

# **The Federal Reserve's Balance Sheet as a Financial-Stability Tool**

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**Our main point:** Going forward, the Fed should use its balance sheet to lean again private-sector maturity transformation. The Fed should keep a large balance sheet, replacing the current focus on the asset side and monetary accommodation with an emphasis on the liability side and safe-asset provision.

- Government-provided short-term safe claims crowd out private-sector-created short-term claims. When the Fed provides more short-term safe assets (reserves, RRP) to the financial system, this reduces the overall scarcity of such assets and reduces the incentive for financial intermediaries to fund on a short-term basis.
- Using the Fed’s balance sheet this way complements regulatory efforts to curb maturity transformation such as the LCR and NSFR. Since regulation is imperfect, we shouldn’t ask it to carry all the weight. A large Fed balance sheet “gets into all the cracks” where regulation can’t: because it impacts market-determined interest-rate spreads, it crowds out maturity transformation by regulated banks and unregulated shadow banks alike.
- However, since the Fed’s balance sheet size is an additional tool, there is no tension with using the policy rate to pursue its traditional dual-mandate objectives.

**The paper in five parts:**

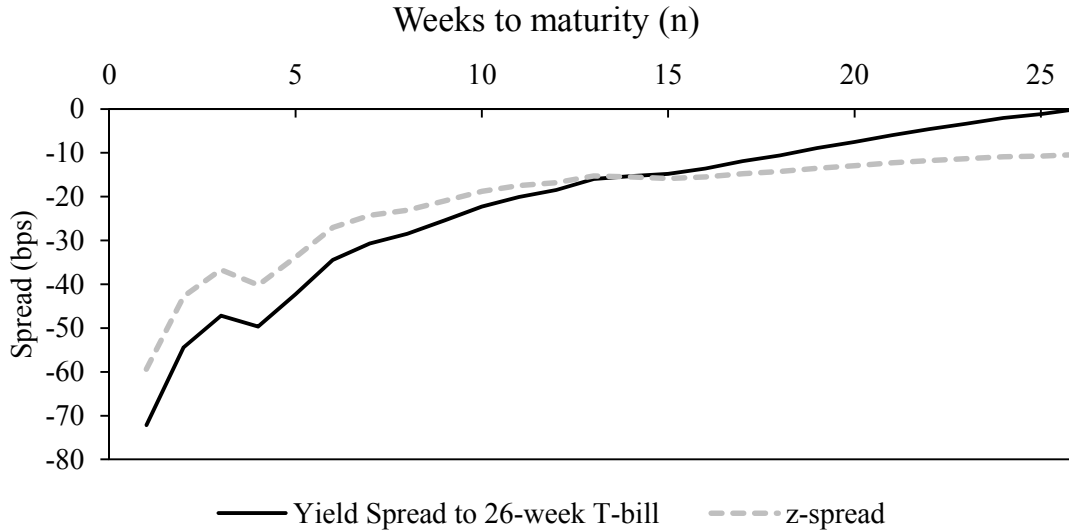
1. **The logic of crowding out:** government supply of short-term safe claims can influence private-sector incentives to engage in maturity transformation.
2. **Fed vs. Treasury:** We argue Fed is better suited than Treasury to providing safe short-term claims. We also analyze the incremental contribution to fiscal risk associated with a large Fed balance sheet.
3. **Reserves vs. RRP:** In what form should the Fed provide short-term safe claims? We suggest that RRP is underutilized.
4. **Regulatory interactions:** What is the interaction of Fed balance sheet with SLR and LCR?
5. **What happens when rates rise above the ZLB?** We argue that incentives for private money creation outside the regulated banking sector—and hence the importance of Fed’s crowding-out role—will likely grow stronger as short-term interest rates rise.

