The Federal Reserve's Balance Sheet: Some Major League Questions

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Introduction

I thank the Money Marketeers of NYU for the kind invitation. It's a great time of year to be back in the city, though I'm missing some key sporting events in my new hometown. Basketball playoffs are underway with the Cavaliers taking on the Heat for game 2 tonight at Rocket Arena, and the Yankees are playing the Guardians at Progressive Field. With spring in the air, you may notice a few references to one of my favorite movies, *Major League*, in which the underdogs from Cleveland triumph against all odds over their pinstriped rivals.

My ZIP code is just one thing that's changed since I started my job at the Cleveland Fed last summer. Another is that I need to preface my public remarks with the disclaimer that the views I present today are my own and not necessarily those of the Federal Reserve System or my colleagues on the Federal Open Market Committee.[1]

I'm here tonight to talk about the Federal Reserve and monetary policy. Most of the time, such a discussion would rightly focus on interest rates. This focus aligns with the FOMC's own view that the "primary means of adjusting the stance of monetary policy is through changes in the target range for the federal funds rate."[2]

How we **communicate** about changes in the fed funds rate is a second—but not necessarily *secondary*—tool of monetary policy. Communications about policy decisions are closely scrutinized for clues about the path of policy ahead, and this scrutiny in turn can affect financial

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[1] I am grateful to Edward Knotek and Joseph Haubrich for assistance with these remarks.
[2] See the FOMC's "Statement on Longer-Run Goals and Monetary Policy Strategy," adopted effective January 24, 2012; reaffirmed effective January 30, 2024.
https://www.federalreserve.gov/monetarypolicy/files/FOMC_LongerRunGoals.pdf.

conditions. When monetary policy is constrained by the zero lower bound (ZLB) on interest rates, our communications can at times provide additional stimulus.

A third policy tool, one which usually does not garner the same attention as the first two, is the Federal Reserve's balance sheet. While the balance sheet is often operating in the background, it has become a more active tool of policy since 2007. As we normalize the balance sheet in 2025, the FOMC faces a number of decisions, ranging from technical adjustments—such as slowing the pace of runoff at our last meeting—to more fundamental issues.

In my remarks today, I will provide my perspective on several important issues regarding the balance sheet and raise some questions that I feel need more discussion. I know this group has plenty of its own views and isn't shy, so I look forward to your questions afterward on the balance sheet, interest rates, and the broad economic outlook.

Balance Sheet: Current State and Principles

As this audience knows well, the Federal Reserve's balance sheet grew significantly in the aftermath of the global financial crisis. Today, there are about $6.4 trillion in securities held outright in the System Open Market Account, or SOMA, including $4.2 trillion of Treasury securities and $2.2 trillion of agency mortgage-backed securities.[3] While the asset side gets most of the attention, like any balance sheet, there are two sides that must, by definition, balance. This means there is an equal liability side that at the moment features $2.4 trillion in Federal Reserve notes, $3.3 trillion in reserves, $412 billion in reverse repurchase agreements, and $639 billion in

[3] Numbers as of April 16, 2025, in the Federal Reserve Balance Sheet: Factors Affecting Reserve Balances – H.4.1 statistical release, https://www.federalreserve.gov/releases/h41/20250417/.

the Treasury General Account (TGA), among other items.[4] Reserve balances have increased tremendously, from only $7.6 billion in 2007, but often overlooked is that the quantity of Federal Reserve notes in circulation has also grown meaningfully. In fact, it is now three times the $800 billion in circulation before the global financial crisis.[5] Even in this very digital world, the growth of currency matters for the long-run size of the balance sheet. Likewise, regulatory policies and myriad other factors affect banks' demand for reserves, something which, again, affect the liability side of the balance sheet.

After expanding its size—first to support market functioning in early 2020 and then later to provide policy stimulus to the economy through early 2022—the FOMC began reducing the size of the balance sheet starting on June 1, 2022. Around that time, the FOMC developed two documents to help explain its thinking.

First, in January 2022, the FOMC set out its *principles* for reducing the balance sheet.[6] These principles indicated an intention to reduce the size of the balance sheet in a predictable manner primarily by adjusting reinvestments of principal payments. This process would continue until securities holdings were at a level needed to implement monetary policy efficiently and effectively in the FOMC's ample reserves regime. In addition, the principles noted a longer-run intention to return the balance sheet to holding primarily Treasury securities in order to minimize the effect of Federal Reserve holdings on credit allocation across sectors of the economy.

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[4] For more information on the Fed's balance sheet, see https://www.federalreserve.gov/monetarypolicy/bst_fedsbalancesheet.htm.

