

# Peeling Back The Layers Of The Onion: A Fed Balance Sheet Update

To cut rates or not to cut rates? The question has preoccupied investors and central bankers in 2024. However, before U.S. policymakers decide on changes to the fed funds rate, they will first wrestle with shrinking the central bank's balance sheet.

Recall that the Federal Reserve's balance sheet reached almost \$9 trillion during Covid (see Figure 1). Since mid-2022, the balance sheet has been shrinking each month as Treasuries mature without being reinvested and mortgage-backed securities (MBS) slowly pay down—the so-called “quantitative tightening” (QT) process (see Figure 2). As the Fed's assets fall, so do its liabilities, including an important type of liability for the banking system: bank reserves.

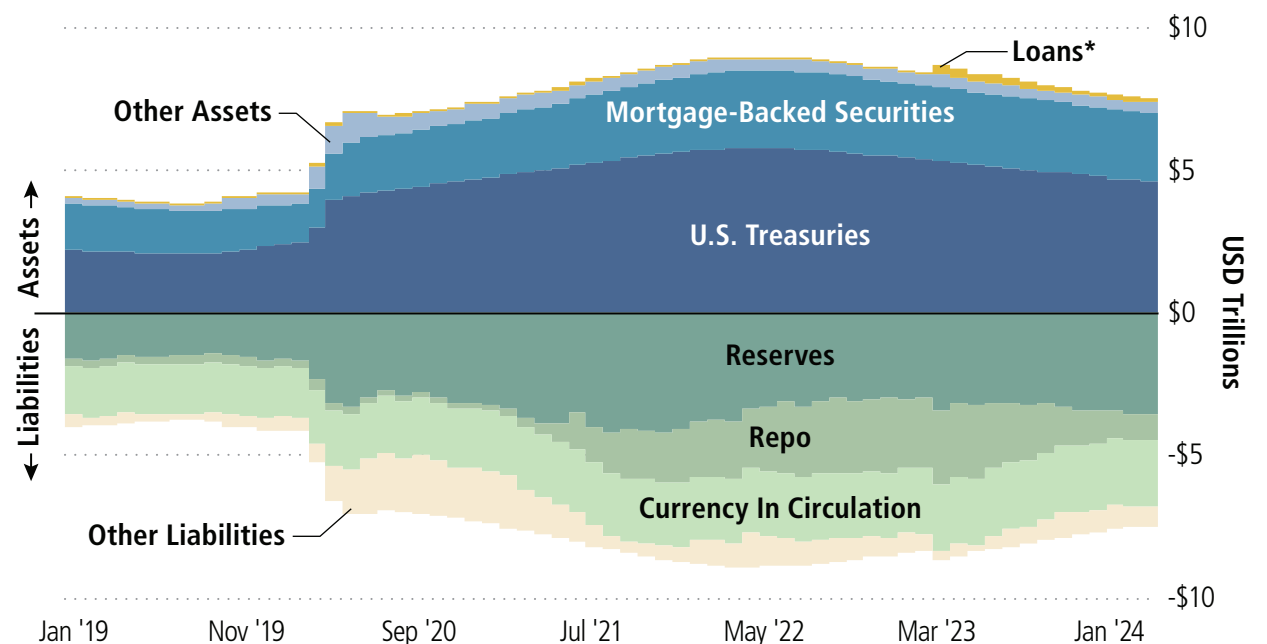
At the Federal Open Market Committee (FOMC)'s May meeting, Fed Chair Powell announced that the Fed will curtail QT starting in June.<sup>1</sup> The most important question for investors is when the financial system will reach bank reserve scarcity. The short answer is that nobody knows when bank reserves will become scarce. We don't think we will get there anytime soon. Follow along as we peel back the layers of the balance sheet onion to see why.

## ASSETS & LIABILITIES

First, remember the basics of a balance sheet: Assets should always equal liabilities. The same rules apply to the Fed.

The Fed's assets are simple; they are mainly Treasuries and MBS. The Fed's liabilities are more tricky but can be summarized as what it owes to

fig 1. FED'S ASSETS & LIABILITIES:  
FEDERAL RESERVE TOTAL ASSETS AND LIABILITIES OVER TIME



Source: Federal Reserve  
\*Includes BTFP Loans

different financial participants as it acts as the bank for all financial players (the bank to all banks).