**Three key policy takeaways:**

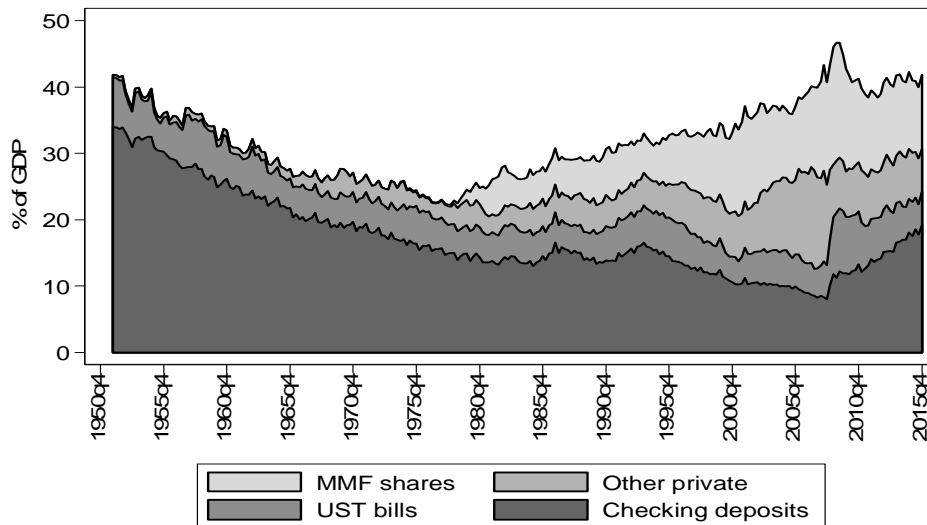
1. The Fed should keep a large balance sheet indefinitely going forward, even as rates rise well above the ZLB. The current size of \$4.5 trillion seems like a plausible baseline.
2. To reduce its impact on the government’s overall interest-rate risk exposure, the Fed can wind down investments in MBS and reduce the weighted average maturity of its Treasury holdings to as little as 2-3 years. By doing so, its contribution to the government’s overall interest-rate risk can be reduced significantly, even at balance sheet size of \$4.5 trillion.
3. The Fed should meaningfully reduce the spread—currently at 25 basis points—between the rate it pays on reserves, and the rate on its RRP facility. Doing so will save taxpayers billions of dollars a year, and will also lead to a desirable expansion in the volume of RRP.

## The Logic of Crowding Out (1)

- The very front of the yield curve tends to be steeply upward-sloping: from 1983-2009, the yield on one-week T-bills averaged 72 basis points less than yield on six month bills. We interpret this as a “money premium” on the safest and shortest-maturity claims.



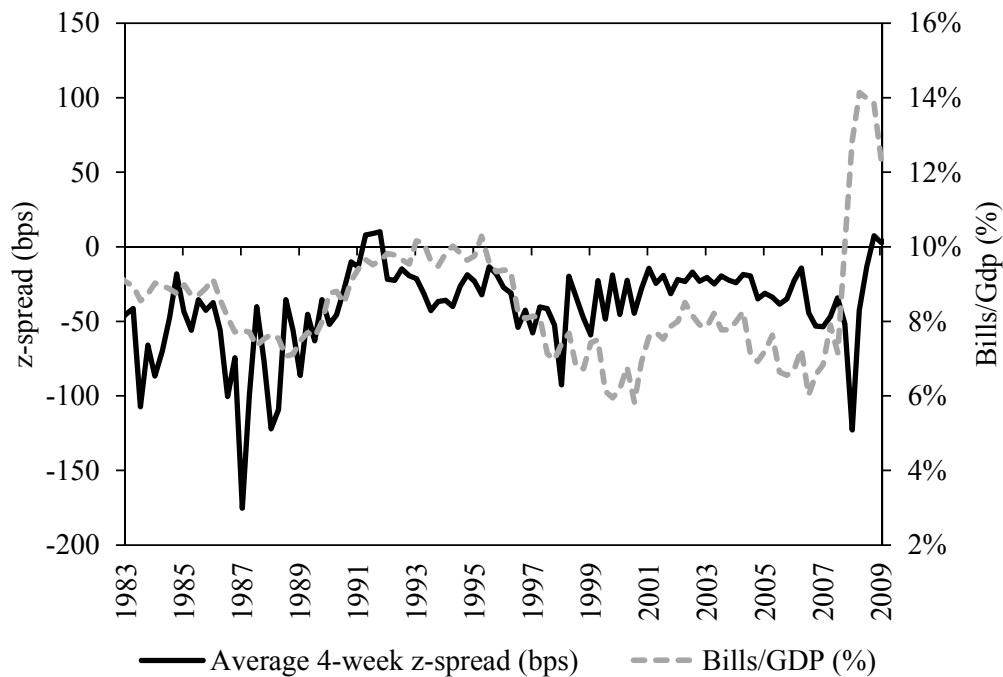
- Private financial intermediaries have responded by issuing short-term claims such as repo and commercial paper, which have expanded in recent decades. The figure below shows amount outstanding of various “money-like” claims, expressed as a percentage of GDP:



