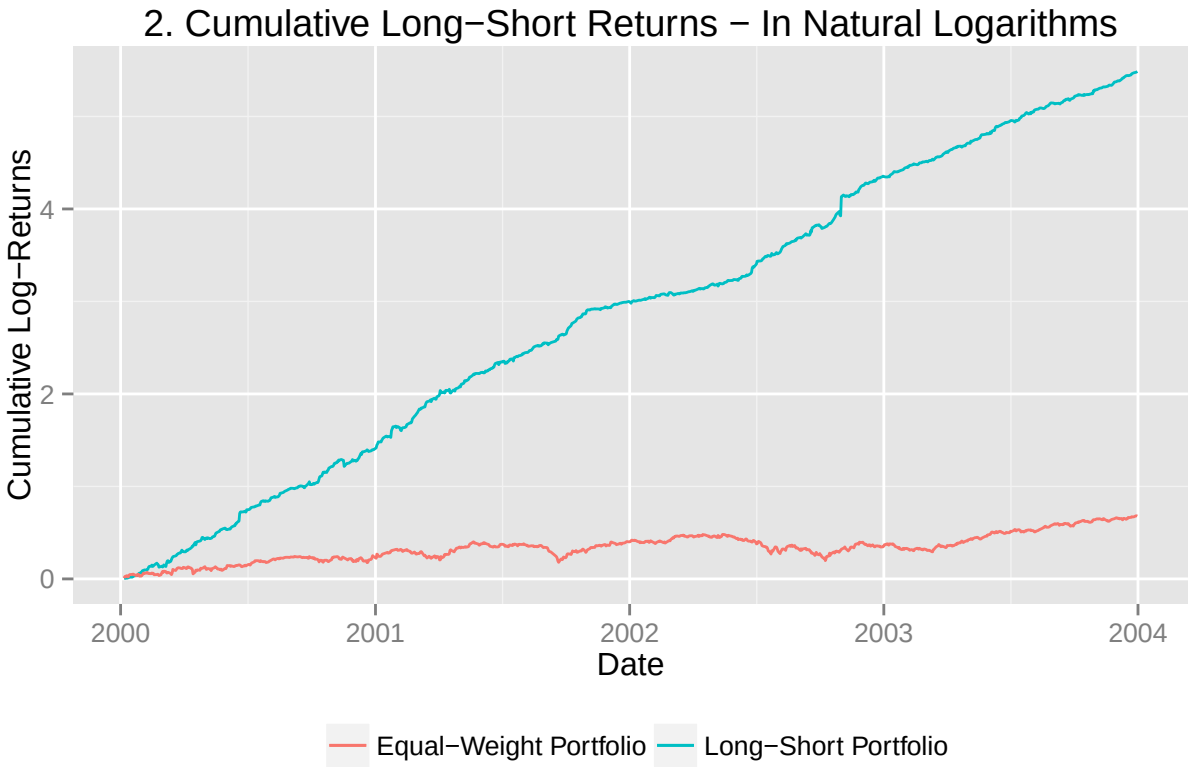
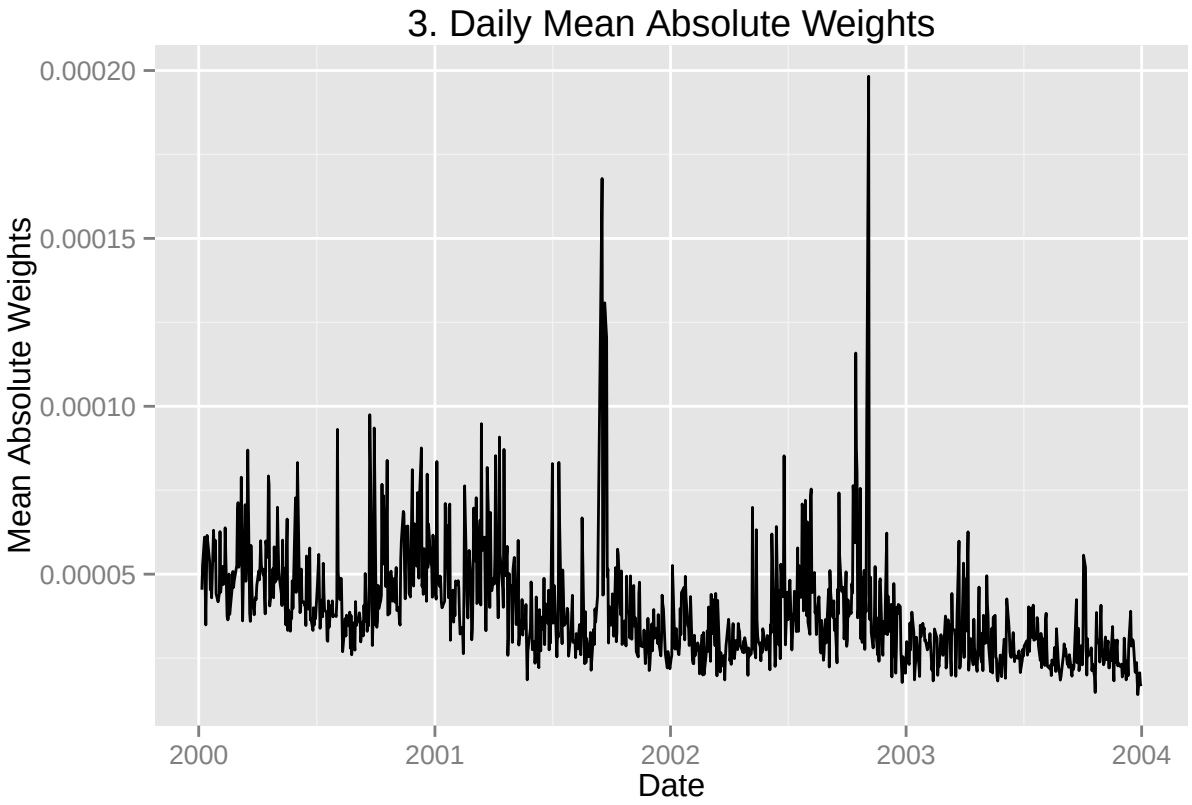
