

Condensing the Fed's Balance Sheet is as Simple as This

Opportune coordination with the US Treasury would enable the Federal Reserve to condense its balance sheet smoothly, predictably and efficiently. This note explains just how easy it would be to condense the Fed's balance sheet provided the US Treasury adjusted its debt management strategy accordingly.

Coordination is eminently possible and mutually beneficial. A partially ad hoc and implicit coordination of policies was evident during the large-scale asset purchase phase of Fed balance sheet expansion, but during the condensation phase—ex crisis—coordination can, and ought to be, superior.¹

To initiate and facilitate this coordination of strategies, I propose that the US authorities come to a consensus now on the appropriate amount and pace of condensation to target over the next twelve months, then effect an exchange of treasury bills for an equivalent amount of long duration debt currently held by the Fed.² The one year ahead condensation target would be reviewed every quarter considering progress achieved to date and changes in economic and financial circumstances.

The debt exchange proposed would enable—not compel—the Fed to more quickly shrink its asset portfolio through natural amortization than is currently possible.

For example, in its System Open Market Account (SOMA), the Fed holds slightly more than US\$ 1 trillion in US Treasury securities that mature during the years 2020-2022 (US\$ 576 billion) and 2039-2042 (US\$ 426 billion).³ An exchange of those securities for treasury bills, in four issues of US\$ 250 billion each at 4, 13, 26 and 52 week maturities would enable the Fed to smoothly reduce the size of its asset portfolio by US\$ 1 trillion in one year. It would not be compelled to do so, however. The Fed could simply rollover, at auction, all or part of its holdings of tbills as they mature. Indeed, were the Fed to exchange its entire “excess” asset portfolio, say US\$ 2.5 trillion of securities, for 28 day tbills, it could theoretically rollover those bills repeatedly for 25 years—until 2042; allow them all to mature in 28 days; or anything in between. The Fed would have complete flexibility to condense its balance sheet naturally compared with being locked in to the amortization schedule now reflected in the SOMA portfolio.

The fanciful notion that the Fed could ask the Treasury to redeem US\$ 2.5 trillion in bills at a single auction in 28 days clearly points to the need to coordinate central bank balance sheet condensation with treasury debt management. To understand more deeply the need for coordination it is necessary to discuss technical accounting and financial consequences of condensation—essentially the nuts and bolts of how treasuries redeem debt and its impact on the central bank balance sheet.

In Annex II below I discuss the mechanics of US Treasury debt and cash management and their interface with the Fed's balance sheet. Here it suffices to point out that to the extent the Fed does not rollover its

¹ See McCauley and Ueda (2009) and Greenwood, Hanson, Rudolph, and Summers (2014) for examinations of how failure to coordinate Fed balance sheet and Treasury debt management policies led to inefficiencies during “Operation Twist” and the Great Recession respectively.

² The Fed and Treasury could agree a par value securities exchange. The Fed records its securities holdings at amortized cost. A difference between the accounting value of the securities it cedes and par would impact the profit and loss account and be offset by a change in transfers of net income to Treasury.

³ See Figure 4, Stella (2015).

newly acquired tbills as they mature, the Treasury must finance their redemption with correspondingly higher sales of securities to the market. In the hypothetical scenario above, the Treasury might need to auction an additional US\$ 250 billion in securities every quarter for an entire year—a seemingly daunting task. Decisions would need to be taken regarding the nature of the additional securities—conventional, floating rate, or TIPS, as well as maturities—the mix between bills, notes and bonds. In other words, a revised debt management strategy would be required.

Though it may seem nearly impossible to imagine the Treasury selling easily the requisite amount of securities to the market to enable the Fed to rapidly reduce its balance sheet through natural amortization, it should not be forgotten that this is a unique period in modern US financial history.

US bank reserves held at Federal Reserve Banks averaged US\$ 20.8 billion, with a standard deviation of US\$ 7.5 billion, from January 1950 through June 2008. They are now approximately US\$ 2.5 *trillion*. Bank reserves are at a level roughly 330 standard deviations away from the pre-crisis mean.

Something *is* different this time, and the old rules of thumb for debt management are inapplicable.

Under the current circumstances, doubting the US Treasury's ability to issue an additional US\$ 1 trillion in debt over the next twelve months is like questioning Noah's judgement *after* the flood. Indeed, the Treasury ramped up issuance dramatically at the outset of the crisis. During the height of its Supplementary Financing Program, from September 18 through October 20, 2008 (33 calendar days), the US Treasury issued a net cumulative US\$ 560 billion in cash management bills *in addition to* its regular security auctions.⁴ Expanding securities issuance in the face of enormous excess bank reserves is not merely a theoretical idea. It happened. Financial markets responded quite well to the SFP as the alternative would have been for banks to have held an extra US\$ 560 billion in non-interest earning excess reserves. Auction yields on SFP cash management bills reached as low as 1 bp.

