

Thomson Reuters Datastream (TDS) data extraction guidelines  
Online Appendix  
A granular approach to international equity data from Thomson  
Datastream

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**Abstract**

In this online appendix, we provide a detailed step-by-step illustrated guide to the data selection and extraction procedure proposed in the main body of Landis and Skouras (2019). This procedure is designed to collect an international dataset of equities using TDS with broad coverage, maximum precision and in local currency.

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## 1. Set-up

At the time of writing, Thomson Reuters Datastream (TDS) is available as an optional add-on database accessible through Thomson Reuters' EIKON (EIKON) product.<sup>1</sup> We assume the user has launched an Excel spreadsheet with the macros and EIKON's Excel add-on enabled and within that, EIKON's TDS add on is enabled. Figure 1 displays an Office Excel 2010 worksheet with both EIKON and TDS tools available. Most users will expect their sysadmin to have set-up this environment, but can refer to EIKON's official instructions for details on how to install the appropriate add-ons.<sup>2</sup>

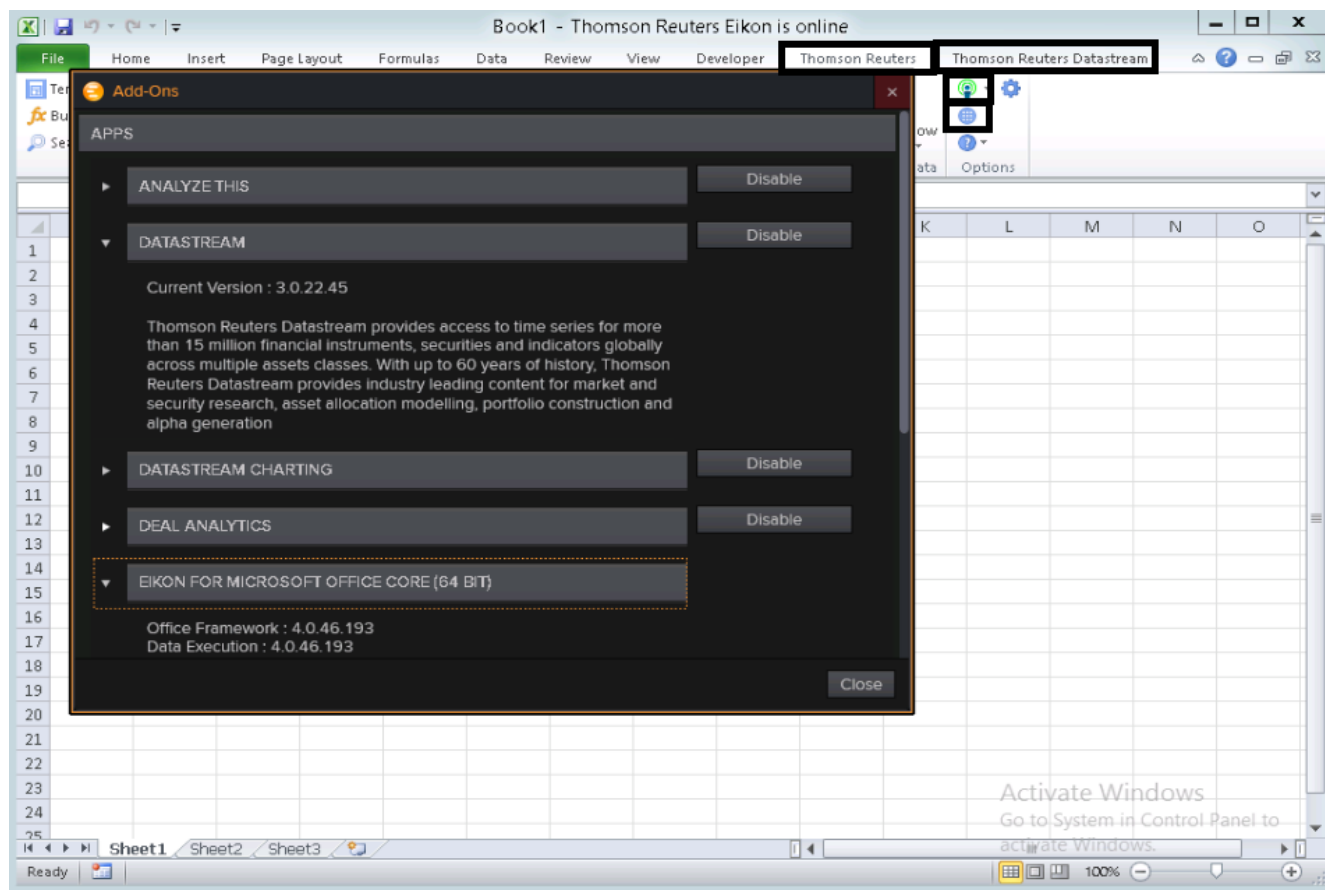


Figure 1

## 2. Creating an exchange rate universe

Step 1. Create a directory in which data and helper files will be stored. This directory can have a name of your choice and we will refer to it as UserDirectory moving forward - we use 'C:\tds\'.  
Step 2. Open a new excel workbook, with one unnamed worksheet, and save this file with any name and on any path of your choice - we use 'C:\tds\fx\_list.xlsx'.

<sup>1</sup>See <https://www.refinitiv.com/en/support-and-training/datastream-training>.

<sup>2</sup>In what follows, we have used EIKON Desktop 4.0.46.125, EIKON for Microsoft Office Core 4.0.46.193, TDS add-on version 3.0.22.45, and Microsoft Office Excel 2010. As far as we are aware the behavior of later versions of Microsoft Office software is similar.

Step 3. Select cell A1, and select the ‘Find Series’ option in the ‘Series Requests’ group, in the ‘Thomson Reuters Datastream’ tab (see Figure 2). This will launch the ‘DFO Navigator’<sup>3</sup>.

