

US Short Interest Rates Primer

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Contents table

• Federal Reserve policy	p. 2
• RRP and SRP	5-14
• Fed funds market	17-21
• Federal Reserve balance sheet mechanics	22
• Assets and liabilities	23-27
• Reserves	28-34
• Discount window	35
• Short-term rates	43
• Repo types, settlement and clearing	44-62
• Deposits	63
• Money funds	78-80
• Bills and Treasury issuance	81
• Optimal maturities and debt service costs	82-90
• Debt ceiling	93
• Stablecoins	98

Subjects link directly to the relevant content.

Federal Reserve policy regime

Rate target

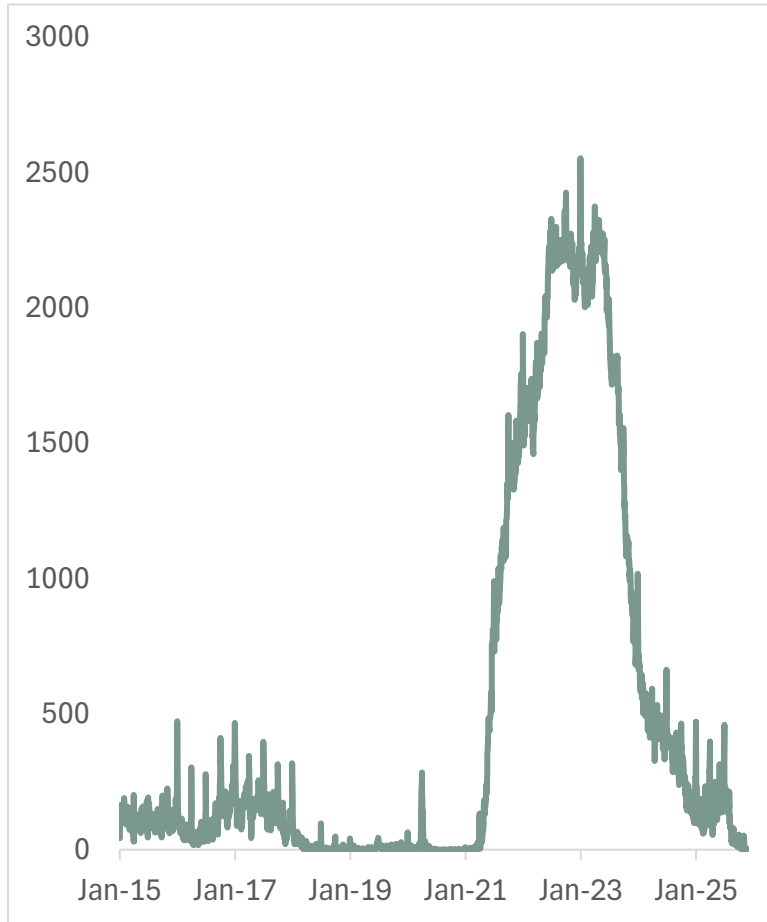
- The Fed targets a policy interest rate within a 25bp band
 - Currently, the policy rate is the fed funds rate
 - Which reflects the price of bank reserves
- Bank reserves are the balances banks maintain at the Fed
 - For clearing and settlement
- The Fed seeks to maintain a sufficiently ample level of reserves so that it does not need to regularly add (or subtract) balances
 - To keep the fed funds rate within the target range
- An ample reserve regime requires a larger Federal Reserve balance sheet

Support rates

- To keep the fed funds rate within its target bands the Fed uses three administered rates:
 - RRP – the reverse repo rate
 - SRP – the standing repo program rate
 - IORB – the interest rate on reserve balances
- Mechanically:
 - RRP is set at the bottom of the Fed's target band
 - SRP is set at the top of the Fed's target band
 - And, IORB is currently 10bp below the top of the target band
- Each of these rates serves different purposes and the programs have different participants

Reverse repo program

RRP balances (\$bn)

