

4th set SAS assignments

Data description for the three data sets `rwetrad` (RWE), `tuitrad` (TUI) and `sietrad` (SIEMENS):

Variable	Label	Explanation
<code>event_d</code>	Date of Trading	self explanatory
<code>event_t</code>	Time of Trading	self explanatory
<code>event_dt</code>	Date and Time of Transaction	self explanatory
<code>vol</code>	Number Securities Traded	self explanatory
<code>price</code>	Security Price DM	Transaction price in Euro
<code>bidprice</code>	Last recorded Bid Price	Prevailing bid price prior to the trade
<code>askprice</code>	Last recorded Ask Price	Prevailing ask price prior to the trade
<code>in_class</code>	Buy/Sell Indicator (Quote)	Indicator variable taking the value 1 if trade was a buy and -1 if trade was a sell
<code>midpoint5</code>	Last recorded BA Midpoint 5 minutes after the trade	Prevailing Bid/Ask midpoint 5 minutes after the trade

1. Working with ultra high frequency data II

Do not write completely new code for the following steps. You should already have the majority of the code from assignment sheet 3!

- i) Recall assignment sheet 3 and rewrite your code creating the spread variables as a macro (name it *means*) having the stock ticker (RWE, SIE, TUI) as argument. The code basically consists of a data step where the spread variables are computed and the ten minute indicator is created and afterwards a call of the sort procedure.
- ii) Write another macro (name it *plotmeans*) which plots the intra-day ten minute means and the confidence intervals for **one** variable (ES, RS, PI) with the variable, the stock ticker and an output path for the graph as arguments.
- iii) Write another macro (name it *allvariablesforonestock*) which calls the previous two macros in the following fashion. The macro *means* is called once and the macro *plot-*

means is called three times (for each variable one time). Either in a do loop or call it simply three times. The two arguments of the macro are output path and stock ticker.

- iv) Write another macro (name it *allvariablesforeachstock*) which calls the macro in iii) for each stock in a do loop. In order to loop over a string variable you have to use a little trick. The arguments of the macro should be the output path and a string variable containing the stock ticker symbols delimited by a space and the number of stocks.

In the macro, you loop over this string variable like this:

```
%DO i=1 %TO &numstock.;
```

```
%let bufstock=%trim(%scan(&stocks,&i," "));
```

call the macro *allvariablesforonestock* where bufstock now contains the stock ticker symbol (try to find out why)

```
%END;
```

Before you call this last macro, create a string variable like this:

```
%LET stocks="rwe sie tui";
```