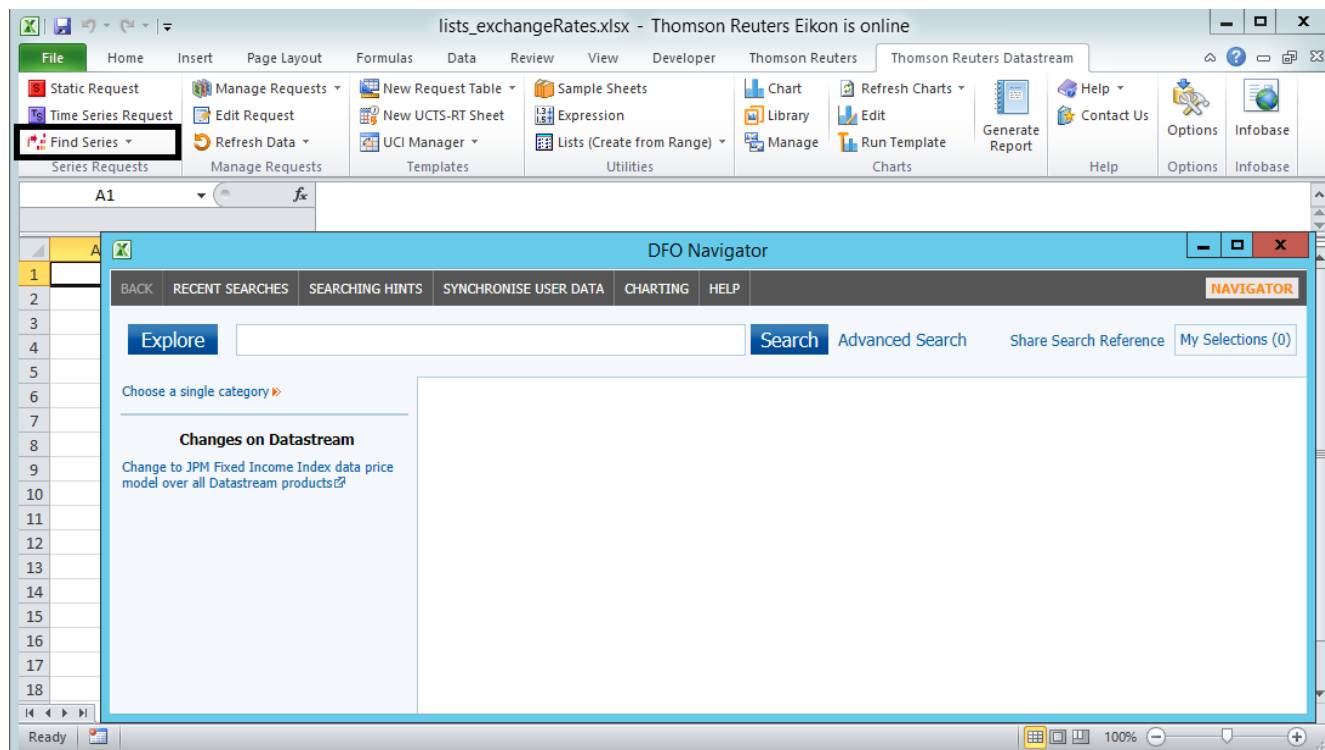


Figure 2

Step 4. In the DFO Navigator choose ‘Explore’ and navigate to ‘Exchange Rates’, then ‘WM/Reuters Closing Spot Rates’ and tick ‘Sterling’. Then click on ‘All’ (see Figure 3). This will export Datastream Codes (DSCD) in a column starting in cell A1 (ending in A155 at the time of writing). Select these cells.

<sup>3</sup>The official reference guide for the “DFO Navigator” browser can be found here : [https://www.refinitiv.com/content/dam/marketing/en\\_us/documents/quick-reference-guides/datastream-navigator-support-quick-reference-guide.pdf](https://www.refinitiv.com/content/dam/marketing/en_us/documents/quick-reference-guides/datastream-navigator-support-quick-reference-guide.pdf)

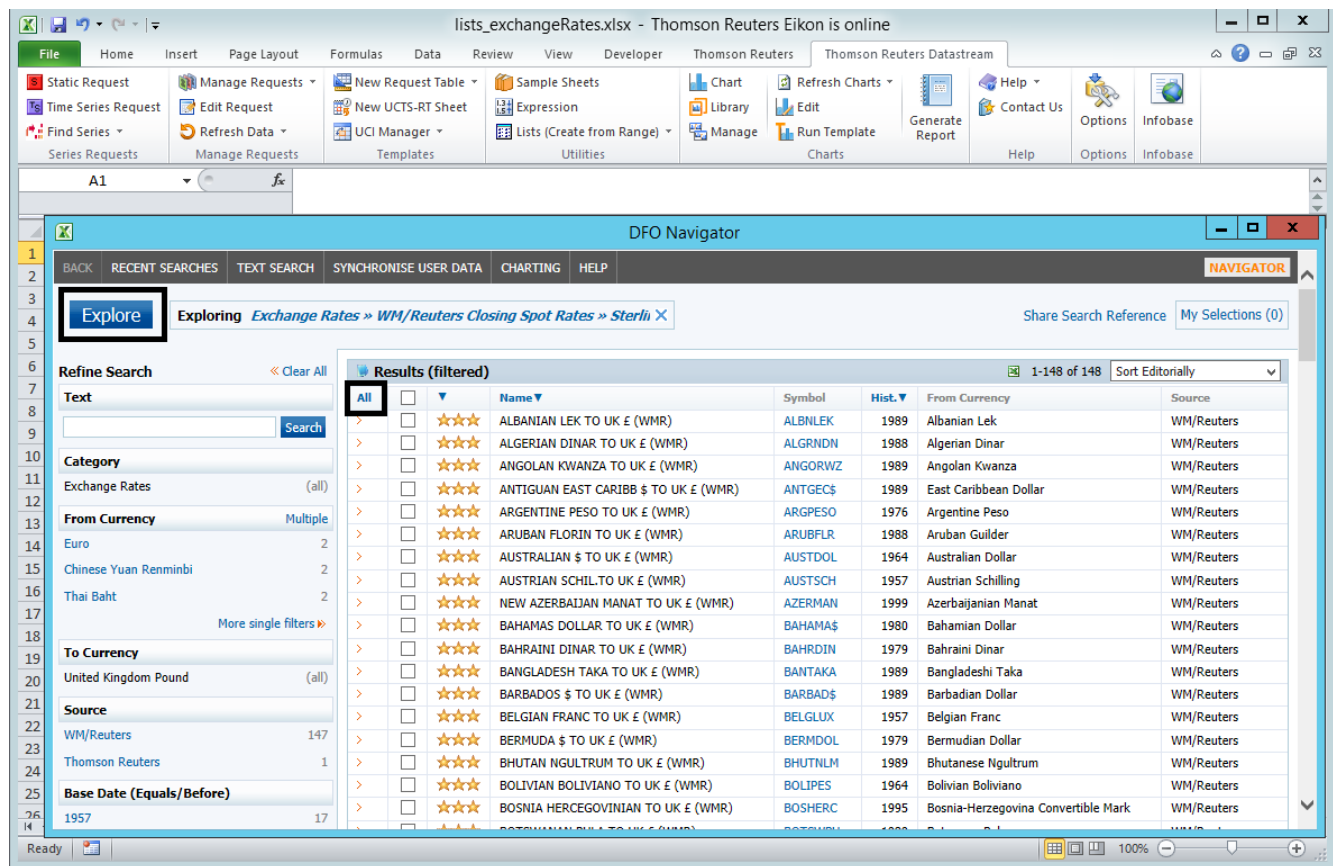


Figure 3

Step 5. Navigate to Excel's 'Thompson Reuters Datastream' tab, group 'Utilities' and select 'Lists (Create from Range)'. The range of the Datastream Codes exported in the previous step will appear in 'Create Range'; in 'List Description' box type 'mySterlingRates'; in 'Mnemonic (L#s)' ; click 'OK' <sup>4</sup> (Figure 4 illustrates).

<sup>4</sup>Datastream will raise an alert to which users should respond by pressing 'Yes' to continue.

