

# 程序代写代做 CS编程辅导



## Week 6 Assignment

Due Date: March 3, 2023 at 10am

**WeChat: cstutorcs**

### Exercise Stock Returns vs. Price Impact Increments

This assignment assumes that the exercises in Week 5 Assignment have yielded a functioning script.

1. Wrap the script from Week 5 into a function of  $dt$ , the date.
2. Loop over values of  $dt$  and aggregate variances and covariances into a single table across dates, stocks, halflives, and prediction horizons.

The following exercises concern about the regression  $r = \lambda \Delta I + \epsilon$ , where  $\epsilon$  is assumed to be Gaussian and i.i.d:

3. Compute  $\lambda = \mathbb{E}[r\Delta I]/\mathbb{E}[(\Delta I)^2]$  and in-sample  $R^2$  by stock, halflife, and prediction horizon; that is, run a regression using the data across all dates for each (stock, halflife, prediction horizon) pair. Plot the corresponding distribution; cf. page 36 of Lecture 5.
4. Compute  $\lambda = \mathbb{E}[r\Delta I]/\mathbb{E}[(\Delta I)^2]$  and out-of-sample  $R^2$  by month, halflife, and prediction horizon; that is run a regression using the data across all stocks for each (month, halflife, prediction horizon) pair and calculate the model  $R^2$  in the next month. Plot the corresponding timeseries; cf. page 37 of Lecture 5.