- Aggressive maturity transformation by private-sector intermediaries can have negative consequences for financial stability: there are externalities in capital structure choice.

## The Logic of Crowding Out (2)

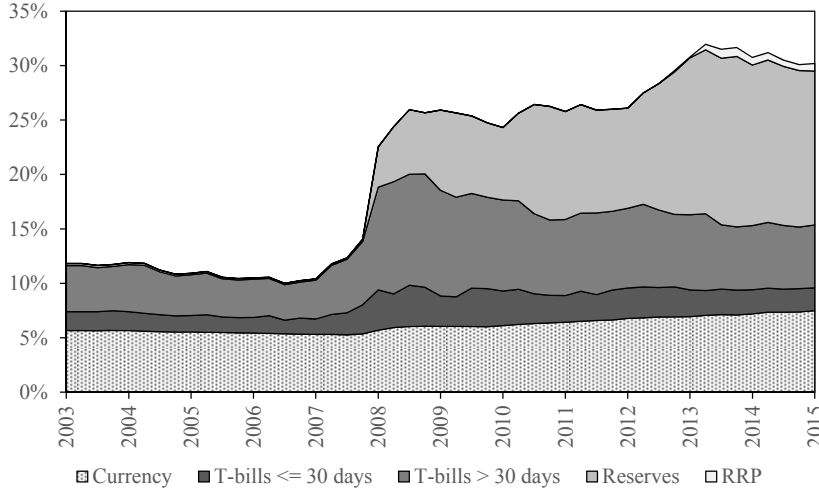
- The government can influence private-sector incentives to issue short-term in two ways: through regulation such as the liquidity coverage ratio (LCR), or by issuing additional short-term government securities itself so as to crowd out private issuance.
- The figure plots 4-week  $z$ -spread against the ratio of T-bills to GDP. The  $z$ -spread is a measure of the “money premium” on bills. (More negative values of the  $z$ -spread  $\rightarrow$  T-bills have lower yields than one would otherwise expect.)



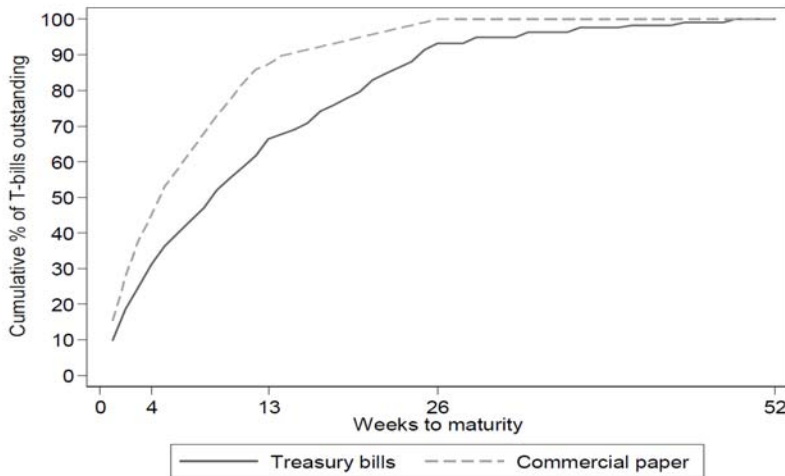
- Private sector maturity transformation responds to these changes in spreads: when the government issues more T-bills, the money premium shrinks, and the private sector issues fewer short-term safe claims.
- Our point is not that all private maturity transformation is bad and the government should crowd out every last dollar: just that the government can play a role in curbing incentives for *excessive* maturity transformation.
  - Maturity transformation is excessive from a social perspective due to externalities in private-sector funding choices, and the inability of regulation to perfectly address these externalities.