[5] The 2007 values are from April 25, 2007, see https://www.federalreserve.gov/releases/h41/20070426/federalreserve.gov/releases/h41/20070426/.

[6] See the FOMC's "Principles for Reducing the Size of the Federal Reserve's Balance Sheet" as adopted on January 26, 2022. federalreserve.gov/newsevents/pressreleases/monetary20220126c.htm.

The second document, adopted in May 2022, was the *plan* for this round of balance sheet reductions.[7] To limit the impact of runoff and to make it—to quote some of my FOMC colleagues—like "watching paint dry," the plan sets monthly caps on the amount of maturing Treasury and agency securities that would be allowed to run off the balance sheet. Over time, the plan also calls for slowing and then eventually stopping runoff when reserves are still somewhat above the level judged to be consistent with ample reserves. By holding the size of the balance sheet steady at that point, the thinking is that other nonreserve liabilities such as currency will continue to grow alongside growth in the economy. This will result in a commensurate reduction in reserves for a period, though at a slower pace than during runoff. In this way, stopping runoff at a "just-above-ample" level would allow the economy to gradually approach ample, thereby promoting a smooth transition in this regime.

The FOMC hasn't offered a precise dollar estimate of the level of reserves that would be deemed "ample." In January 2019, the FOMC defined the ample reserves regime as one in which control over the level of the fed funds rate and other short-term interest rates is exercised primarily through the setting of administered rates rather than active management of the supply of reserves.[8] However, this definition is quite broad and would also apply if there were an exceedingly abundant level of reserves in the banking system.

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[7] See the FOMC's "Plans for Reducing the Size of the Federal Reserve's Balance Sheet" as adopted on May 4, 2022. federalreserve.gov/newsevents/pressreleases/monetary20220504b.htm.
[8] See the FOMC's "Statement Regarding Monetary Policy Implementation and Balance Sheet Normalization" as adopted on January 30, 2019. federalreserve.gov/newsevents/pressreleases/monetary20190130c.htm.

Based on a variety of measures—many of which you may have heard about last month, when Roberto Perli, manager of SOMA, spoke to this group—we still appear to have more than enough reserves in the system so that active management isn't needed.[9] Many economists and policymakers describe the current level of reserves as "abundant," where "abundant" is much greater than "ample," as now-Dallas Fed president Lorie Logan explained in a speech to this group almost five years ago when she held Perli's position.[10] I agree with this assessment.

With reserves still abundant, I believe that runoff could have continued at the prior pace for the time being rather than slowing as we did at our March FOMC meeting. However, I supported the decision to slow the pace as a necessary next step in the process to approach the "just-above-ample" point carefully. I expect that by slowing the pace of runoff, we will be able to let the process continue for longer. In particular, I interpret this slower pace to emphatically **not** be a signal of a permanently larger balance sheet than would have been the case without a slowdown.

How long runoff should continue is uncertain and depends on many factors. The Open Market Trading Desk at the New York Fed carefully monitors conditions in money markets to assess the state of reserves. As we approach the end game, it's worth thinking about the goals and objectives for the balance sheet. I'll pose some questions about where we might focus our attention. In doing so, I plan to take as given the current principles and plan, although I will note a couple of areas that may be worth revisiting in the future.

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[9] See Roberto Perli, "Current Issues in Monetary Policy Implementation," Remarks before the Money Marketeers of New York University, March 5, 2025. newyorkfed.org/newsevents/speeches/2025/per250305.

[10] See Lorie K. Logan, "A Return to Operating with Abundant Reserves," Remarks before the Money Marketeers of New York University (delivered via videoconference), December 1, 2020. newyorkfed.org/newsevents/speeches/2020/log201201.

Balance Sheet Size and Ample Reserves

In an ample reserves regime with a portfolio consisting primarily of Treasury securities, it's still necessary to have a view on how large the balance sheet will need to be, what it will look like, how quickly we would want to get there, and what form any adjustments may take.

Let me start perhaps with the obvious: how ample is "ample"? On the liability side, the size of the balance sheet is ultimately driven by banks' demand for reserves, currency in circulation, and a variety of other currently smaller items, such as the TGA and ON RRP. Equally important, shocks to the demand and supply of reserves mean that, to stay in the ample regime, we need a buffer to keep it above the point at which reserves switch from being ample to being scarce. The challenge is to gauge where we are relative to ample. Are we right in the strike zone? Or, to quote *Major League*, are we "too high—it's too high?" Or perhaps we're "juuust a bit outside?" If reserves fall below the quantity consistent with an ample regime, then small fluctuations in the supply of and demand for reserves could increase volatility in overnight money markets, potentially dramatically. And if the supply of reserves falls far below those in an ample regime, then the funds rate could rise above the top of the target range. In fact, we saw this in September 2019.