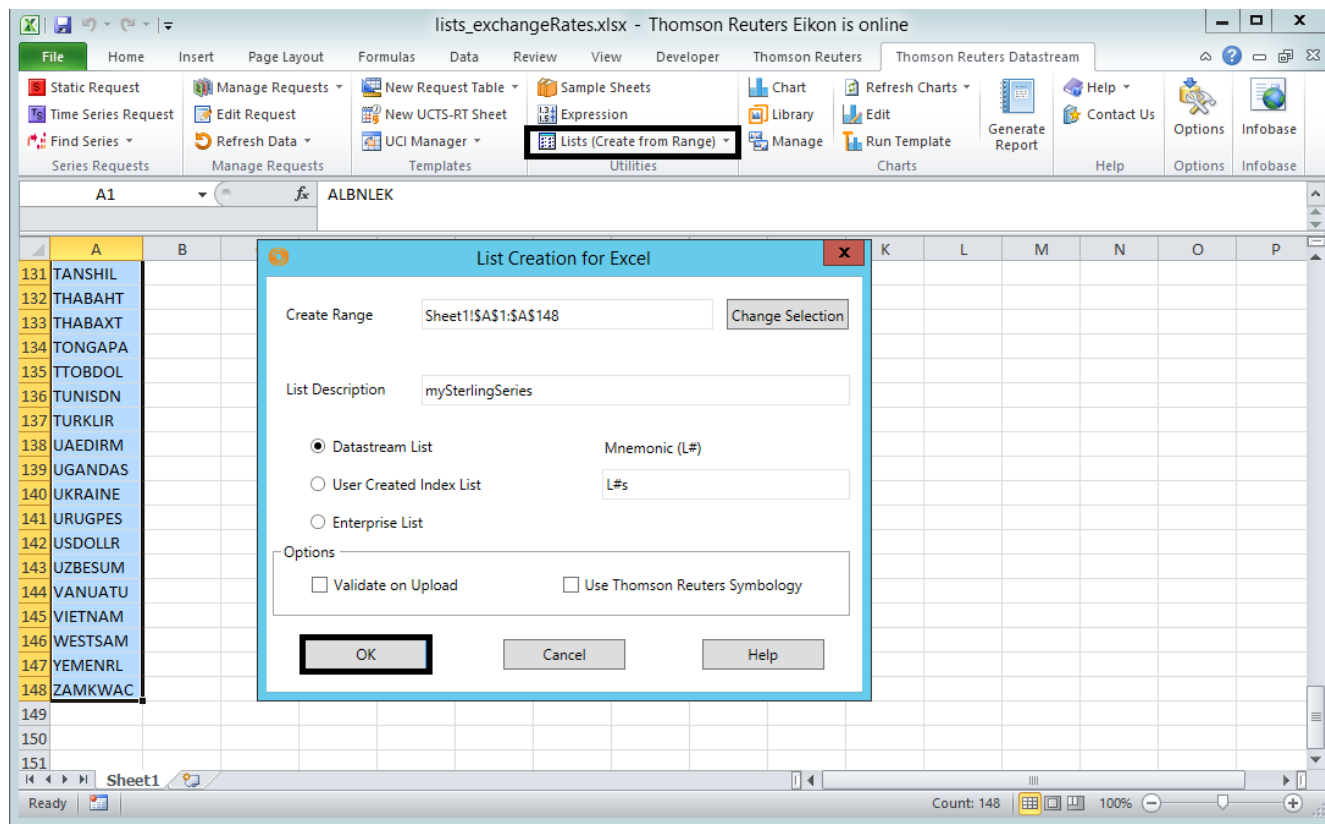


Figure 4

Step 6. Select cell B1, then click on 'Find Series' option to launch TDS Navigator (see Figure 2).

Step 7. In the DFO Navigator choose 'Explore' and navigate to 'Exchange Rates', then "Euro Related Exchange Rates", then 'Synthetic Euro Rates' and click on 'All', as outlined in Figure 5. This will export Datastream Codes (DSCD) in a column starting in cell B1 (ending in B36 at the time of writing). Select these cells.

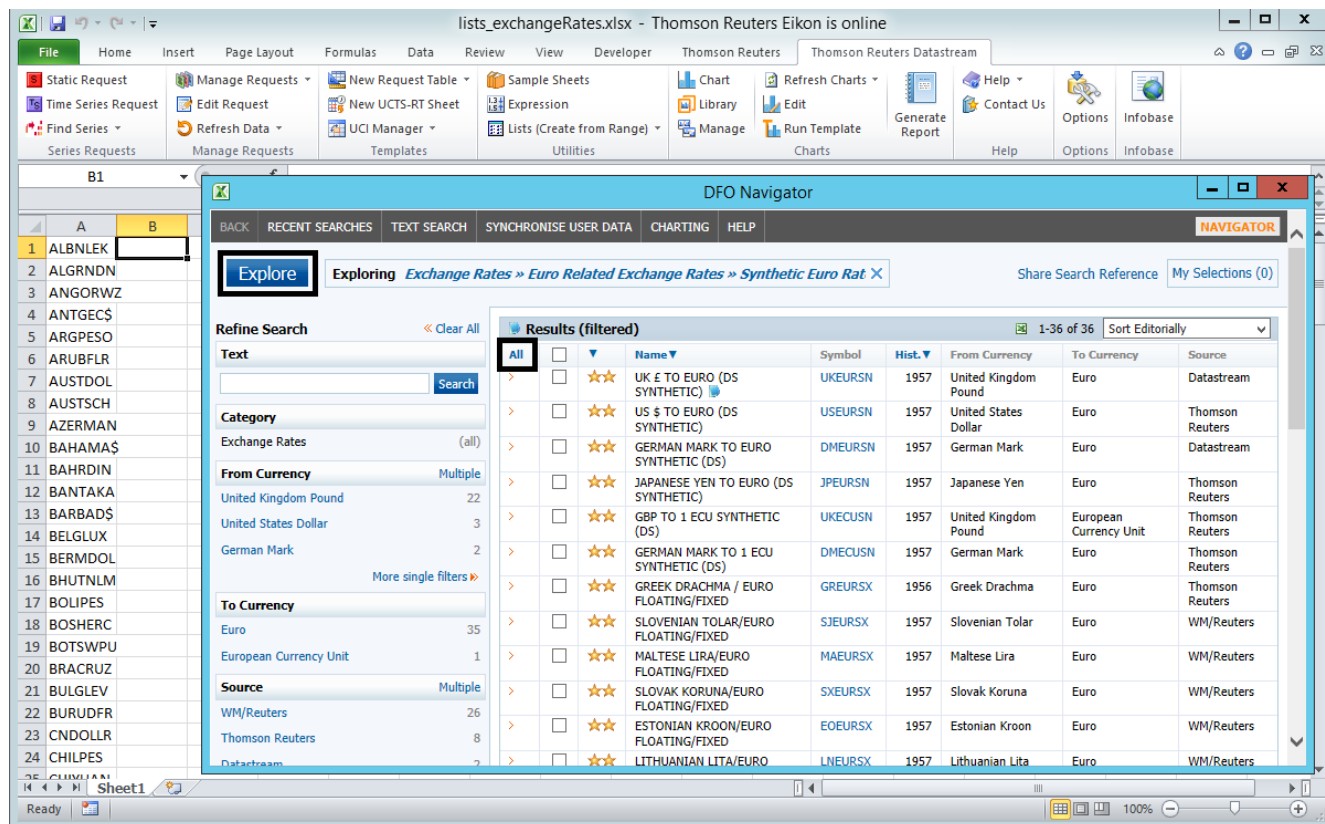


Figure 5

Step 8. Navigate to Excel's 'Thompson Reuters Datastream' tab, group 'Utilities' and select 'Lists (Create from Range)'. The range of the Datastream Codes exported in the previous step will appear in 'Create Range'; in 'List Description' box type 'myEuroRates'; in 'Mnemonic (L#E)'; click 'OK' (see Figure 6). Save and close the Excel workbook.