The rate at which the Fed remunerates excess reserves is a key determinant of the relative attractiveness of short duration Treasury debt. To support additional debt issuance now, the Fed ought to seriously consider gradually reducing the quantity of excess reserves it remunerates. Reducing the quantity of reserves it remunerates by the same amount the Treasury is issuing in additional tbills would effectively reduce to zero the market's opportunity cost of buying Treasury securities.⁵

As noted above, the Treasury would need to develop a strategy to manage the additional issuance. After all, the entire point of allowing the Fed to smoothly condense its portfolio by "natural" attrition is to avoid it having to sell outright from the assortment of long-duration securities it already holds. In other words, the Fed could "auto-condense" by announcing a program to sell its long-duration securities outright but this would have deleterious consequences on market prices in those maturity segments of the yield curve and no doubt lead to choppy spikes in interest rates. The Treasury is in a much better position to sell an equivalent amount of debt to the market as it is free to choose, in consultation with

⁴ See US Treasury press release of September 17, 2008 at <https://www.treasury.gov/press-center/press-releases/Pages/hp1144.aspx> and Stella (2009) figure 14.

⁵ When all is said and done, the market purchases Treasury securities with bank reserves.

market makers, which maturities and instruments would be best received—in contrast to the Fed which can, at present, only choose to sell the particular securities it owns.

Just as the Fed would, with a portfolio of tbills replacing the current SOMA holdings, be able to choose any profile of natural balance sheet condensation—not just the singular profile currently embedded in the SOMA portfolio; the US Treasury is able to obtain additional financing by issuing any combination of instruments and maturities, not just those particular securities in the SOMA portfolio. In the extremely unlikely case that the current SOMA portfolio represents precisely the optimal profile of balance sheet condensation, my proposal can accommodate it. But thousands of other scenarios are also possible.

Apart from the operational flexibility provided by the exchange proposal, cost must also be considered.

The condensation program would impact the Fed, Treasury and market balance sheets as follows:

- Fed claims on the Treasury (tbills held) and Treasury liabilities to the Fed (tbills) would decline. This is a financial wash from the consolidated sovereign perspective
- Market claims on the Fed would decline (bank reserves)
- Market claims on the Treasury would increase (Treasury securities issued to the market to finance the redemption of the tbills held by the Fed)

The net effect from the consolidated sovereign perspective is that the US would exchange debt in the form of excess bank reserves for debt in the form of Treasury securities.

There are several reasons to believe the US can finance itself at less cost with Treasury securities than with excess bank reserves that I have discussed at greater length elsewhere.⁶ In summary they are:

- Bank reserves (at the Fed) may be held only by US banks. Thus, reserves are less fungible and liquid than Treasury securities which may be held also by foreign banks and nonbanks.
- Banks are subject to capital requirements (leverage ratios) on their holdings of excess reserves. Nonbanks are generally not subject to capital requirements when they hold Treasury securities
- US chartered banks are subject to FDIC charges on all non-equity financing of their asset portfolio (including their holdings of excess reserves)
- Treasury securities have an additional “collateral value” in repo transactions⁷
- Treasury securities come in various flavours and maturities—fixed, floating, inflation-indexed; bills, notes and bonds—while excess reserves are available only as overnight floaters.
- Historically, US tbills have traded at rates below the fed funds rate and the Fed now pays interest on reserves at a rate above the fed funds rate (primarily to correct for the various distortions enumerated above)⁸

Condensing the Federal Reserve balance sheet with a complementary strategic revision to the Treasury’s debt management strategy would be facile, save taxpayers money and enhance financial stability by increasing the supply of safe assets available directly to nonbanks. The current intermediary role of US

⁶ See Stella (2015).