Excessive volatility is undesirable, but the difficulty lies in defining "excessive." My view is that if you are on the abundant end of ample and never see any volatility in overnight markets, then you are likely providing a larger buffer than necessary. Where, then, to draw the line? This decision involves important tradeoffs between interest rate volatility and the costs of a larger balance sheet.

I see costs from having a balance sheet that is larger than necessary in an ample regime. There are costs to the public from having to pay more interest on reserves than would otherwise be needed. There are costs coming from potential communication challenges if we do not execute on our plan to achieve the "just-above-ample" point. And there are costs of sequestering valuable collateral by holding too many Treasury securities on the Fed's balance sheet.[11] Treasury bonds are the linchpin of the money markets. Locking them up by holding them on our balance sheet removes that collateral for repo transactions and reduces the quantity of low-risk assets available for investors to hold.[12,13]

Perhaps relative to some others, another cost I see from a large balance sheet comes from financial stability risks. To the extent that a large balance sheet with more-than-ample reserves dampens money market volatility, it also promotes risk-taking in financial markets. We have seen this with the increase in hedge fund basis trading and invoice spreads, a trend worth watching and one I've noted elsewhere.[14]

Fortunately, there are alternatives to maintaining a very large supply of reserves. The standing repo facility, or SRF, is one existing tool to help create a ceiling on overnight rates and dampen

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[11] On collateral, see Isabel Schnabel, "The Eurosystem's operational framework," Speech at the Money Market Contact Group meeting, Frankfurt am Main, 14 March 2024. ecb.europa.eu/press/key/date/2024/html/ecb.sp240314~8b609de772.en.html.

[12] Annette Vissing-Jorgensen. 2023. "Balance Sheet Policy above the Effective Lower Bound," Conference Proceedings, ECB Forum on Central Banking.

[13] For information on the Fed's daily securities lending operations, see https://www.newyorkfed.org/markets/desk-operations/securities-lending.

[14] Beth M. Hammack, "Trading Places: My New View from Inside the Federal Reserve," Speech given at Columbia University School of International and Public Affairs and the Bank Policy Institute, 9th Annual SIPA/BPI Bank Regulation Research Conference, New York, New York, February 27, 2025. clevelandfed.org/collections/speeches/2025/sp-20250227-trading-places-my-new-view-from-inside-the-federal-reserve.

volatility should it arise. Effective implementation of this critical tool can provide a measure of insurance as we probe the parameters of the ample reserves regime, and it will remain critical once we have reached the steady state.

To this end, I support continued strengthening and expansion of the SRF, including experimentation with morning operations and early settlement. Given the Treasury market move toward central clearing, I would also like to explore the pros and cons of centrally clearing the SRF. This could help combat stigma and reduce bank balance sheet costs to encourage greater use of the facility and allow for more efficient and effective redistribution of reserves across the banking system.

While most discussions of the balance sheet center on its size and the level of reserves, there is evidence that the distribution of reserves across banks matters. The reserve levels at bank holding companies most active in the repo market appear especially important and bear watching.[15]

In this vein, other changes may also be worth considering to encourage more frequent use of the SRF and to reduce any potential stigma. For example, we may consider repositioning the SRF minimum bid rate from the top of the funds target range closer to the interest rate paid on reserve balances. Of course, encouraging greater use of the facility would entail tradeoffs, such as enlarging the Fed's role in markets, so further analysis of the costs and benefits would be needed. Not all innovations are as clearly efficient and effective as Pedro Cerrano's "hats for bats."

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[15] Adam Copeland, Darrell Duffie, and Yilin Yang. 2025. "Reserves Were Not So Ample After All." *Quarterly Journal of Economics*, 140(1): 239–281. doi.org/10.1093/qje/qjae034.

Given the volatility of some balance sheet items, there may be scenarios in which the Federal Reserve would need to add temporary liquidity. In that case, nothing would prevent the Desk from using its standard tools of open market operations to maintain the fed funds target range even if reserves were ample. For example, a rapid TGA rebuild might require quick reallocation of reserves across banks. This may not be accomplished smoothly within a short amount of time, putting temporary upward pressure on overnight rates. This pressure could emerge even while reserves continue to appear ample by other measures if the distribution of reserves cannot adjust quickly.

In general, if a scarce reserves regime requires regular intervention in the market and an abundant reserves regime requires no intervention, then an ample reserves regime that requires occasional intervention strikes me as about right. This may be an area worthy of discussion by the FOMC.