## Fed vs. Treasury (1)

- Historically, Treasury has been reluctant to issue large quantities of T-bills, particularly the shortest maturity bills. The figure shows short-term safe claims issued by both Fed and Treasury. T-bills of the shortest maturity (30 days or less) are broken out separately.



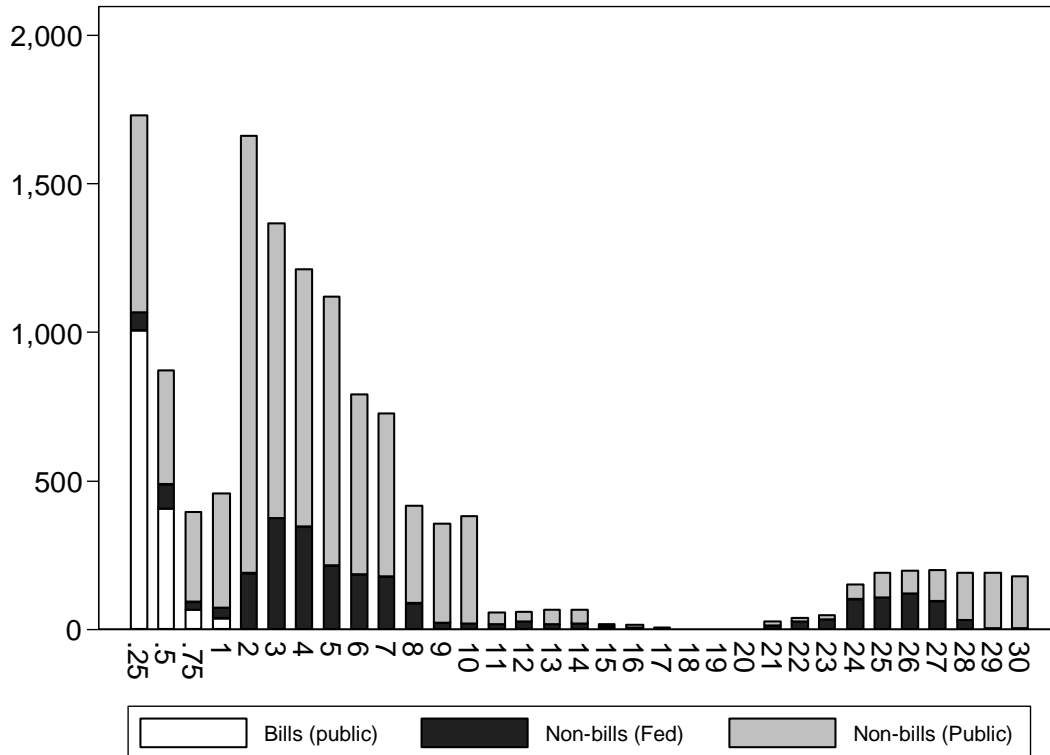
- Even among T-bills, the maturity of government paper tends to be longer than that of private issuers. The figure below shows the cumulative distribution of maturities on T-bills (solid line) and commercial paper (dashed line):



- Overall, Treasury has been reluctant to issue enough short-term bills to satisfy demand. Why? We argue that the reluctance is driven by concerns about interest-rate risk, but also by concerns about “auction risk”: the risk of a failed auction where Treasury does not receive enough bids to auction the desired quantity of bills at a reasonable price.
  - Treasury’s use of floating rate notes makes clear the distinction between aversion to interest-rate risk and aversion to auction risk.
- Fed’s advantage: as supplier of final means of payment, it faces no analog to auction risk.
  - Interest-bearing reserves are more like perpetual floaters: they don’t have to be re-auctioned.

