

Homework 1

Due: Feb 6, 2017

The goal of this homework is to get familiar with ITCH and EBS high frequency order and transaction data. Choose 2 stocks that differ in their size (market capitalization).

Use the currency pairs: EUR/JPY, EUR/USD, and USD/JPY.

For one trading day (9:30 to 4) calculate descriptive summary statistics for the following variables:

- a. volume
- b. number of trades and number of orders (orders only for NASDAQ ITCH)
- c. open, close, high and low prices
- d. vwap
- e. BBO spread and depth
- f. depth at twice that day's average spread (it will be zero when the spread is greater than twice its average)
- g. 5-second price impact (regress 5-second midpoint quote return on current trade sign, -1 or +1),

Construct daily plots for the liquidity measures (spread, depth, and price impact) that change throughout the day for each 5min interval for each day, i.e., a plot for each variable each day where the x-axis is 9:30-9:35, 9:35-9:40, \dots , 3:55-4:00.

To turn in provide a table of the summary statistics and choose up to 4 of the more interesting graphs. Document interesting observations that you find and why these may exist.