Whatever the tactics the Committee chooses to keep reserves ample, some volatility in overnight markets may not be such a wild thing. It could help inform market dynamics and provide additional discipline to the market, giving firms practice and incentive to prepare for the occasional large move. But it does raise the question of how much and what type of volatility is acceptable? Our operating framework specifies a range for the funds rate, and this range helps to limit the volatility we see in that market. What, if anything, should be done about volatility in other overnight markets? Again, this is another longer-term issue for FOMC discussion.

As discussed, many issues factor into estimates of the appropriate size of the balance sheet in the ample reserves regime, including the buffer. Unfortunately, it is extremely difficult to estimate the point at which reserves become scarce, let alone the buffer size required for differing volatility tolerances. Recent work by Cleveland Fed staff highlights the very wide range of estimates for the threshold between ample and scarce reserves and a wide range of estimates for a buffer to stay above that threshold.[16] In light of this uncertainty, we will need to closely watch money market dynamics as reserves shrink.

In thinking about the appropriate size of the buffer and the balance sheet, I am also cognizant of evidence that expansions of the balance sheet may lead to a ratchet effect that induces banks to increase liquidity buffers in normal times.[17] When the supply of reserves gets large, banks appear to use them to support more uninsured deposits and credit lines. This, in turn, exposes them to increased liquidity risk, which increases their desire to hold a bigger buffer of reserves against sudden drawdowns.

So for all of these reasons, I personally lean toward holding a smaller buffer in normal times.

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[16] See Joseph G. Haubrich. 2025. "QT, Ample Reserves, and the Changing Fed Balance Sheet." Federal Reserve Bank of Cleveland, *Economic Commentary* 2025-05. doi.org/10.26509/frbc-ec-202505. Estimates of the scarcity point range from 3 percent to 11 percent of GDP; see Friederike Langowski. 2023. "Do Bank Reserves Affect Interest Rates When Reserves Are Abundant?" Working paper. fk-langowski.github.io/assets/pdf/fk-langowski_jmp.pdf. David Lopez-Salido and Annette Vissing-Jorgensen. 2023. "Reserve Demand, Interest Rate Control, and Quantitative Tightening." Working paper. doi.org/10.2139/ssrn.4371999. Gara Afonso, Domenico Giannone, Gabriele La Spada, and John C. Williams. 2024. "Scarce, Abundant, or Ample? A Time-Varying Model of the Reserve Demand Curve." Federal Reserve Bank of New York, Staff Reports No. 1019. newyorkfed.org/research/staff_reports/sr1019. Haubrich (2025) estimates that the buffer can range from $90 billion to $900 billion. The estimates provided in Schulhofer-Wohl and Zobel (2019) are closer to the bottom of this range; see Sam Schulhofer-Wohl and Patricia Zobel. 2019. "Transitioning to an Ample Reserves Regime with Lower Reserves." March 8, 2019, Memo to the Federal Open Market Committee. federalreserve.gov/monetarypolicy/files/FOMC20190308memo02.pdf.

[17] Viral V. Acharya and Raghuram Rajan. 2024. "Liquidity, Liquidity Everywhere, Not a Drop to Use: Why Flooding Banks with Central Bank Reserves May Not Expand Liquidity." *Journal of Finance*, 79(5): 2943–2991.

Balance Sheet Composition in the Longer Term

Tools, tradeoffs, and assessing the level for ample reserves will all be relevant in the near to medium term. But we also need to think about what the balance sheet should look like over a longer horizon.

First, regardless of the size, there is the question of composition: What assets should SOMA hold? I fully agree with the sentiment expressed in the January 2022 set of principles that the Federal Reserve should aim to hold a portfolio primarily consisting of Treasury securities. This portfolio removes the FOMC from direct credit allocation in normal times, something which should be left to fiscal policymakers. Removing agency mortgage-backed securities (MBS) from the balance sheet is not so simple, however. Many of the MBS on the Fed's balance sheet have very low interest rates, which likely means that prepayment rates will be low and some of the MBS could be very long lived.

So the Committee at some point will face a key question: Should we let MBS continue to roll off passively or speed up the transition to an all-Treasuries portfolio through sales? In order to speed up the transition, the Committee could make the active decision to sell securities, as opposed to the passive decision to simply let these securities mature. When and if the Committee makes such an active decision, it could set a precedent for the exit from future purchase programs, with associated implications for the cost of credit. Ultimately, this decision will depend on many factors, and there is no need to make it today.