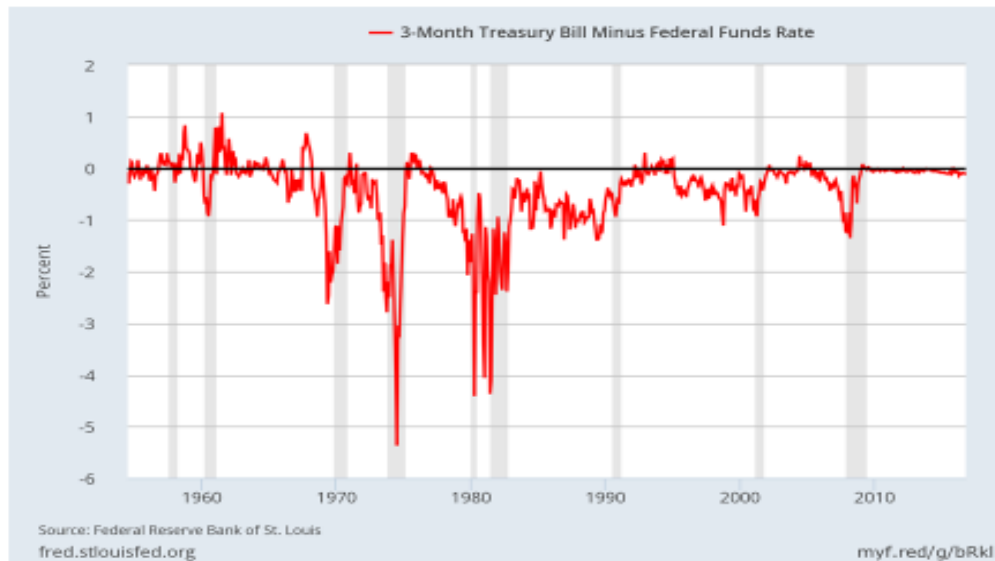
⁷ See Singh and Stella (2012)

⁸ See Annex I below.

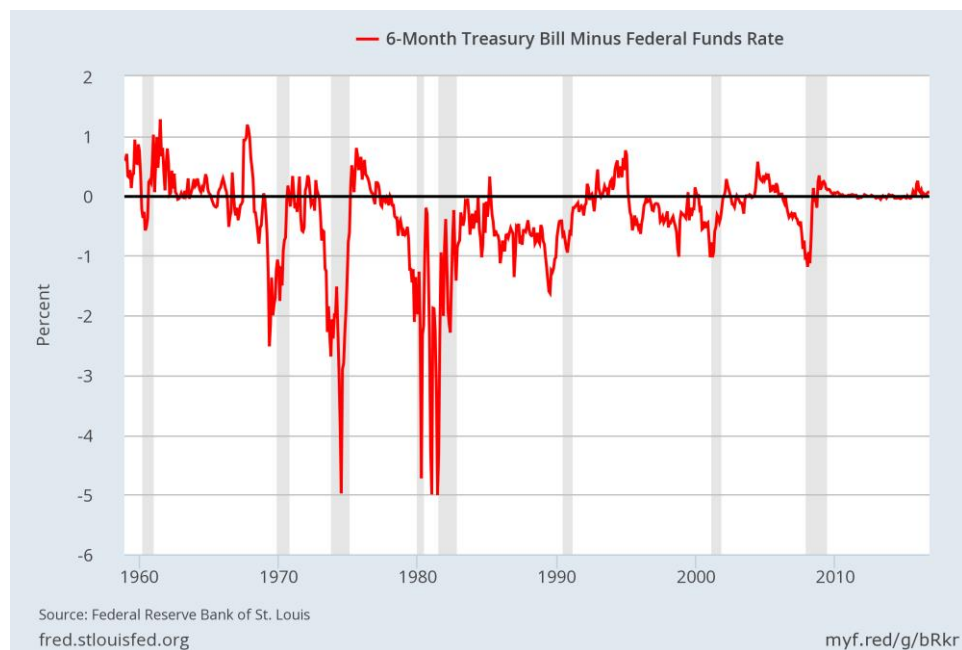
banks, in between nonbanks—such as money market mutual funds—and the safe assets they hold indirectly in the form of bank reserves is unnecessary, inefficient, and risky.

Annex I

Since 1950, the 3-month tbill rate has traded below the fed funds rate by an average of 44 bps.



Similarly, the 6-month till rate has been below the fed funds rate about 2/3rds of the time



Annex II

The US Treasury General Account (TGA) is used to make interest and redemption payments on US government obligations and receives funds realized on the sale of US government securities. The Federal Reserve Bank of New York is the custodian of the TGA.⁹ The TGA is shown as a liability on the consolidated balance sheet of the Federal Reserve System. Fed holdings of US government and other securities are shown on the asset side of the balance sheet.

Let us walk through the life-cycle of one issue of US tbills. As an example, I take the January 10, 2017 auction of four-week bills. The Treasury offered US\$ 45 billion in bills. US\$ 155.657 billion in bids were received. The Treasury issued US\$ 45 billion in bills on January 12 (T+2) with a redemption date of February 9, 2017¹⁰, 28 days later. The pre-auction announcement stated that the SOMA portfolio held no maturing bills and that the offered amount did not include any allocation for the SOMA portfolio, the significance of which I explain below.