## Fed vs. Treasury (2)

- However, as the Fed expands its balance sheet, it takes on more fiscal (interest-rate) risk: effectively, Fed intrudes on Treasury's job of managing government debt maturity.
- On political-economy grounds, one might argue that Fed should do as little of this as possible, subject to fulfilling its dual mandate. This would suggest we return to a small balance sheet, all else equal.
  - Under QE, some fiscal risk-taking was arguably necessary to return economy to full employment and to fulfill the mandate.
- The figure shows the current breakdown of Treasury holdings. Solid black bars denote holdings by the Fed, which total \$2.5 trillion. The weighted average maturity (WAM) of the Fed's Treasury holdings is 8.7 years as of December 2015 as compared to a WAM of 5.7 years for all outstanding Treasuries (\$13.2 trillion).



### Fed vs. Treasury (3): Quantifying Fiscal Risk Implications of Fed's Balance Sheet

- We analyze fiscal risk under three scenarios: (1) Fed maintains WAM of its holdings at 8.7 years; (2) Fed holds all notes and bonds in proportion to outstanding amounts; or (3) Fed lowers duration by only buying notes and bonds with remaining maturity of 5 years or less.
- Fed's incremental contribution to overall government fiscal risk can be largely managed by reducing the WAM of its Treasury holdings.

	Volatility of Consolidated Federal Interest Expense		
	WAM <sub>FED</sub> = 2.2 yrs	WAM <sub>FED</sub> = 6.4 yrs	WAM <sub>FED</sub> = 8.7 yrs
	Panel A: \$4.5 trillion Fed balance sheet (financed with 1/3 non-interest bearing currency, 2/3 interest bearing reserves)		
St Dev (% of Treasury debt)	1.09%	1.42%	1.54%
St Dev (\$ billion)	\$ 141.2	\$ 185.0	\$ 200.1
	Panel B: \$3.0 trillion Fed balance sheet (financed with 1/2 non-interest bearing currency, 1/2 interest bearing reserves)		
St Dev (% of Treasury debt)	1.01%	1.20%	1.29%
St Dev (\$ billion)	\$ 130.8	\$ 156.5	\$ 167.1
	Panel C: \$1.5 trillion Fed balance sheet (financed with 100% non-interested bearing currency)		
St Dev (% of Treasury debt)	0.97%	1.05%	1.09%
St Dev (\$ billion)	\$ 126.4	\$ 136.4	\$ 141.7

- For example, suppose we want to get standard deviation of federal interest expense down to \$140 billion, from \$200 billion (our forecast based on a Fed balance sheet of \$4.5 trillion and a WAM of 8.7 years). The Fed could *either* (a) maintain the same WAM, but shrink the balance sheet to \$1.5 trillion, or (b) reduce the WAM to 2.2 years (which is entirely feasible), and keep the balance sheet at its current size of \$4.5 trillion.

## Fed Liabilities: Reserves vs. RRP

The Fed's Balance Sheet in late 2015 (\$4.5 trillion):