The Fed's main liabilities include currency in circulation (basically cash and coin), bank reserves (settlement balances used by banks to make payments and meet regulations), the overnight reverse repo facility (ON RRP), and the Treasury General Account (TGA, the Treasury's “checking account” at the Fed, see *Did You Know? Box The Fed: A Tough Fiscal Year on page 4*).

Recall that under QT, the Fed is reducing its asset holdings by allowing its Treasuries to mature

and agency MBS to pay down (slowly, given the elevated level of interest rates). Since QT began, the Fed's asset holdings have fallen by more than \$1.3 trillion as of April, primarily via maturing Treasuries (see Figure 2 again).

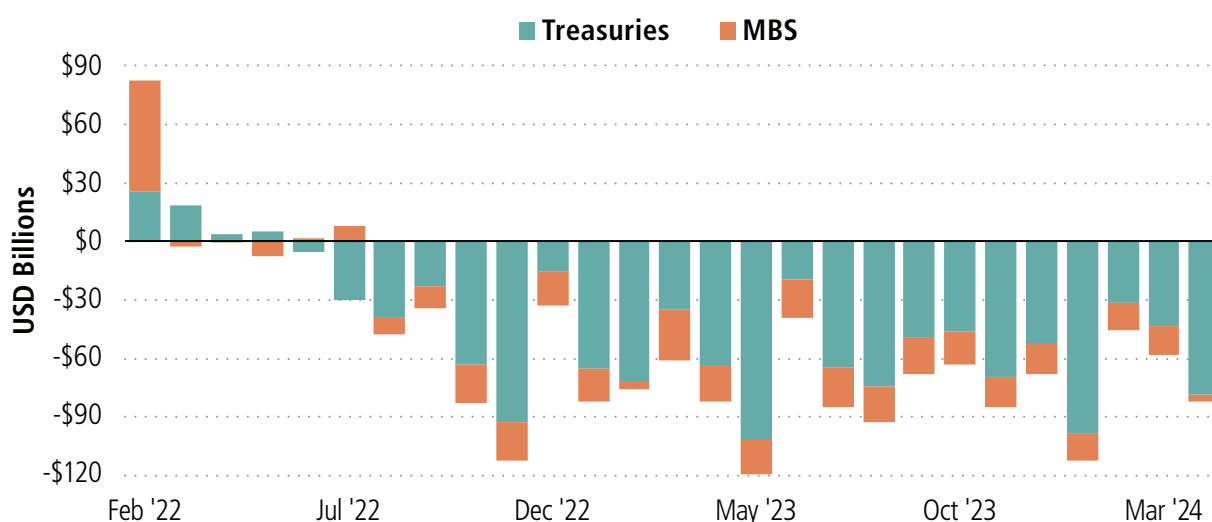
**«INTERESTINGLY, EVEN THOUGH THE FED'S ASSET HOLDINGS HAVE DECLINED BY ~\$1.3 TRILLION SINCE QT BEGAN, RESERVES, AS A SINGLE COMPONENT, HAVE RISEN FROM THE PREVIOUS YEAR'S LEVELS»**

Since assets should equal liabilities on balance (pun intended), the Fed's liabilities have declined on the other side of the balance sheet (see Figure 1 again).

The Fed said it would “slow and then stop the decline in the balance sheet size when reserve balances are somewhat above the level it [the Fed] judges to be consistent with ample reserves.”

Worried investors point to “2019's spike in repo rates” (seen as market participants' sudden surge in demand for liquidity and, therefore, willingness to pay above-market rates) as an event that could recur if bank reserves become too scarce.

fig 2. A RIGID TRACK RECORD:  
MONTHLY CHANGE IN FED HOLDINGS OF TREASURIES AND MORTGAGE-BACKED SECURITIES (MBS)