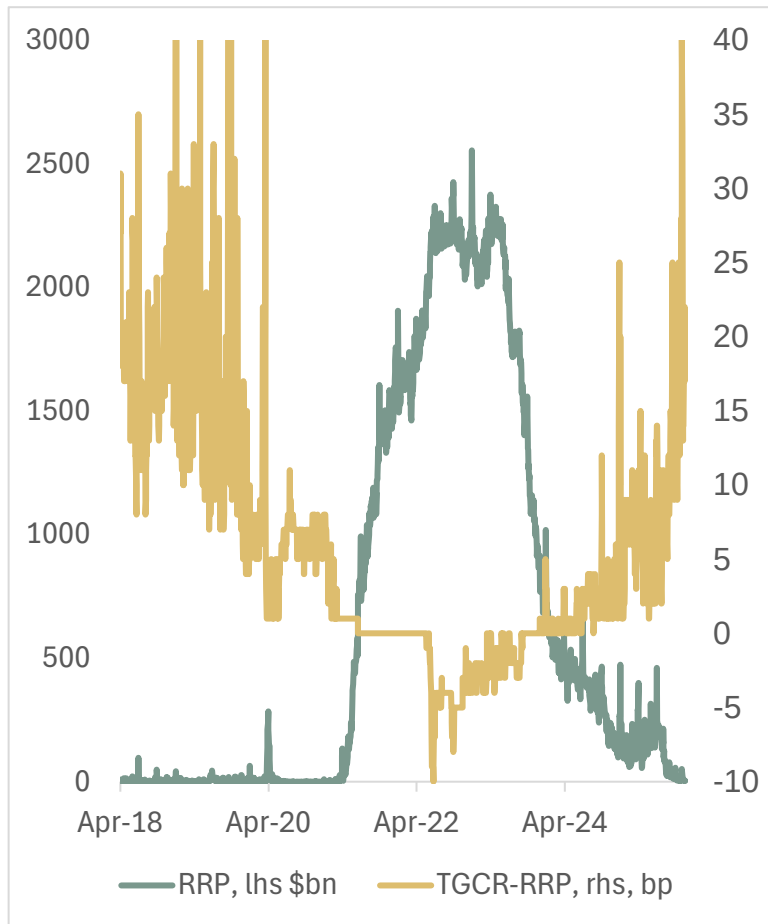


- The RRP program mops up surplus liquidity and is designed to be the economy's interest rate floor
 - Participants pledge their cash to the Fed in return for overnight Treasury collateral from the Fed's holdings
- Although the program is open to banks, dealers and GSEs, money funds are the heaviest users
 - Because they are unable to earn IORB

Sources: Federal Reserve, SMBC Nikko

Reverse repo program

RRP balances and TGCR-RRP (\$bn, bp)



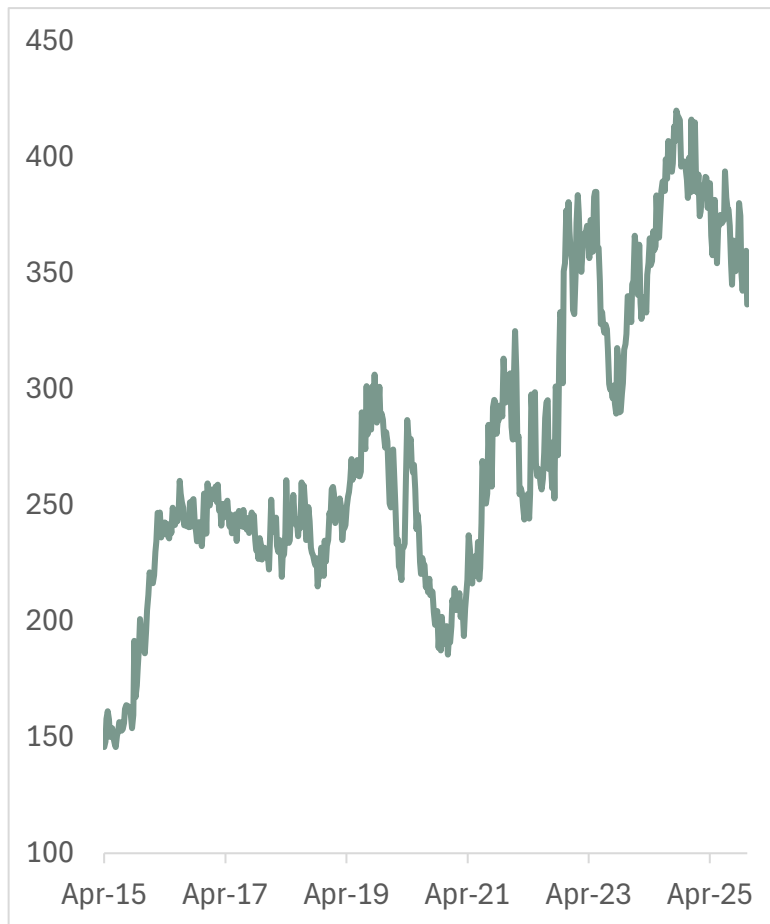
- RRP balances have evaporated as bank reserves have fallen
 - And money funds now earn more in the repo market (at TGCR) than the Fed's program rate^{1/}
 - Money funds no longer need to rely on the RRP to absorb their excess cash

Sources: Federal Reserve, SMBC Nikko

1/ See slide 57 for a description of TGCR.

Foreign RRP program

Foreign RRP (\$bn)



- Foreign official institutions have access to an RRP facility of their own
 - Their cash is collateralized with Treasury collateral from the Fed's portfolio
- The rate on the program is the same as the domestic program
- Currency interventions frequently use funds from the foreign RRP.

