Revamped MTS Visualizations

Instructions for Creating Figures 1, 3, and 4 in Tableau.

# Documents & Directories

The main MTS folder comes with several folders/files. The names of the folders and the organizational structure is baked into the scripts to take the raw MTS data and transform it into the various datasets to create the figures in Tableau. Be aware that renaming folders or rearranging this directory structure will require updating the code.

The raw data folder currently contains MTS from Jan. 2016 through Aug. 2017. This folder will always need to contain all MTS YTD from the current year and all MTSs from the previous year. This is the folder where you will store new MTS as they are released.

This was prepared with Python 3.6 and Tableau 10.3.

# Steps

Please note that multiple paths or solutions exist, both in the python scripts and Tableau step-by-step instructions. These instructions aim to be detailed, but are certainly not the only way to achieve the desired end result. Unless otherwise noted, the steps apply to all three figures.

## Prep the data

To go from the downloaded MTS data to “figure datasets” that are Tableau-ready, we will need to run a script to wrangle the data into the format we want.

### Running the Python script: “MTS\_Create\_Viz\_Datasets\_for\_Tableau”

This script can be found in the scripts folder. Several items will need to be edited once to get started and others, every time a new MTS is being read in. To help facilitate the process of finding these spots in the code, there will be areas marked with *“””CHANGE ME!”””* so that you can search through the script.

1. Change directories variables to match the local machine and the local directory structure
   1. Replace this with your own path to the MTS folder:
   2. main\_dir ="C:/Users/583902/Desktop/BAH1/\_Treasury\_DATA\_Act"
   3. This will only need to be changed once.
2. Change the current/previous month and FY variables at the top of the script.
   1. This will need to be changed monthly.
3. Change the file name: "/mts0517.xls" to match the month you’re interested in.
   1. This will need to be changed monthly.
4. Clear table9 output folder by moving any files in there to archived
   1. The directory structure for this is: MTS > data > output > table9
   2. This will need to be changed monthly.
5. Check the output folder to ensure the Tableau-ready datasets are there and the process worked. Note that the current code has python create a CSV with a filename indicating the date it was created. Thus, if you could end up with multiple files representing the same July 2017 MTS, e.g.:
   1. fig1\_0717\_made\_170915
   2. fig1\_0717\_made\_170918

## In Tableau

### Action required: swapping in a new MTS into last month’s workbook

|  |  |  |
| --- | --- | --- |
| **STEP** | **INSTRUCTIONS** | **SCREENSHOT** |
| 1. Add new data source | On a worksheet, go to Data in the top left menu, and select New Data Source.  Under “Connect” on the left, click “More…” to browse for the new dataset file located here:  MTS > data > output > figure\_datasets. This will take you to the Data Source tab. |  |
| 2. Replace data source | Go back to the worksheet, and select Data from the menu. Select Replace Data Source. In the window that pops up, ensure the new dataset is the “replacement.” |  |
| 3. Fix year/month pills | Year/Month pills in the columns bar turned red. They “broke” because they were formerly tagged as dates with a hierarchy, but the new data loads date in as a string.  In Dimensions on the left, right click Date and hover over Change Data Type. Select “Date.” You should see the pills revert to blue. |  |
| 4. Change date sorting/ordering to fiscal year | The old sort rules were erased when we brought in the new dataset. Right click the Month pill in the columns bar and select “Sort”.  Select “Manual” radio button and move October, November, and December to the top. Hit OK. |  |

### Action potentially required: ensuring accuracy and aesthetics

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| --- | --- | --- |
| 5. Close the old data source. | To avoid confusion in the future, close the old data source. Once you’ve replaced the data, right click on the old data source in the top left corner, and select close. If it’s not powering any vizes, it will let you close it. If it is still connected, a window will pop up, and you will need to ensure you’ve replaced the old data with the new or risk losing visualizations. |  |
| Figure 1 Only:  Rename “Deficit as neg” to “Deficit/Surplus” | On the worksheet, in the color legend, right click “Deficit as neg.” Select “Edit Alias...” Rename this field to “Deficit/Surplus” and hit OK. |  |
| Figure 1 Only:  Arrange the Deficit/Surplus | The deficit/surplus legend does not automatically align to the Outlay/Receipts legend because it’s a separate graph. Drag the legends until they look aligned when you are in full-screen mode while viewing the dashboard. This is monitor/screen dependent and will need to be adjusted accordingly. |  |
| Figures 3 and 4 Only:  Check the filters | Ensure there is a filter that is excluding “total” from being displayed as a function in the stacked bar chart. Right click the ‘Source Func Parent’ pill in the filter section. Select “Edit filter…” Total should be selected, and the exclude option checkbox should be selected. |  |
| All figures:  Ensure titles and body copy text is still applicable if this will be captured in the screenshot. | For example, in Figure 3, the body copy references Fiscal Years 2016 and 2017. This text will not automatically update. |  |

# Miscellaneous Design Notes

* Fonts are in Arial and font style guidance can be found in files 5a or 5b in the **Documentation** folder, “5a Treas\_BFS\_\_MTS\_Cover\_092517.” (Note: we originally recommended Sans Source Pro, but realized not all fiscal machines will allow this font.)
* Colors used in Tableau were not from the built-in color palettes, and so custom color palettes will need to be created. To import custom color palettes into Tableau, see the “Importing Custom Color Palettes into Tableau” document. There is also a separate document noting the hex codes used for the colors.
  + Note: for majority black and white viewing, consider using fewer categories (4-5) and more contrast. For color viewing, be aware that colors vary from monitor to monitor, and from how the colors appear when printed.
* For screenshot purposes, use the dashboard view, and view on full-screen mode.
* An issue brought up during our conversations was “masking” information about receipts/outlays by combining too many things into an “other” category, and only showing 3-4 categories.
  + Figure 3 (receipts) currently has multiple options for grouping: all categories, the original MTS-displayed categories, and a third alternate grouping. The dashboard currently displays the all categories option.
  + Figure 4 (outlays) currently has multiple options for grouping as well. The dashboard here currently uses an *other* category that combines several categories and “absorbs” negative net interest amounts so that all values are positive and fall above the x-axis. The second option displays net interest. Showing all functions is not advised, as there are too many functions.

# Summary

Each month, download the MTS from Treasury’s website. Save this file in the raw data folder. Using python, update the file name and months/years manually in the script, then run the script. The Tableau-ready datasets should now be in the output folder. In Tableau, add in the new dataset for each respective figure, and update/tweak accordingly.

# Contact Info

Please do not hesitate to reach out. Our team is happy to assist and ensure all the documents and files in this package are accessible and useful.

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