Source: Federal Reserve

fig 3. DEEP DIVE:  
FED'S BALANCE SHEET CHANGE FROM JUNE 2022 TO APRIL 2024, IN USD TRILLIONS

	APRIL 2024	JUNE 2022	CUMULATIVE CHANGE		APRIL 2024	JUNE 2022	CUMULATIVE CHANGE
<b>Total Assets</b>	\$7.54	\$8.92	<b>-\$1.37</b>	<b>Total Liabilities</b>	\$7.50	\$8.87	<b>-\$1.37</b>
<b>Securities Held Outright</b>	\$7.03	\$8.48	<b>-\$1.45</b>	<b>Deposits</b>	\$4.48	\$4.38	\$0.10
U.S. Treasuries	\$4.63	\$5.77	-\$1.14	Reserves	\$3.57	\$3.36	<b>\$0.22</b>
Mortgage-Backed Securites	\$2.40	\$2.71	-\$0.30	Treasury General Account	\$0.75	\$0.78	-\$0.03
Others	\$0.00	\$0.00	\$0.00	Others	\$0.16	\$0.24	-\$0.08
<b>Unamortized Premiums</b>	\$0.17	\$0.02	\$0.15	<b>Currency in Circulation</b>	\$2.34	\$2.28	\$0.06
<b>Unamortized Discounts</b>	-\$0.03	-\$0.02	\$0.00	<b>Earnings Remittances</b>	-\$0.02	-\$0.02	-\$0.01
<b>Loans</b>	\$0.05	\$0.04	\$0.00	<b>Repo (ON RRP + Foreign Repo)</b>	\$0.85	\$2.23	<b>-\$1.38</b>
<b>Others</b>	\$0.32	\$0.39	-\$0.08	<b>Others</b>	-\$0.16	\$0.00	-\$0.16

Source: Federal Reserve

Interestingly, even though the Fed’s asset holdings have declined by ~\$1.3 trillion since QT began, reserves, as a single component, have risen from the previous year’s levels (see Figure 1 again)! Say what? Several one-off factors have contributed to rising reserve levels despite a shrinking balance sheet.

First, the Bank Term Funding Program (BTFP), which provided banks loans at attractive rates after Silicon Valley Bank (SVB) collapsed, added reserves back into the banking system, at least temporarily (the Fed announced new loans would cease but may take another year to roll off the balance sheet).

Second, the U.S. Treasury spent down its TGA balance in early 2023, adding reserves back into the banking system (when money sits in TGA, it is considered a “reserve drain”).

«SO, THE BALANCE SHEET HAS SHRUNK AS QT PROGRESSED, BUT RESERVES REMAIN “ABUNDANT”—FOR NOW.»

Lastly, the ON RRP (Overnight Reverse Repo) facility allowed money market funds to lend overnight at a rate close to the fed funds rate. As a liability on the Fed’s balance sheet, the ON RRP facility absorbed the majority of the decrease on the asset side (see *Did You Know? Box How Treasury Issuance Plays Into The Story* on page 4). Since the start of QT in June 2022, ON RRP balances have fallen by \$1.4 trillion (see Figure 3).

So, the balance sheet has shrunk as QT progressed, but reserves remain “abundant”—for

now. At which level of bank reserves should we worry that reserves are too scarce?