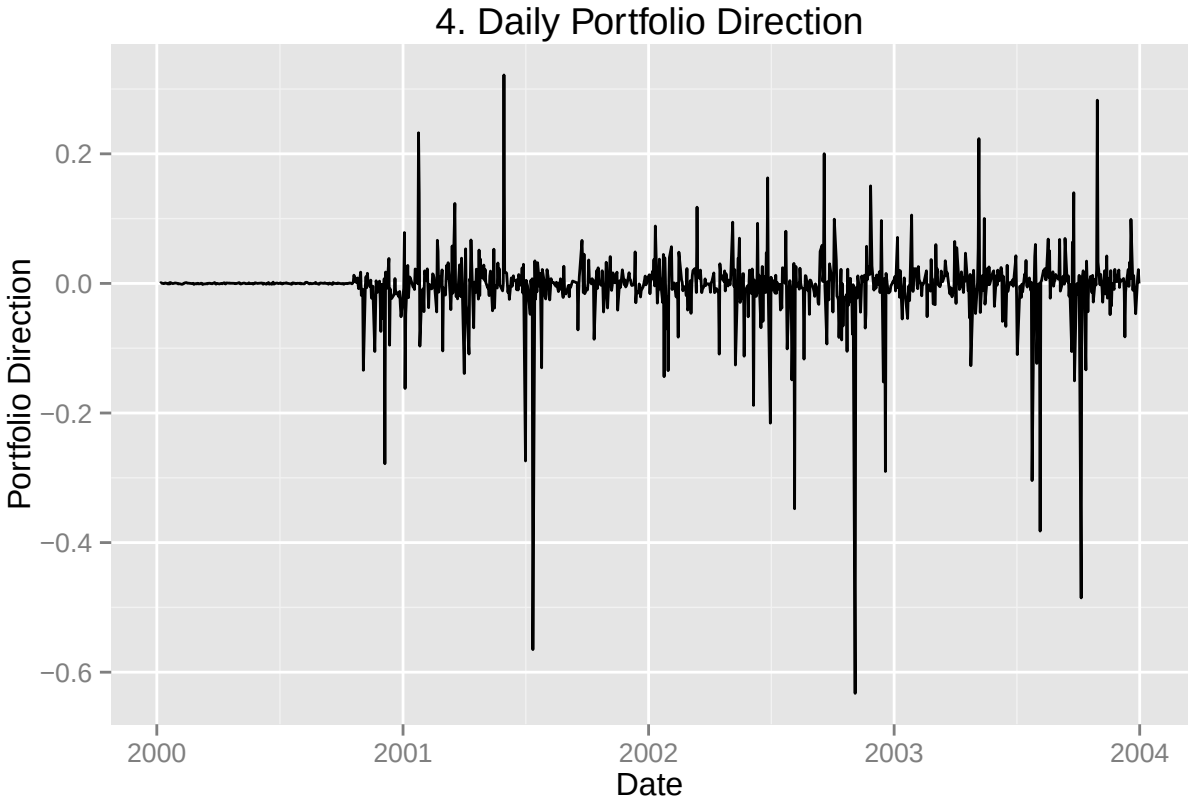
We first display the four time series plots.