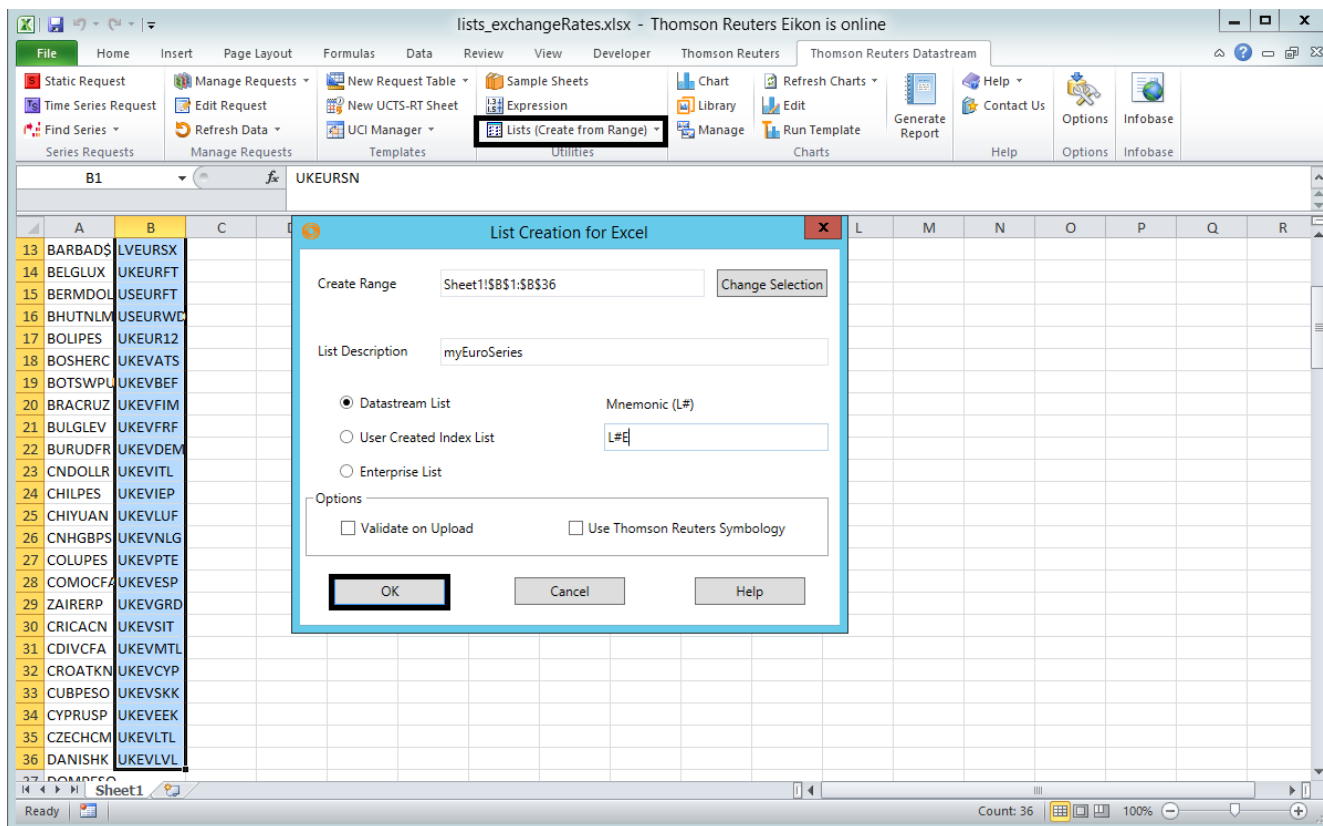


Figure 6

### 3. Creating a comprehensive stock universe

Creating a comprehensive stock universe is somewhat more involved, for various reasons that should become obvious when going through the steps below.

Step 1. Open a new excel workbook, create two unnamed worksheets and save this file under UserDirectory with a name of your choice, we use 'C:\tds\equities\_list.xlsx'.

Step 2. Initialize an iteration counter to zero.

Step 3. Increment the counter by one.

Step 4. Select the cell in the first row of the first unpopulated column in in Sheet1 and click 'Find Series' option to launch 'DFO Navigator' (similar to Figure 2).

Step 5. In the DFO Navigator, select 'Choose a single category'<sup>5</sup> and pick the category 'Equities' from the drop-down list, as outlined in Figure 7.

<sup>5</sup>In previous versions of TDS's Navigator, for example version 4.2, this option appears as 'Data Category'.

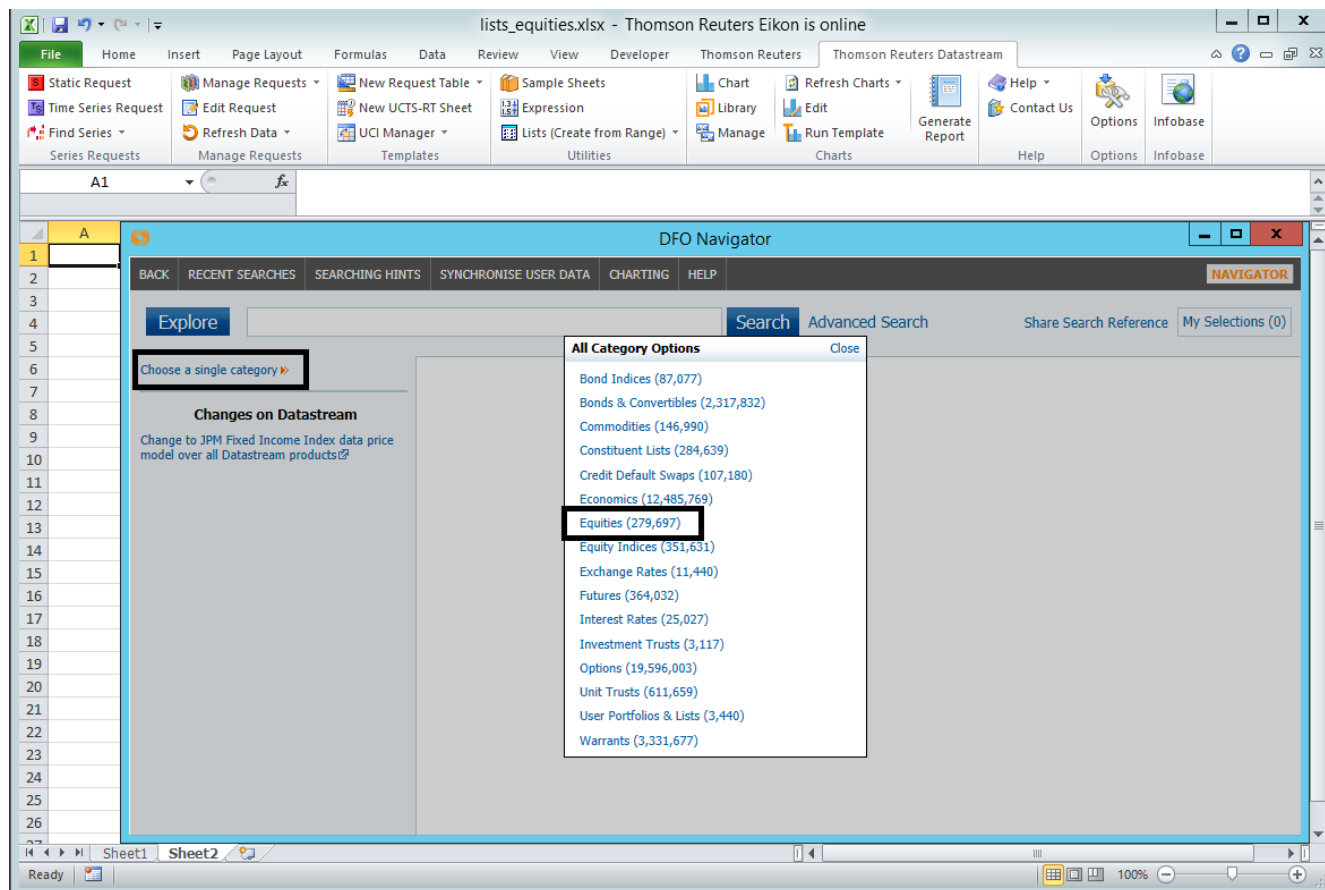


Figure 7

Step 6. From the panel with header 'Market' select the option 'More single filters'. A drop-down list with all countries ('markets' in TDS terminology) covered by TDS is displayed in the Navigator, as illustrated in Figure 8. The user should select the first country for which this step has not already been applied in a previous iteration (i.e. Argentina in the first iteration) with the exception of Germany where we require a second iteration before moving to the next country. If all countries have already been iterated, then go to Step 12.