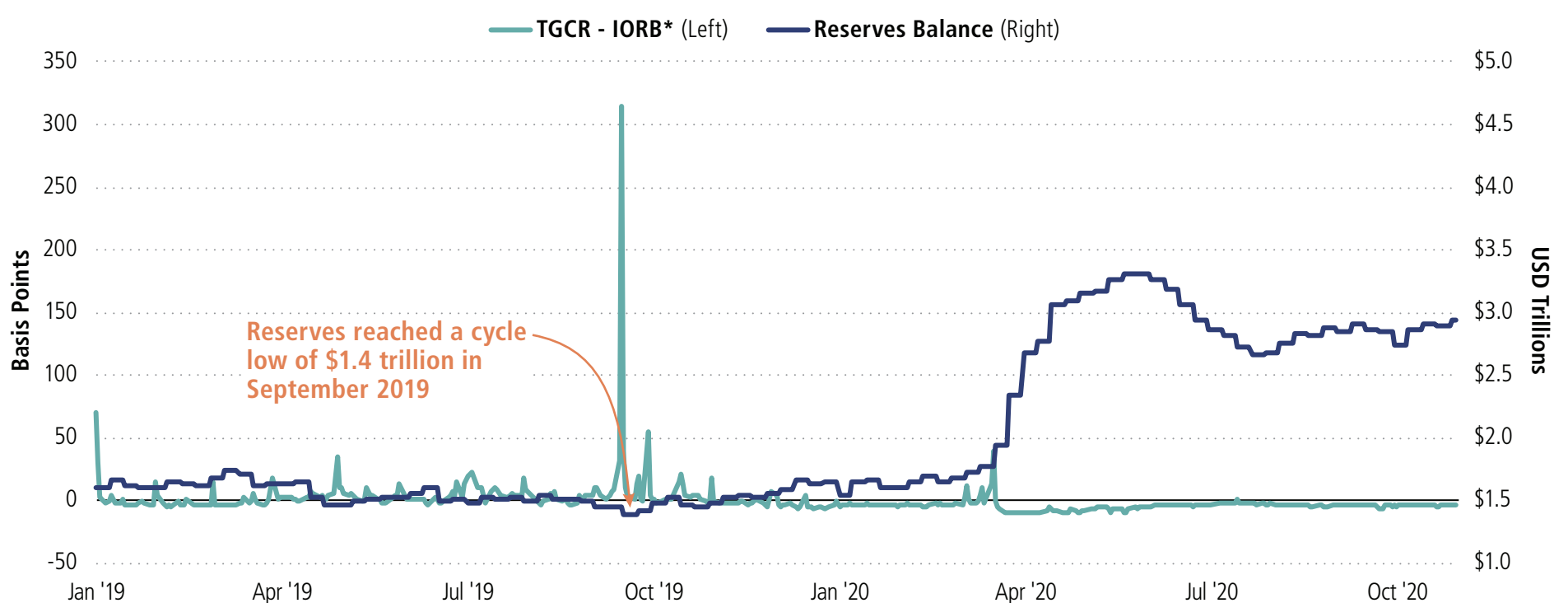
Fed Board Governor Christopher Waller said reserves fell to 8% of nominal GDP in 2019, so a 10%–11% level now makes sense, given that bank balance sheets are larger. But he added that “there’s no economic theory that tells you how big a central bank balance sheet should be.”<sup>2</sup> For now, reserves are 12% of GDP as of Q4 2023, down from 16% in March 2022 when QT began.

**DEMAND SHIFTS MATTER AS MUCH AS SUPPLY**

But the story doesn’t end on the supply side of the equation.

Gauging when reserves go from abundant to ample to scarce is difficult because the demand for reserves has also changed since 2008. Reserves

fig 4. SOUNDING THE LIQUIDITY ALARM:  
FED RESERVES BALANCE VERSUS SPREAD BETWEEN TGCR AND IORB\*



Source: Federal Reserve, Federal Reserve Bank of New York

\*Tri-Party General Collateral Rate (TGCR) Minus Interest On Reserve Balances (IORB)

**«RESERVES TODAY ARE DIFFERENT ASSETS THAN PRE-2008 RESERVES IN THREE WAYS.»**

today are different assets than pre-2008 reserves in three ways.

First, today's bank reserves earn interest! Historically, reserves were very scarce, with aggregate system-wide bank reserve balances hovering at less than \$50 billion and used almost exclusively by banks as “settlement assets.”

Banks even ran “daylight overdrafts,” sending out payments in the morning, knowing that other payments would come in to offset by the end of the day. If all else failed, the needy bank could borrow settlement balances from another bank, with the Fed adding reserves as necessary each day to nudge the Fed funds rate to its target. That way, reserves were an opportunity cost for banks, not a yield-producing asset. It wasn't until late 2008 that the Fed began paying interest on reserves.

Second, despite the supply of reserves growing to around \$4 trillion by 2021, the new supply was more than offset by new demand. Banks had to keep more reserves to meet requirements for new liquidity regulations, shifting the demand curve to the right in a textbook supply and demand framework.

Third, how can you have reserve scarcity when reserves seem so abundant? In the words of Dallas Fed President Lorie Logan, “Individual banks can approach scarcity before the system as a whole. In this environment, the system needs to redistribute liquidity from the institutions that happen to have it to those that need it most.”<sup>3</sup> For example, in a panic, large banks continue hoarding reserves instead of lending excess reserves to other banks. Pre-2008, big banks might lend excess balances to smaller banks overnight. Post-2008, big banks hoard reserves, even if overnight rates spike.