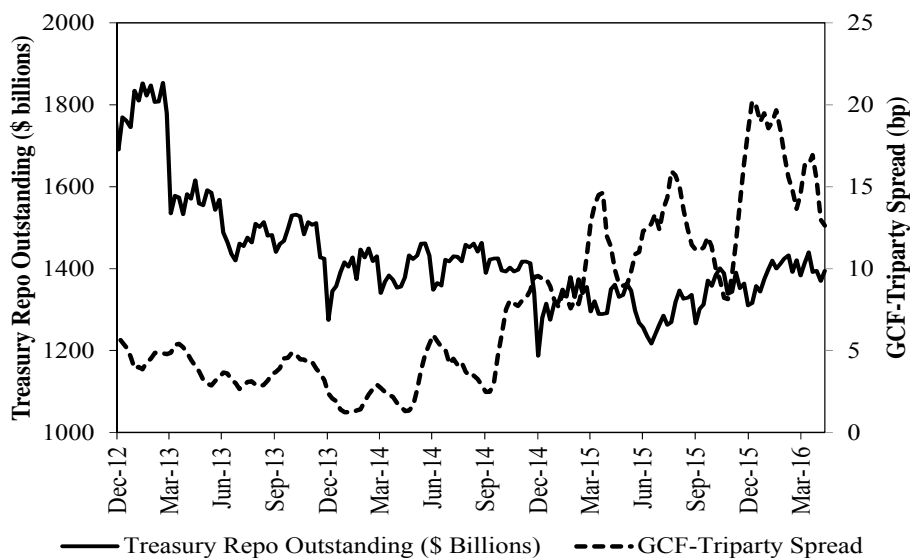
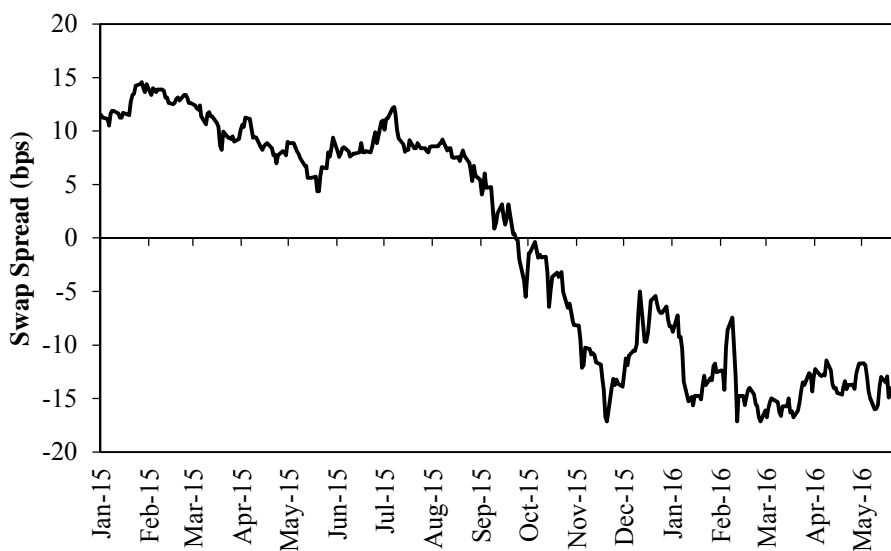


- To date, the Fed has been reluctant to use the RRP facility in large size. This is reflected in a sizeable spread between the IOR rate (50 basis points) and the RRP rate (25 basis points).
- The Fed has also stated that it plans to phase out the RRP facility as soon as it is no longer needed for the purposes of monetary control.
- In our view, this is a mistake.
  - Banks are glutted with reserves and thus have to be paid significant rents in order to absorb them. A large fraction of these rents go to foreign banks.
  - Because only banks can earn interest on reserves, reserves are less effective than RRP from a crowding-out perspective. RRP can be held by money funds, which makes it much closer to T-bills, and more potent at crowding out.
- Fed can both save taxpayers money and better serve the interests of financial stability by targeting a significantly lower spread between IOR and the RRP rates.
  - Would cause equilibrium RRP volume to increase substantially.
  - In the spirit of Milton Friedman (1969): place Fed liabilities with those who value them the most.
- To mitigate run-to-the-Fed risk in a stress scenario, the RRP facility should be dynamically capped. But not capped at some arbitrary ex ante value.
  - Let it find its natural level in normal times. But don't let RRP volume expand to (say) more than 120% of its trailing 6-month average on any given day.



## Regulatory Interactions

- By taxing matched-book repo lending by dealer banks, the SLR has made it more expensive for levered investors to finance their holdings of long-term Treasuries.
- Strengthens the case for Fed to step up and perform the same function by holding long-term Treasuries and financing with RRP: *somebody* needs to do this intermediation.