2. Cumulative Long−Short Returns − In Natural Logarithms
Cumulative Log−Returns
0
2
4
2000
2001
2002
2003
2004
Date
Equal−Weight Portfolio
Long−Short Portfolio


3. Daily Mean Absolute Weights
Mean Absolute Weights
0.00020
0.00015
0.00010
0.00005
2000
2001
2002
2003
2004
Date



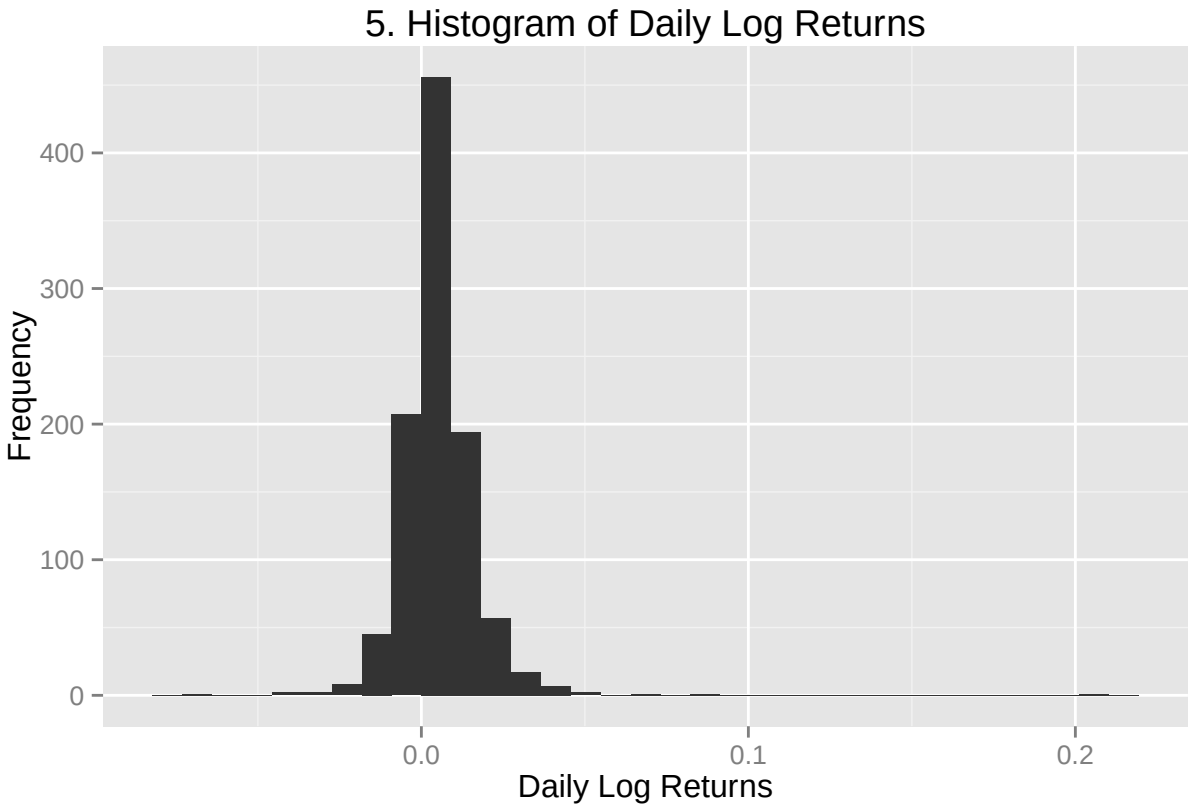
We can also look at the relevant statistics below.

	Names	Values
1	Average Daily Log Returns	0.0055
2	Standard Deviation of Daily Log Returns	0.0125
3	Annualized Sharpe Ratio	6.9619
4	Skewness	4.5473
5	Kurtosis	71.2202
6	Maximum Drawdown - Number of Days	4.0000
7	Maximum Drawdown - Return	-0.0732
8	Correlation with Equal Weighted Returns	0.0113

Table 1: Summary Statistics - Using In-Sample Data

Judging from in-sample data, the strategy is performing quite well. We first observe plot 2 of cumulative returns and the annualized Sharpe ratio, both of which are significantly outperforming the strategy in part (1) and the equal weight portfolio. From a correlation of only 0.0113 with the equal weight portfolio, and observing plot 4 this strategy rarely has a portfolio direction of more than 0.2, we can see that the strategy is very market neutral. We also note the maximum drawdown for this strategy is extremely low at 4 days and -7.3%.

The only negative sign we observe from in-sample statistics is the large skew and excess kurtosis, implying extremely heavy tails. However, but looking a histogram below (plot 5), we realize that there is data point returning 20%. Removing that point, we would have a skewness of 0.556 and an excess kurtosis of 7.640


5. Histogram of Daily Log Returns
Frequency
400
300
200
100
0
0.0
0.1
0.2
Daily Log Returns