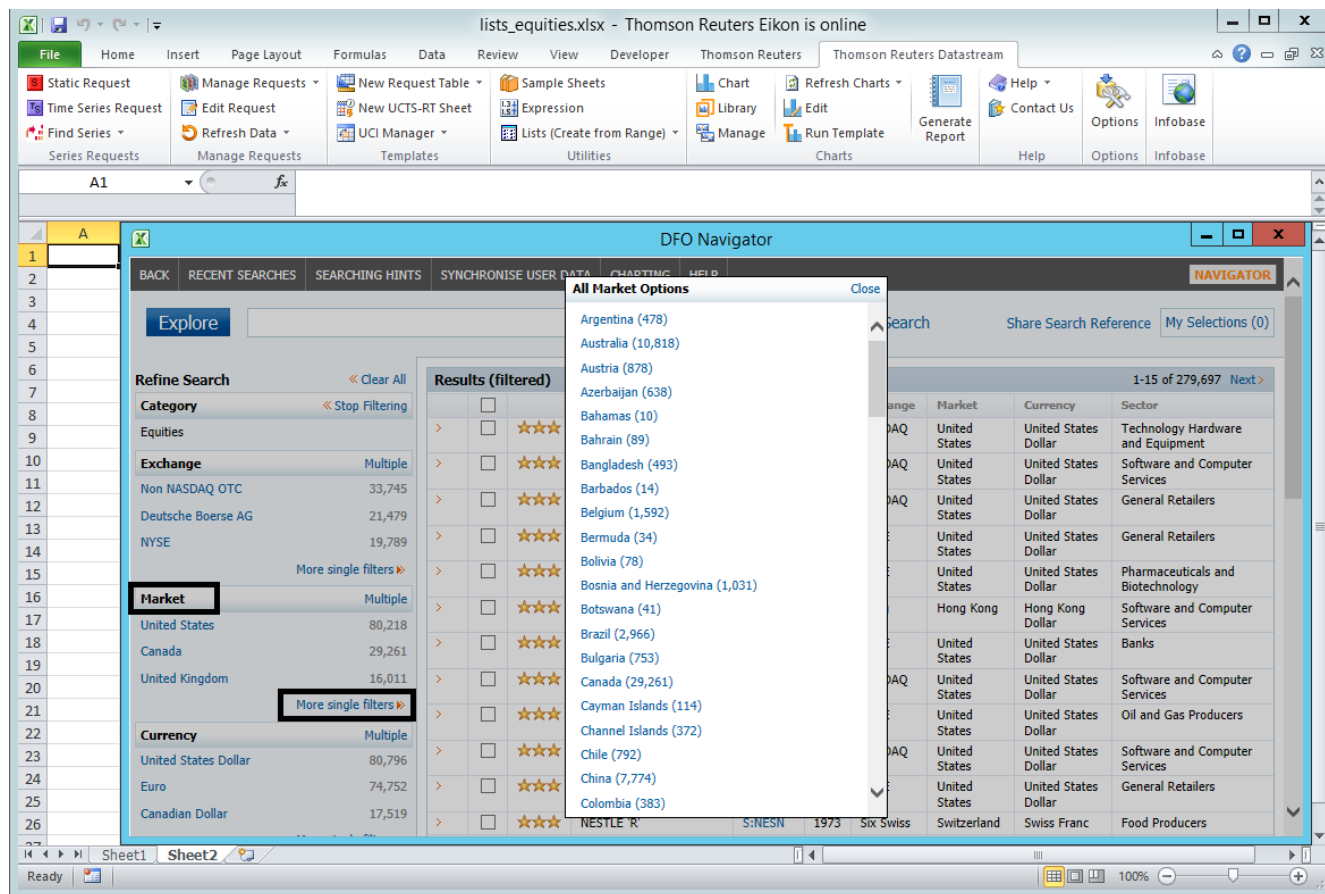


Figure 8

Step 7. From the panel with header 'Exchange', select the option 'Multiple' and then tick those exchanges that are located in the country of Step 6 (e.g. in the first case of Argentina, this is only 'Buenos Aires' as illustrated in figure 9). In the case of Germany's first iteration, exclude XETRA and in its second iteration, include only XETRA. Then click the 'Only Selected' button.

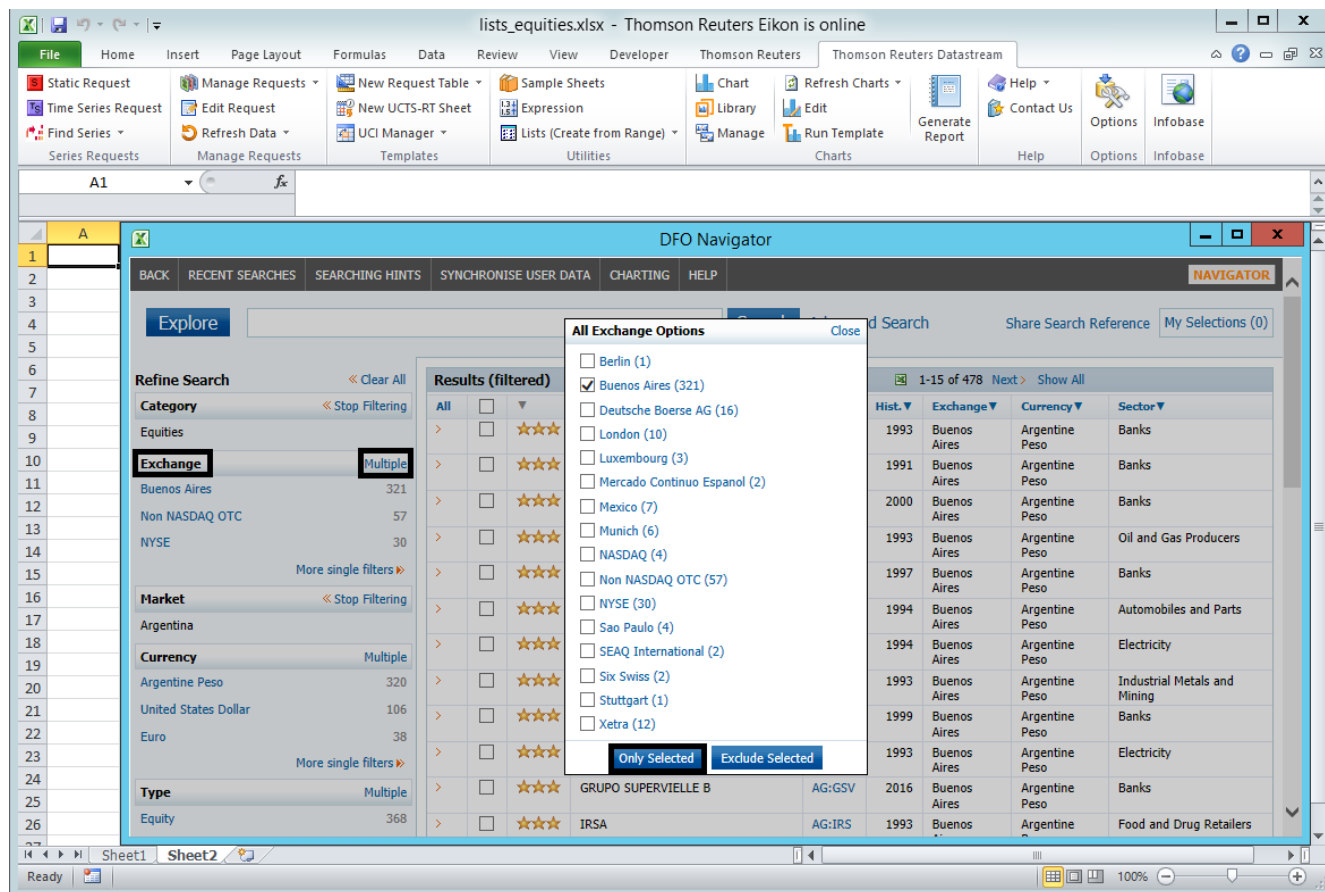


Figure 9

Step. 8. If 'All' is visible in the DFO Navigator then click it.<sup>6</sup> Otherwise, tick the box next to 'Use' marked in Figure 8 and then click 'Next' and iterate this until all stocks in all pages have been ticked. After all iterations, click 'Use' (see Figure 10, illustrating this example for South Korea). In either scenario, this step will export 'TDS Mnemonics' for all stocks in the exchanges of the country of interest to the excel workbook, as a column starting at the cell specified in Step 4. Note the range of cells populated e.g. A1:A321 for Argentina at the time of writing.

<sup>6</sup>The visibility of 'All' depends on the number of stocks in a country.