### SO, HOW WILL WE KNOW?

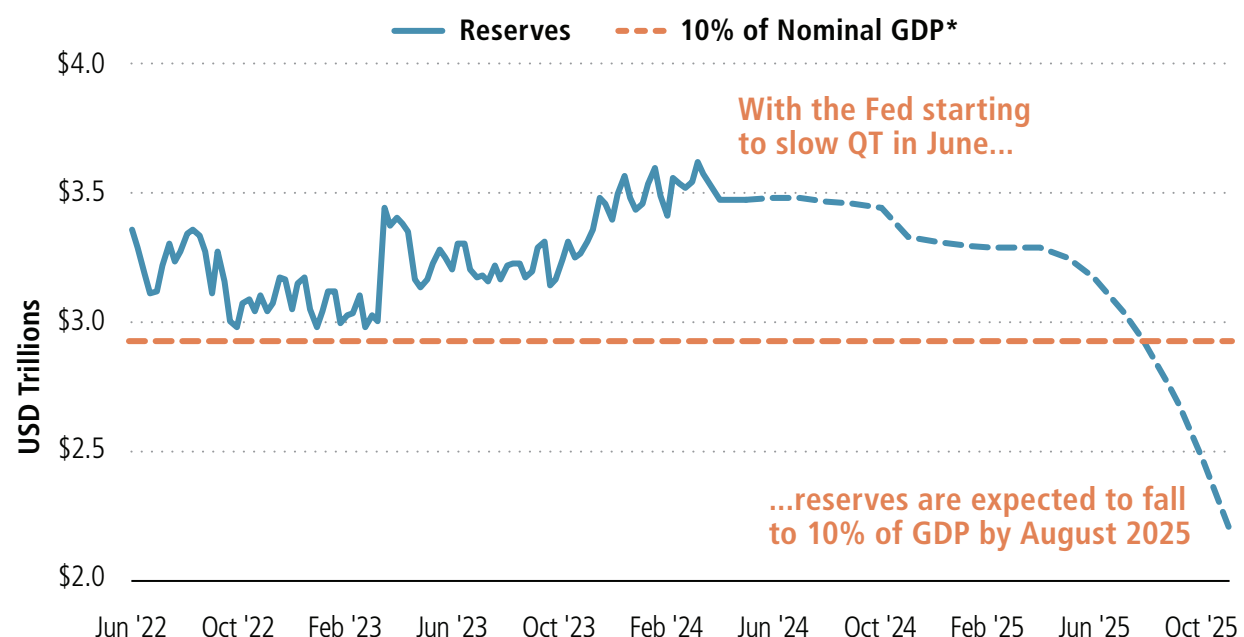
So, if supply *and* demand have shifted, how would we know whether “reserve scarcity” has been reached, other than monitoring reserve levels as a share of GDP?

**«FED CHAIR POWELL SAID, “BY GOING SLOWER, YOU CAN GET FURTHER.”»**

Another approach is to monitor short-term money markets for signs of pressure. In reserve scarcity, such as in the fall of 2019, the cost of borrowing reserves spiked, indicative of a shortage (see Figure 4 on page 2).

The Fed also responded to the 2019 episode by creating a standing repo facility (SRF) whereby

## fig 5. ONE PATH AMONG MANY: ACTUAL AND FORECASTED RESERVES BALANCE OF FED'S LIABILITIES



Source: Federal Reserve, CBO, Payden Calculations

\*Payden Economics 2024 nominal GDP forecast, Dashed lines indicate forecasts

institutions can borrow directly from the Fed instead of facing private market rates. The Fed also launched the Foreign and International Monetary Authorities (FIMA) Repo Facility, creating similar privileges for foreign entities. In theory, such facilities should serve as an automatic backstop—if the market repo rate creeps above the offer rate at the SRF or FIMA facility, market participants should, in theory, prefer borrowing from the Fed. The additional wrinkle is that some market participants may feel a stigma about Fed borrowing and choose the private repo market instead, still putting upward pressure on rates. So far, we've seen minimal use of the facilities, so the theory is largely untested.

### “BY GOING SLOWER, YOU CAN GET FURTHER”

But rather than wait for the 2019 redux or its 2024 rendition, Fed Chair Powell said, “By going slower, you can get further.”<sup>4</sup> Specifically, Powell announced that policymakers would start slowing balance sheet runoff in June to achieve a “smoother transition” and avoid “any kind of turbulence.”

In practical terms, the Fed will decrease the Treasury monthly cap, or the amount it lets run off each month, from the current \$60 to \$25 billion per month. Meanwhile, given the longer maturity nature of MBS, its cap will remain at \$35 billion per month.<sup>5</sup> Ultimately, the goal is to achieve a primarily Treasury-oriented balance sheet, although this will be a relatively long process and not an urgent issue for policymakers.