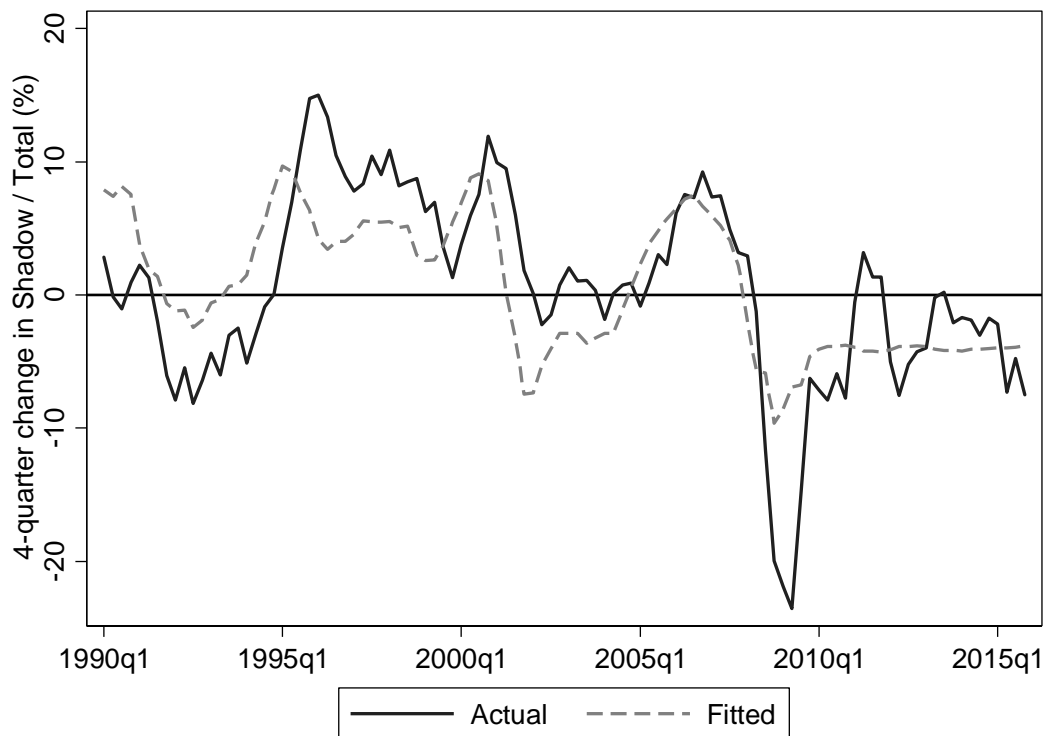


- The LCR may at some point create shortages of assets deemed Level 1 HQLA (e.g. Treasuries, reserves). If reserves were given preferential treatment relative to Treasuries in HQLA computation—i.e., a lower haircut—Fed would be able to mitigate such shortages with conventional open-market operations.

## What Happens When Rates Rise Above the ZLB?

- As the economy recovers and the policy rate rises, the incentives for private-sector maturity transformation—particularly in shadow-banking sector—will tend to increase.
- With traditional insured deposits continuing to offer low rates, money market funds will be attractive to investors seeking higher yields
  - Money funds in turn can invest in either government paper, or more runnable private-sector claims like uninsured CDs, commercial paper and repo.
  - Higher rates push financial sector towards a less stable funding structure overall.
- The figure below shows how growth of short-term money-like claims issued by the private sector responds to changes in fed funds rate. As funds rate rises, shadow-banking claims increase relative to deposits and T-bills.

$$\Delta_4 \log \left( \frac{SHAD_t}{TOT_t} \right) = \underset{(t = -4.86)}{-0.04} + \underset{(t = 3.59)}{3.27} \cdot (r_t - r_{t-4}) + \underset{(t = 4.03)}{1.69} \cdot r_{t-4}, \quad R^2 = 0.49.$$



- Implication: the need to lean against private-sector maturity transformation will likely go up in a rising-rate environment.