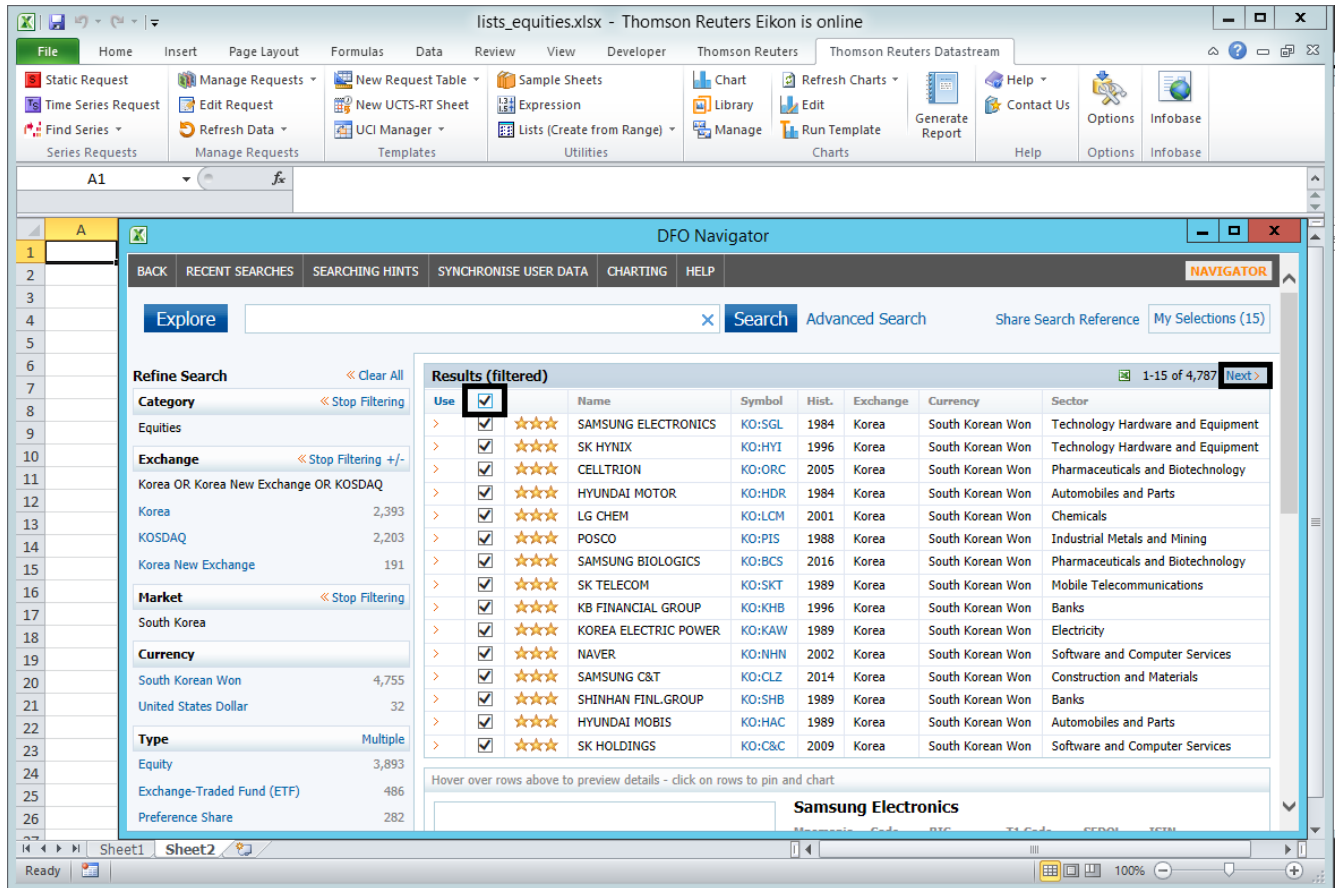


Figure 10

Step 9. Select the cell in the first row of the first unpopulated column of 'Sheet2' (i.e. A1 in the first iteration of this step). In the 'Thomson Reuters Datastream' tab, go to the 'Series Requests' group and select 'Static Request' (see Figure 9). This will bring up a 'Static Request' GUI. In 'Series/List' type: Sheet1!{Range of Cells populated in the previous step}, e.g. Sheet1!A1:A321. Next, in 'Datatypes/Expressions', type DSCD. Finally, in Options tick only 'Embed Formula' and in Display Expression select 'Description' and in 'Display Datatype' select 'Mnemonic' (see Figure 11). Finally, click 'Submit' and this will export Datastream Codes (DSCD) in a column starting in the chosen cell of 'Sheet2'.<sup>7</sup>

<sup>7</sup>Datastream Codes are preferable to Mnemonics because the former do not change across downloads while the latter sometimes do.

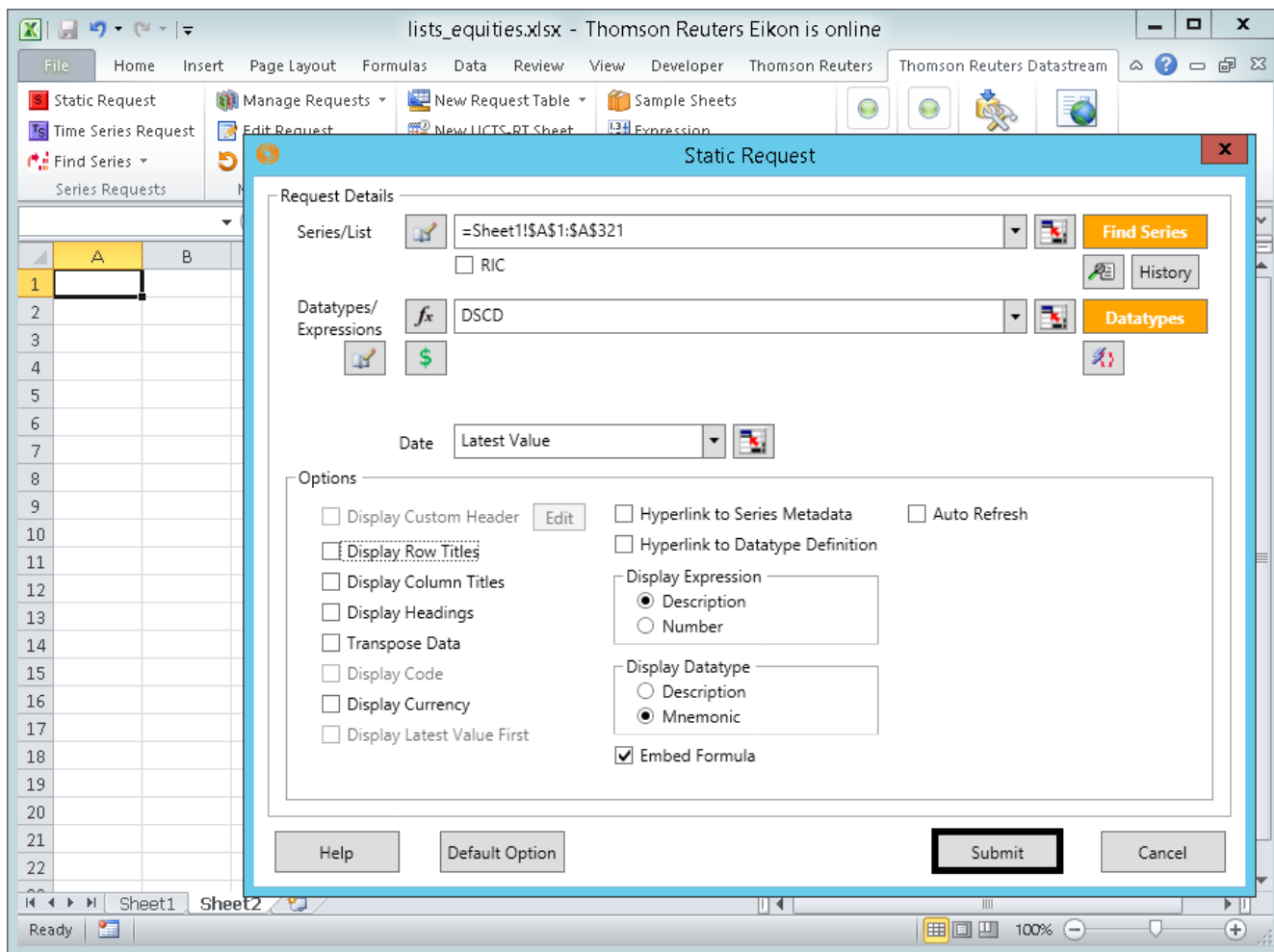


Figure 11

Step 10. Navigate to Excel's 'Thompson Reuters Datastream' tab, group 'Utilities' and select 'Lists (Create from Range)' as described in section 2 Step4. To avoid oversized requests later, break up the range of Sheet2 populated in the previous step into sublists, each with maximum size of 2000 rows (e.g. B1:B2000, B2001:B2897). For the first sublist, type its range in 'Create Range'; in 'List Description' box type 'L#00{counter}' where counter is the iteration counter initialized in Step 4; in 'Mnemonic (L#)' type a code with the same name used in List Description; click 'OK'.<sup>8</sup> If there are remaining sublists, increment the iteration counter and iterate this step over sublists. This step uploads list in TDS, located under 'User Portfolios & Lists' category (see Figure 12).