So, what's a possible future balance sheet scenario? Assuming that MBS will run off at its previous average pace of \$15 billion per month and Treasuries will run off entirely at the new cap, the Fed's assets are expected to decrease by \$40 billion each month.<sup>6</sup> Consequently, the ON RRP balance would reach zero in early 2025, while total reserves would decrease to about 10% of nominal GDP by Q3 2025 (see Figure 5)<sup>7</sup>.

**«IF A 2019 RESERVE SCARCITY EPISODE DOESN'T PLAY OUT AGAIN, THE FED MIGHT BE ABLE TO REDUCE ITS BALANCE SHEET AND RESERVES EVEN FURTHER.»**


Will the Fed further reduce reserves? It will depend on how the banking system reacts. If a 2019 reserve scarcity episode doesn't play out again, the Fed might be able to reduce its balance sheet and reserves even further.

### IS THERE ANOTHER WAY?

Finally, is there an economic argument for the Fed continuing to reduce its balance sheet and reserves to return closer to the pre-2008 type balance sheet? Yes!

The primary reason the Fed operated an ample reserves framework was its supposed operational ease. During the pre-2008 era, the Fed conducted daily operations to shepherd rates around the policy target. With ample reserves, staff can avoid spending significant time forecasting the demand for reserves and implementing policy.

Yet, based on the above onion-peeling, we hope you realize the situation is far more complex in 2024 than in 2008. And we are still worried about whether reserve scarcity will suddenly bite despite abundant reserves. Reducing the balance sheet and reserves is possible, as other global central banks are pursuing such a strategy (see *Did You Know? Box: The ECB Plots A Different Course on page 4*).

Ultimately, the Fed may choose to go slower, but we hope they also go further. 