The Treasury held another four-week bill auction on February 7, 2017 (two days prior to the redemption date of the bills auctioned exactly four weeks earlier). At the February 7 auction, the Treasury again offered US\$ 45 billion in bills. US\$ 155.551 billion in bids were received. The Treasury issued US\$ 45 billion in bills on February 9, 2017 (T+2) with a redemption date of March 9, 2017.

The financial flows that took place on February 9, 2017 related to the four-week bills are as follows:

- Winning bidders at the February 7 auction sent to the US Treasury TGA US\$ 44.981 billion through their financial institutions via the Fed's Fedwire Funds Service (FFS)¹¹
- The Treasury provided US\$ 45 billion in par value tbills to the those winning bidders through the Fed's Fedwire Securities Service (FSS)
- The Treasury received, through FSS, US\$ 45 billion in bills issued on January 12 from holders as of February 9 who presented them for redemption¹²
- The Treasury sent US\$ 45 billion from the TGA via FFS to the aforementioned holders

The net impact on the TGA is a decline of US\$ 19 million. The net impact on investors' cash accounts held at financial institutions and on bank reserves held at the Fed is an increase of US\$ 19 million. From the standpoint of the Fed balance sheet, the liability item "TGA" falls by US\$ 19 million while the liability "bank reserves held at Federal Reserve Banks" increases by US\$ 19 million. Only the composition, not the sum of total Fed liabilities changes.

⁹ See US Treasury Financial Manual, Chapter 3000, *Maintaining the US Treasury's General Account*.

¹⁰ All of this information may be found on the US Treasury website.

¹¹ Tbills are purchased at a discount, meaning interest accrues as the value of the bill rises to par at maturity. At the February 7, 2017 auction, investors paid \$ 9,995.88 for each \$10,000 bill awarded. Thus, at maturity they received \$ 4.12 more than they paid, i.e. for an annual interest rate of about .53 percent.

¹² These may differ from the original purchasers owing to secondary market trades.

Let us now consider how a Fed decision to rollover maturing tbills at the auction impacts the various financial flows and balance sheets. Suppose on the settlement date of the February auction the Fed had US\$ 5 billion bills due to mature and had signaled its intention to roll them over at the auction. The Treasury auction announcement would then have been different from the actual in the following way. The Treasury would have announced an offer to sell US\$ 50 billion (US\$ 5 billion more) and notified the market that the SOMA portfolio had \$5 billion in bills maturing and that the offer amount included “SOMA amounts”. Consequently, the market would have known that the quantity of securities actually offered to them was US\$ 5 billion less than the total amount, i.e. US\$ 45 billion, with the Fed being guaranteed US\$ 5 billion at the noncompetitive price.¹³

Presuming the same price outcome in the auction, the financial flows between the Treasury and the market would be identical to the case without the Fed. However, in addition, the Treasury would transfer US\$ 5 billion from its TGA in exchange for the maturing bills held by the Fed and receive from the Fed US\$ 4.998 billion in exchange for US\$ 5 billion in par value new bills. The net impact on the TGA from the transaction with the Fed is a fall of US\$ 2 million. This is equal to the Treasury’s interest expense on the tbills issued 28 days earlier.

The situation with the Fed balance sheet is the mirror image of the Treasury’s excluding the difference that the Fed accrues interest on its holdings of tbills daily while the Treasury accounts for interest paid as a lump sum on the redemption date. Therefore, the Fed begins and ends the 28-day period with tbills equivalent to US\$ 4.998 billion and ends the period with a liability to the Treasury (TGA) US\$ 2 million lower. Since the Fed balance sheet must balance, where is the offsetting US\$ 2 million entry? It resides in a liability account—accumulated undistributed net income. The US\$ 2 million in interest received by the Fed on those tbills is added to net income and thereby offsets the reduction in the TGA. At certain points in the year, positive net income is either distributed to the Treasury as a pseudo dividend, paid as actual dividends to shareholders or added to the Fed’s capital account.

If the Fed does not rollover its maturing bills the result would be different. Assuming the Treasury sells an additional US\$ 5 billion to finance the redemption of the Fed’s bills, the Fed liability account “bank reserves” would fall by US\$ 5 billion—as these reserves would pass via Fedwire to the TGA—and the Fed’s holdings of tbills would fall by US\$ 5 billion. Since the Treasury pays the interest on the bills to the Fed from the TGA, the TGA balance would fall by US\$ 2 million as above.

Whenever the Treasury issues debt to the market to finance Fed balance sheet condensation, the corresponding liability item that falls is always “bank reserves”. The is true whether the Treasury is financing redemption of Treasury debt held by the Fed or purchasing outright the Fed’s MBS holdings.

References

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¹³ The US Treasury conducts “single price” auctions—all awarded bidders pay the same price.

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