<sup>8</sup>Datastream will raise an alert to which users should respond by pressing 'Yes' to continue.

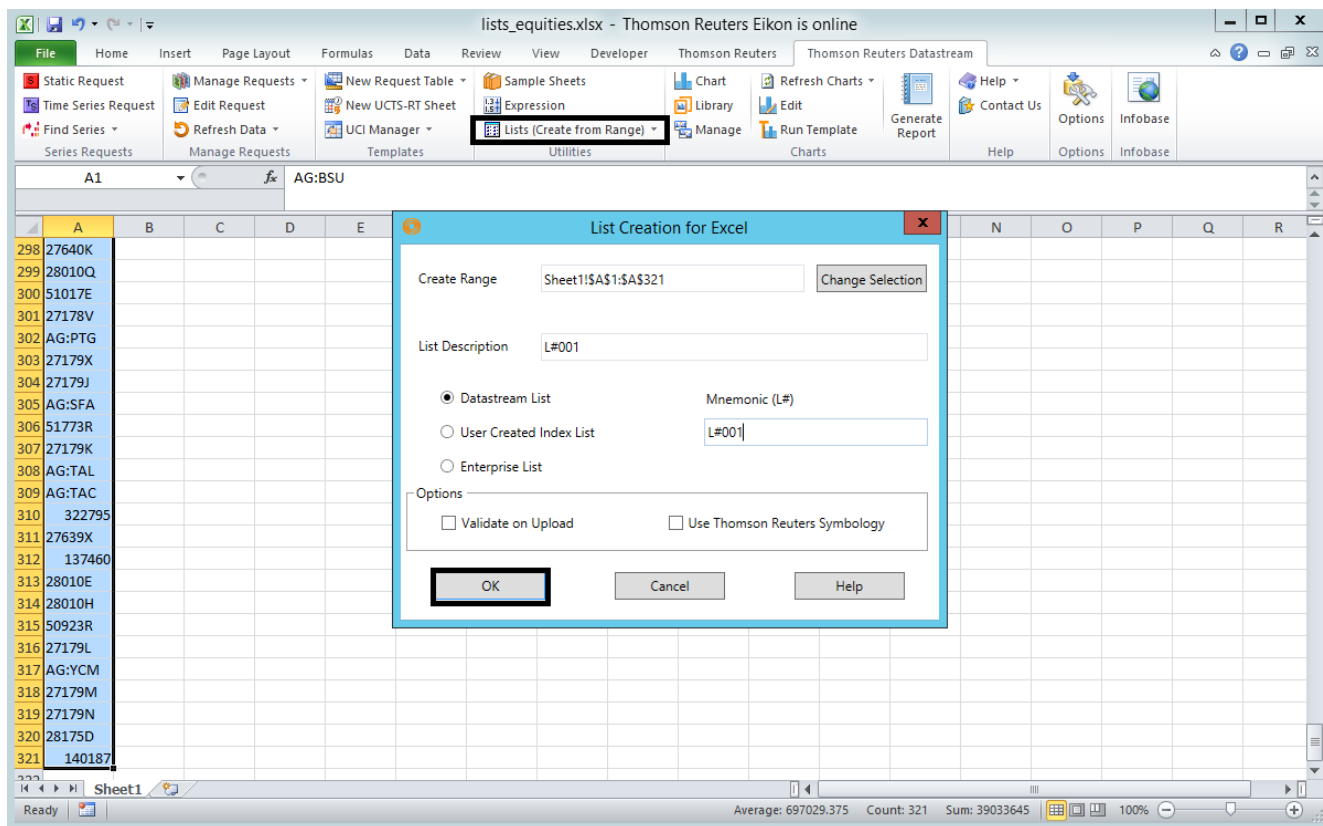


Figure 12

Step 11. Go to step 3.

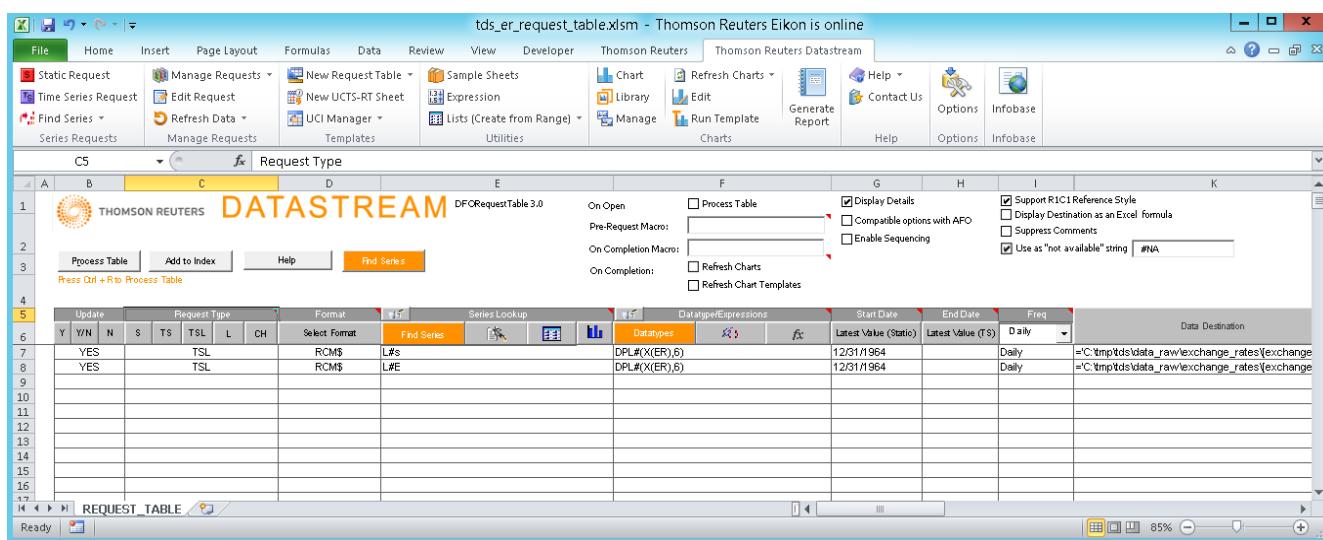
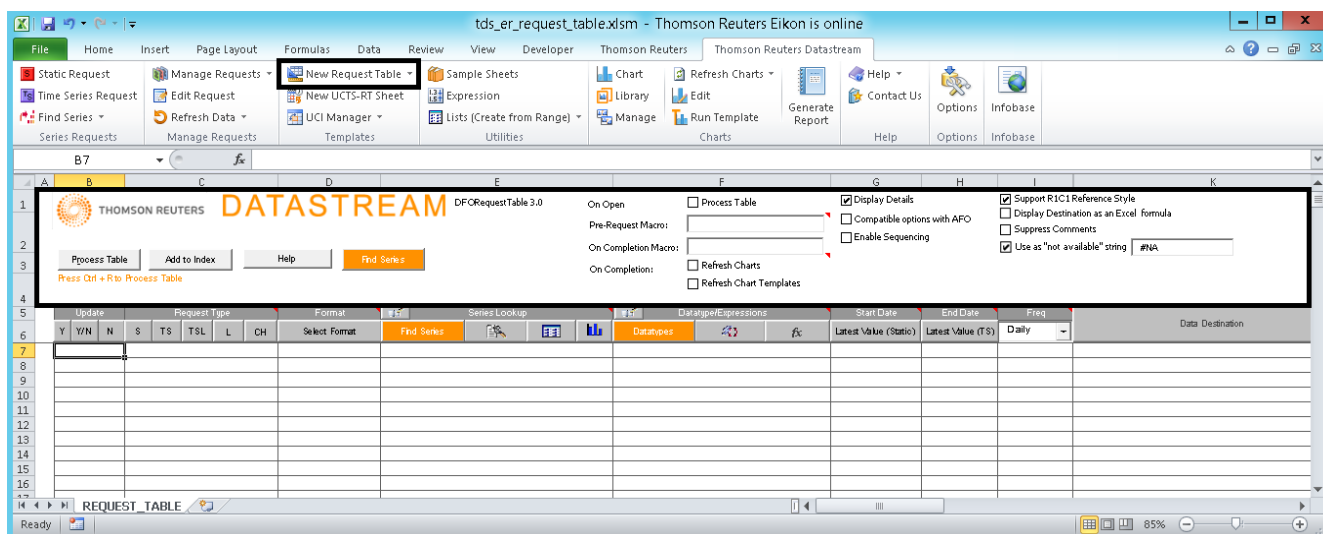
Step 12. Note the final value of the counter ('nCounter' moving forward) which will be required when extracting data (Section 5 below).

