Notes on the use of the basic forecasting model

The suggested system uses three Excel files to capture different types of data and to consolidate them into a summary of actual cash balances to-date and a forecast of future cash balances given expected cash flows.

1. System description.

The three files are:

- The estimated future treasury cash flows (here, called **E**)
- The details of actual cash flows of these same categories (here, called **A**)
- The consolidation of **E** and **A** into a forecast of treasury balances (here, called **F**), using actual data when it is available, and forecast cash flows otherwise.

All three files arrange data in columns with each row corresponding to a single business day.

Both files **E** and **A** have the same column headings on each of their four pages: summary, receipts, expenditures, and net financing.

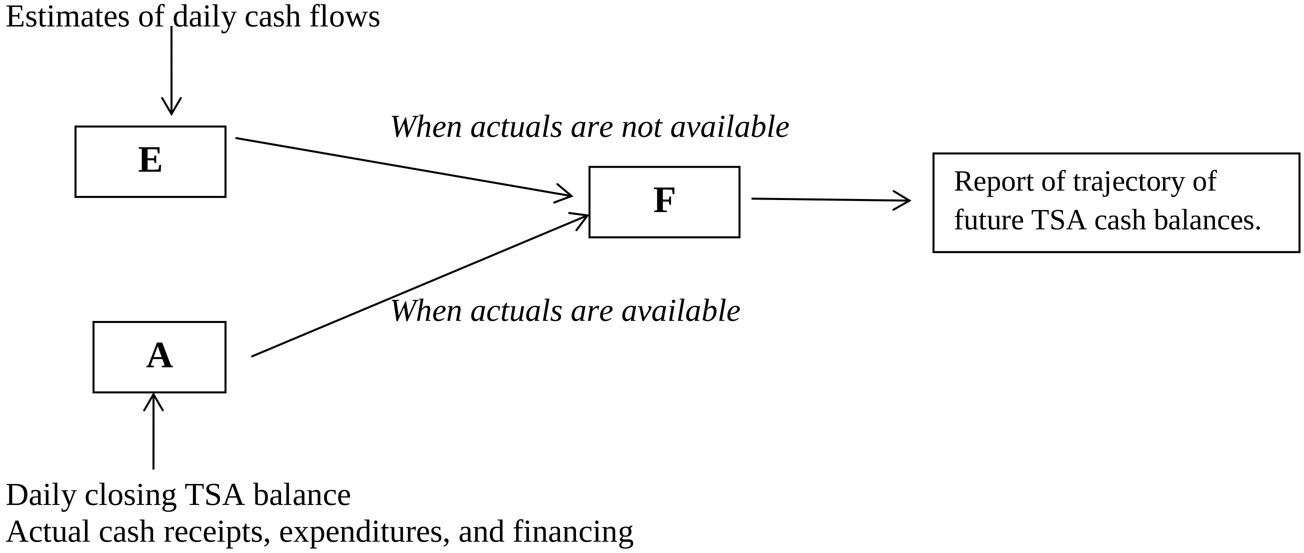
- Net financing has been separated from expenditures made for government operations in order to highlight the impact of financing methods and decisions. Every inflow from the issuance of a bond or treasury bill will automatically initiate a liability to be paid at a fixed time in the future. In this way, financing constitutes a complete subsystem of government fiscal operations.
- The selection of the appropriate columns for receipts and outlays depends upon the level of data available to the forecast team and to the level of transaction detail generated by the treasury's financial records system. Because the forecasting tool uses a common spreadsheet tool, these decisions can be made by the forecast team themselves.
- The summary only carries forward the totals of each of the other three pages and presents the expected (or actual) balance in the treasury single account (TSA).

The file **F** takes actual data from **A** when it is available and takes any other needed data from **E**. To create a new forecast, the minimum action needed is to enter the latest closing TSA balance into **A**. This will automatically create a new trajectory for cash balances of the TSA in **F** for all future dates within the forecast horizon.

If changes are to be made to the structure, such as new columns, to any file, do this while all three files are open at once. This will maintain the integrity of the links between the files.

Periodically, one should examine the equations in all the files and, if they are correct, make sure that they are used uniformly throughout the file.

The set of files operate in the following manner:



2. Procedures to set up forecast

*Populate the file of estimated cash flows (**E**).* Using data from the treasury cash plan, the budget, the debt calendar, or other sources, as appropriate, enter the expected amounts to be received or paid or any financing operations under the column for that flow on the day one may reasonably expect the transaction to occur.

- For transactions, such as payroll, pensions, or other mandatory payments and for debt service, that are mandated for a specific day and are of likely known amount, enter these amounts in row corresponding to the day they are anticipated.
- For transactions, such as supplies or utilities, which are frequent throughout the month and of small variability or size, use a simple average transaction or trend value for each day of the month.
- For large cash flows that show a significant seasonal variation, allocate the daily amounts of that cash flow to follow the average pattern of past years or in a pattern suggested by subject matter experts, such as tax officials.
- Enter the debt calendar as it is currently announced or planned. Enter all current debt service.

These estimates will be combined within the file to calculate the expected daily net flow for all dates within the horizon of the data entered.

When new data or information becomes available that suggests material changes in these estimates, enter the new data in the appropriate cells.

Do NOT consider the end of the fiscal year to be an end to the forecast horizon. As the fiscal yearend nears, the fixed date transactions and the averages can still be projected even into the next fiscal year. Likewise, other transactions can be estimated based on previous year patterns.

As the new budget becomes available, the estimates already in **E** can be updated.

*Populate the file of actual transactions (**A**).*

At a minimum, enter the closing cash balance from the TSA *each* day in the column on the summary page of the file **A** and enter an “r” in the adjacent column.

As time permits, obtain actual daily transaction data and update the entries in **A**. This will become important in future work, when discrepancies between the entries in **E** and the corresponding entries in **A** are examined to identify ways to improve the forecasts in **E**.

*Examine the trajectory given by the forecasts of TSA balances (**F**).*

Examine the graphical display of the anticipated TSA balances. This is the likely future track of balances, given what net daily cash flows are expected to happen and what is the current cash balance.

If there are negative balances in the future, these indicate that action must be taken. Either the treasury must find some short-term credit, accelerate some receipts, or defer some payments. Each can be tested by entering test values in E and examining the result in **F**.

Distribute the graphical display to all concerned parties and offices as a way of emphasizing the nature of the treasury’s challenges and to encourage actions to improve cash flows.