Beyond agency securities, what should a largely Treasuries balance sheet look like, and how quickly do we try to get there? As a legacy of past purchases made when the funds rate was constrained by the ZLB, the Fed holds a substantial amount of duration. In April 2006, Treasury bills were more than 35 percent of SOMA assets. In March 2025, they were down to 3 percent. Over the same period, the weighted average maturity of Treasury securities in SOMA holdings rose from under four years to more than eight years.[18]

Increasing the duration of the Fed's holdings makes sense when the FOMC is trying to stimulate the economy and is constrained by the ZLB. It helps lower term premia and longer-term interest rates that are relevant to borrowing decisions. Holding a large amount of duration may make less sense when monetary policy needs to turn restrictive to bring down inflation—even if the balance sheet is not the primary tool of monetary policy.

This raises the question, if a steady-state balance sheet is meant to be neutral, what does neutral mean? One interpretation would be to purchase securities in proportion to what is being issued by Treasury, which is the current approach. Alternatively, we could aim to match the maturity profile of Treasury's debt outstanding. A third option would be to better match the interest rate risk profile of our assets and liabilities. Given that reserves are a floating rate liability, should the asset side be biased to the shorter end of the maturity spectrum? This approach has the added advantage of providing flexibility during ZLB episodes, giving the FOMC the space to extend

[18] For security holdings, see Federal Reserve Bank of New York, "System Open Market Account Holdings of Domestic Securities," April 19, 2006, and March 26, 2025, via https://www.newyorkfed.org/markets/soma-holdingsnewyorkfed.org/markets/soma-holdings. For weighted average maturities, see Rajdeep Sengupta and A. Lee Smith. 2024. "Considerations for the Longer-Run Maturity Composition of the Federal Reserve's Treasury Portfolio." Federal Reserve Bank of Kansas City, *Economic Bulletin*. kansascityfed.org/research/economic-bulletin/considerations-for-the-longer-run-maturity-composition-of-the-federal-reserves-treasury-portfolio/.

asset duration if and when needed. It sets up a "regular season" balance sheet that is prepared for the higher pressures of the playoffs. However, it is an open question whether asset–liability matching should be a first-order concern for the FOMC.

Finally, while financial stability considerations are aligned with monetary policy needs much of the time, this is not always the case. In cases when they are not aligned, would it be possible to separate market-functioning balance sheet actions from all other actions? This approach could prove helpful to unwinding the market-functioning actions in a timely manner.[19] The Bank of England's actions in 2022 may provide a relevant example. In that case, while the Monetary Policy Committee was raising rates to combat high inflation, the Financial Policy Committee engaged in temporary, targeted, long-term gilt purchases in September 2022 "to restore market functioning and reduce any risks from contagion to credit conditions."[20] Having successfully contributed to restoring market functioning, the BOE unwound its purchases by January 2023.[21] Similarly, the Fed unwound its pandemic purchases of corporate bonds and ETFs by the end of 2021.[22] While it is not clear that separation between market functioning purchases and policy purchases is necessary in theory, in practice there could be communications and coordination benefits from this type of approach to segmenting the balance sheet.

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[19] For a discussion of the design of such programs, making a distinction between balance sheet actions for market functioning and quantitative easing, see Darrell Duffie and Frank Keane. 2023. "Market-Function Asset Purchases" Federal Reserve Bank of New York, Staff Reports No. 1054. newyorkfed.org/research/staff_reports/sr1054.html.

[20] See Bank of England, "Bank of England announces gilt market operation," 28 September 2022, https://www.bankofengland.co.uk/news/2022/september/bank-of-england-announces-gilt-market-operation.

[21] For more information on this episode, see Paul Alexander, Rand Fakhoury, Tom Horn, Waris Panjwani, and Matt Roberts-Sklar. 2023. "Financial Stability Buy/Sell Tools: A Gilt Market Case Study." Bank of England, Quarterly Bulletin 2023. bankofengland.co.uk/quarterly-bulletin/2023/2023/financial-stability-buy-sell-tools-a-gilt-market-case-study.

[22] For more information, see Board of Governors of the Federal Reserve System, "Federal Reserve Board announces plans to begin winding down the portfolio of the Secondary Market Corporate Credit Facility," 02 June 2021, https://www.federalreserve.gov/newsevents/pressreleases/monetary20210602a.htm.

Conclusion

Let me briefly conclude by thanking you again for the opportunity to join you tonight. While I've raised a number of questions, I hope I've been clear on the key issues: Rapidly expanding the balance sheet is easy, but shrinking it with minimal market impact is harder and takes more time, especially after purchasing a lot of long-dated assets. While the initial actions are justified by financial and economic circumstances, the return leg of the trip can be quite lengthy. And with that, I look forward to our discussion.