#### 4. Extracting exchange rate data

Step 1. Create the directory 'UserDirectory\data\raw\exchange\_rates\'. In this dir create a new excel workbook named "exchange\_rates.xlsx", with 2 unnamed worksheets.

Step 2. Open a TDS Request Table (RT) and save it as 'tds\_er\_request\_table.xlsm', under the directory created at previous step. An RT can be launched by selecting 'New Request Table' option under 'Templates' group in 'Thompson Reuters Datastream' tab. At the top section of the request table workbook, tick the following boxes: 'Display Details', 'Support R1C1 Reference Style' and 'Use as "not available string"', and fill '#NA' next to the last option, as illustrated in figure 13.

Step 3. Fill the following entries in RT, at rows 7 and 8. In cells B7 and B8 (column B with header 'Update'), C7 and C8 ('Request Type') and D7 and D8 ('Format') fill 'Yes', 'TSL' and 'RCM\$' respectively. Set the values of cells E7 and E8 ('Series Lookup') as 'L#s' and 'L#E' respectively. Set cells F7 and F8 ('Datatype/Expressions') as DPL#(X(ER),6). In cells G7 and G8 ('Start Date') set '12/31/1964', while leave cells H7 and H8 ('End Date') empty. Set 'Freq', at cells I7 and I8 as Daily. Finally set 'Data Destination', at cells K7 and K8 as: '=UserDirectory\data\raw\exchange\_rates\exchange\_rates.xlsx]Sheet1'!R1C1 and '=UserDirectory\data\raw\exchange\_rates\exchange\_rates.xlsx]Sheet2'!R1C1 respectively, with-



out the starting and ending quotation marks. Figure 14, illustrates the RT with all entries described above.

Step 4. Fetch data by clicking on the ‘Process Table’ option, as also outlined at figure 14.

## 5. Extracting data for variables with maximum precision

Step 1. Open a Request Table, and save it as ‘UserDirectory\data\raw\equities\tds\_request\_table.xlsx’. Apply the same options as discussed in previous section, step 2.

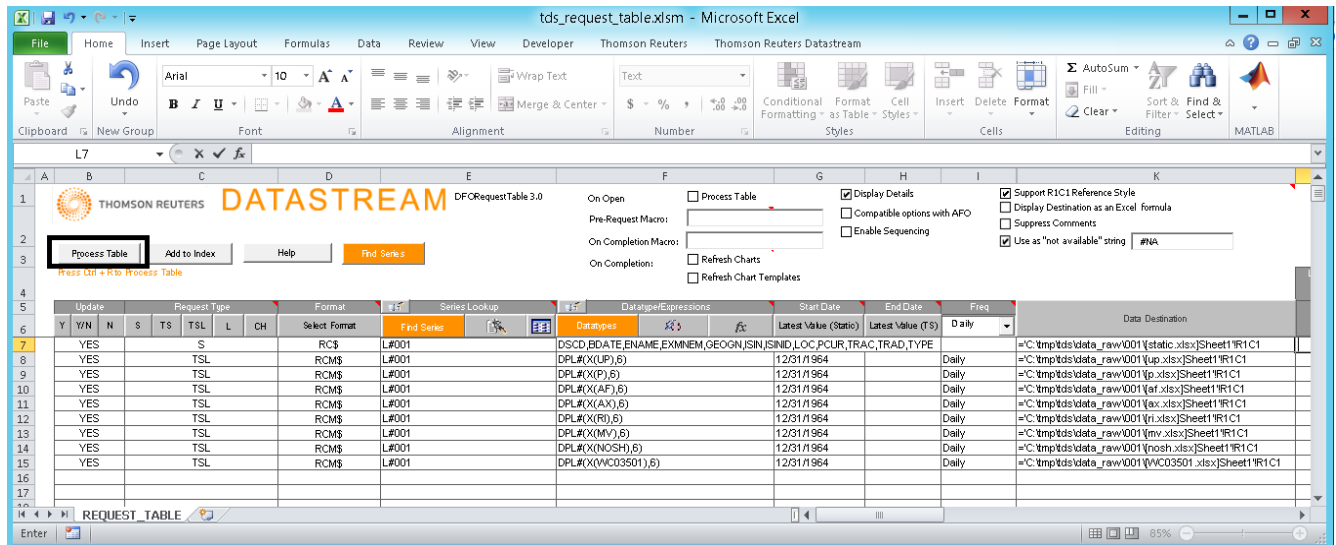
Step 2. Initialize two iteration counters, named counter1 and counter2, to zero.

Step 3. Increment counter1 by one.

Step 4. Create a folder, named equal to the value of counter1, {counter1}, in the following directory ‘UserDirectory\data\raw\equities\’.

Step 5. Generate nine new excel workbooks in ‘UserDirectory\data\raw\equities\{counter1}\’, named ‘static.xlsx’, ‘up.xlsx’, ‘p.xlsx’, ‘af.xlsx’, ‘ax.xlsx’, ‘ri.xlsx’, ‘mv.xlsx’, ‘nosh.xlsx’ and ‘WC03501.xlsx’. Each workbook with a unique worksheet named ‘Sheet1’.

Step 6. Beginning at row {7 + {counter2}}, set cell {B{7 + {counter2}}} to ‘YES’. Cell {C{7 + {counter2}}} to ‘S’, cell {D{7 + {counter2}}} to ‘RC\$', cell {E{7 + {counter2}}} to



'L#\_{counter1}', cell {F{7 + {counter2}}} to DSCD,BDATE,ENAME,EXMNEM,GEOGN,ISIN,ISINID,LOC,PCUR,TRAC,TRAD,TYPE , and cell {K{7 + {counter2}}} to ='UserDirectory\data\raw\equities\'{counter1}\[static.xlsx]Sheet1'!R1C1'. Figure 15 illustrates an example for the first iteration of counter 1 for this step, as well as the following steps 7 to 10.

Step 7. Set an iteration counter, counter3 to zero.

Step 8. Define the following sets of strings : set1 to be equal to {'up.xlsx', 'p.xlsx', 'af.xlsx', 'ax.xlsx', 'ri.xlsx', 'mv.xlsx', 'nosh.xlsx', 'WC03501.xlsx'} and set2 to {'UP', 'P', 'AF', 'AX', 'RI', 'MV', 'NOSH', 'WC03501'}.

Step 9. Increment counter3 by one.

Step 10. Beginning at row {7 + {counter2} + {counter3}}, set cell {B{7 + {counter2} + {counter3}}} to 'YES'. Cell {C{7 + {counter2} + {counter3}}} to 'TSL', cell {D{7 + {counter2} + {counter3}}} to 'RCM\$', cell {E{7 + {counter2} + {counter3}}} to 'L#\_{counter1}', cell {F{7 + {counter2} + {counter3}}} to 'DPL#(X(set2{counter3}),6)', cell {G{7 + {counter2} + {counter3}}} to '12/31/1964', cell {I{7 + {counter2} + {counter3}}} to 'Daily' and cell {K{7 + {counter2} + {counter3}}} to ='UserDirectory\data\raw\equities\'{counter1}\[set1{counter3}]Sheet1'!R1C1.

Step 11. If {counter3} is smaller than 8 go to Step 9. Otherwise move to Step 12.

Step 12. Increment counter2 by 9.

Step 13. If {counter1} is smaller than {nCounter}, return to Step 3. On the opposite case, move to Step 14.

Step 14. Fetch data by clicking on the 'Process Table' option, as also outlined in figure 15.