**DID YOU KNOW?**

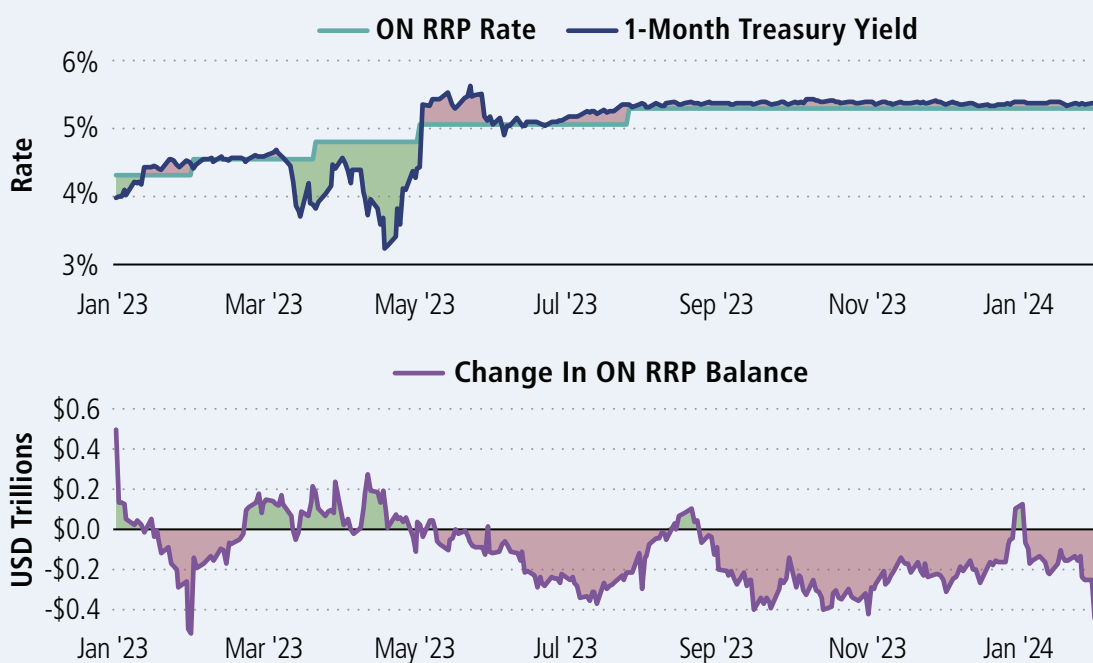
**THE FED: A TOUGH FISCAL YEAR**

A little-known line item on the Fed’s balance sheet, its earnings remittances, shows a \$120 billion operational loss in the 2023 fiscal year. What gives? For much of the last decade, the Fed has earned more income from its bond portfolio than it paid on its liabilities. However, after raising its policy rate, the Fed pays more interest on reserves than its income. The loss is recorded as a deferred asset, which the Fed will carry until it accumulates enough income to compensate for the loss. Is this an accounting gimmick? No, the Fed’s losses mean less revenue for the U.S. Treasury, which means more borrowing from the public, all else being equal. When the Fed accumulated profits in prior years, it returned them to the Treasury as revenues (totaling over \$800 billion from 2012 to 2021!). In turn, the Treasury did not need to issue as much debt. Now, however, the opposite force is underway.

**HOW TREASURY ISSUANCE PLAYS INTO THE STORY**

T-bill issuance, or the shortage of it, explains the rise and fall of the use of the ON RRP facility (a money fund asset but a Fed liability). For example, money market mutual funds make the daily choice of whether to buy T-bills, lend money overnight to a bank via a repo, or deposit funds at the Fed. When the debt ceiling was in effect in early 2023, T-bill issuance halted, leaving T-bills in short supply. The demand for T-bills was also concentrated in specific maturities over concerns of a technical default (failure to pay). As a result, some T-bill yields fell below the Fed’s ON RRP rate, so the money flowed to the ON RRP, which offered a rate near the fed funds rate (5.3%). With the debt ceiling raised, Treasury issuance resumed, particularly in the form of T-bills. Higher T-bill yields attracted money away from the ON RRP (see Figure 6).

fig 6. JUST YIELD CHASING:  
REPO RATE & 1-MONTH TREASURY YIELD  
VERSUS WEEKLY CHANGE IN ON RRP



Source: Federal Reserve, Bloomberg

**THE ECB PLOTS A DIFFERENT COURSE**

The European Central Bank (ECB) officially began QT in July 2022 after large-scale asset purchases during the pandemic. As of April, the ECB has run off about \$2 trillion in assets. However, unlike the Fed’s target of returning to an ample reserves system, the ECB aims to return to a demand-based corridor system, a concept closer to a scarce liquidity regime.<sup>8</sup> Instead of just flooding the system with reserves and hoping they get to where they are needed, the ECB aims for a demand-based framework that encourages banks in any country to tap the ECB’s lending facility as required. The approach has two main goals. First, the ECB wants to avoid guessing the appropriate level of reserves while allowing for a leaner balance sheet and smaller market footprint. Second, the ECB wants to prevent uneven reserves distribution. Maybe the Fed should pay attention?

ENDNOTES

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2. Waller, C.J. (2024, January 16). A Conversation With Federal Reserve Governor Christopher Waller [Webinar]. The Brookings Institution. <[https://www.brookings.edu/wp-content/uploads/2024/01/20240116\\_Waller\\_Transcript.pdf](https://www.brookings.edu/wp-content/uploads/2024/01/20240116_Waller_Transcript.pdf)>
3. Logan, L.K. (2024, January 6). Opening remarks at panel on Market Monitoring and the Implementation of Monetary Policy [Speech transcript]. Federal Reserve Bank of Dallas. <https://www.dallasfed.org/news/speeches/logan/2024/1k1240106#:~:text=Still%2C%20individual%20banks%20can%20approach,that%20redistribution%20needs%20to%20happen.>
4. Powell, J.H.(2024, March 20). FOMC Press Conference [Speech transcript] Federal Reserve.
5. Federal Reserve. (2024, May 1). Federal Reserve issues FOMC statement[Press release]. <https://www.federalreserve.gov/newsevents/pressreleases/monetary20240501a.htm>
6. Powell, J.H.(2024, May 1). FOMC Press Conference [Speech transcript] Federal Reserve.
7. According to the most recent Treasury quarterly refunding announcement, the forecast assumes TGA balance will remain at \$750 billion until Q2 2024, then increase to and remain at \$850 billion starting Q3 2024. BTFP is assumed to roll-off by March 2025.
8. Schnabel, I. (2024, March 14). The Eurosystem’s operational framework [Speech transcript].EuropeanCentralBank.<https://www.ecb.europa.eu/press/key/date/2024/html/ecb.sp240314~8b609de772.en.html>

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