Sources: Federal Reserve, SMBC Nikko

Standing repo program (SRP)

- The standing repo program is designed to put a soft ceiling on overnight funding rates. *It is meant to be a normal part of dealers' normal liquidity management*
 - Participants pledge collateral to the Fed in return for reserves
 - Collateral is limited to Treasuries, Agencies and MBS
- Participants include primary dealers and banks that have signed up in advance to participate
- The auctions are conducted twice a day – in the morning at 8.15am and again in the afternoon at 1.30pm
 - Participants bid competitively for financing
 - Subject to a minimum bid rate that is set equal to the top of the fed funds target band
 - The Fed removed the program's operating cap in December
- Funds raised in the SRP are typically delivered within 30m of the operation's closing time

Clearing the SRP

- Transactions in the SRP are currently not centrally cleared
 - And, as a result, dealers cannot net down their balance sheet when they lend the cash raised to their clients^{1/}
- We assume the program will be centrally cleared although the timing is unclear
 - Likely through some type of remote access model (perhaps, “collateral in lieu”)^{2/}
 - Central clearing SRP transactions might increase program use when market rates trade above the minimum bid rate
- But at its October 2025 FOMC meeting, the Fed Board’s staff noted some costs associated with clearing which would:
 - Increase the systemic importance of the clearing platform (FICC, currently)
 - Expand the Fed’s footprint in financial markets
 - And might increase leverage in the Treasury market among non-bank lenders
- The Fed plans further study

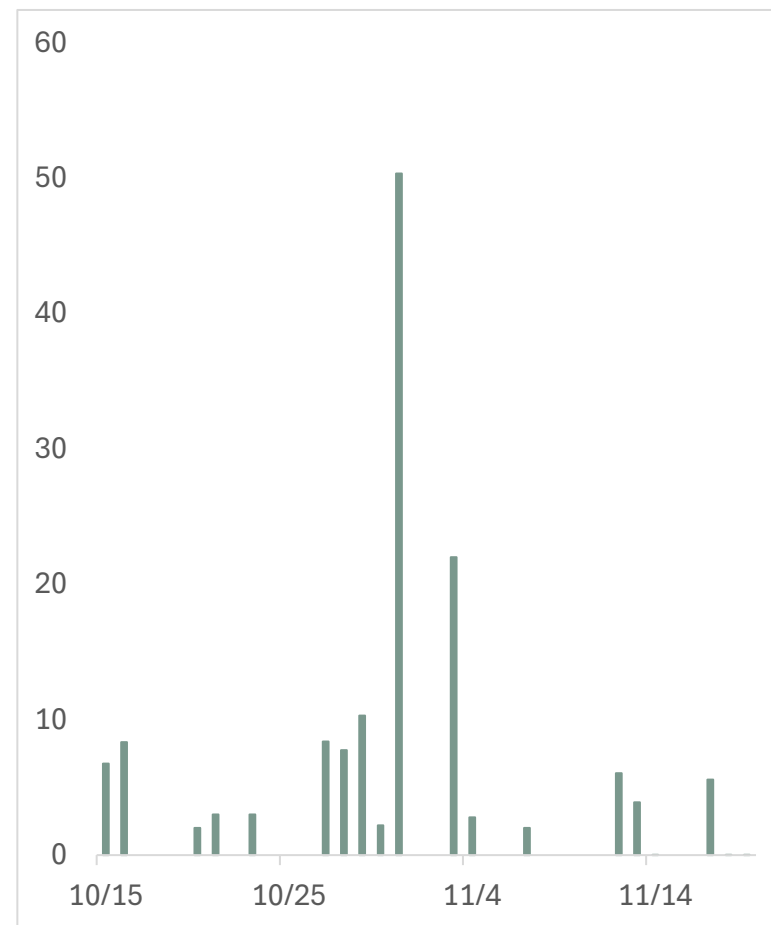
1/ See slide 12.

2/ In CiL, the Fed would have a lien on the collateral pledged in the Bank of New York tri-party box, which it could pull back in the event its counterparty defaults. The Fed would not become a member of the FICC and would not have to post margin on its trades.

Standing repo program volumes

- The frequency of program use picked up in October and November 2025
 - As overnight repo rates moved higher
 - And the level of bank reserves became thinner
- Nevertheless, the amounts borrowed have been very small

SRP volumes (\$bn)



Note: Against all collateral and both daily operations. Sources: Federal Reserve, SMBC Nikko

SRP: Why is use low?

- *But a significant amount of tri-party repo transactions are occurring at rates above the minimum bid rate on the SRP – that is, at uneconomical rates*
- Is this because of stigma concerns?
- Or is it because dealers are less willing to negotiate with money funds for lower tri-party rates by going to the Fed program?
 - Instead, they may value maintaining stable funding relationships with money funds and thus might be unwilling to press too hard for a lower financing rate
 - Especially if the heaviness is expected to be temporary
- This suggests that the psychological bargaining power of the SRP to rein in market rates may be more muted
- *But the Fed expects this to fade over time*
 - *And as it reminds dealers that the program is meant to be a normal part of their daily liquidity management*

Stigma?

- Like the Fed's other liquidity programs, usage of the SRP is publicly disclosed
 - Operation amounts are reported immediately after the operation
 - But participants' names are reported with a two-year lag
- In the March 2025 Senior Financial Officer Survey, banks were asked about their attitudes toward the SRP^{1/}
 - Public disclosure was a key concern
 - For both domestic and foreign banks
- *Reputational concerns reflect management psychology, fears of bank regulator scrutiny as well as worries about attracting market attention*

SRF attitudes (scale -4 to 4)



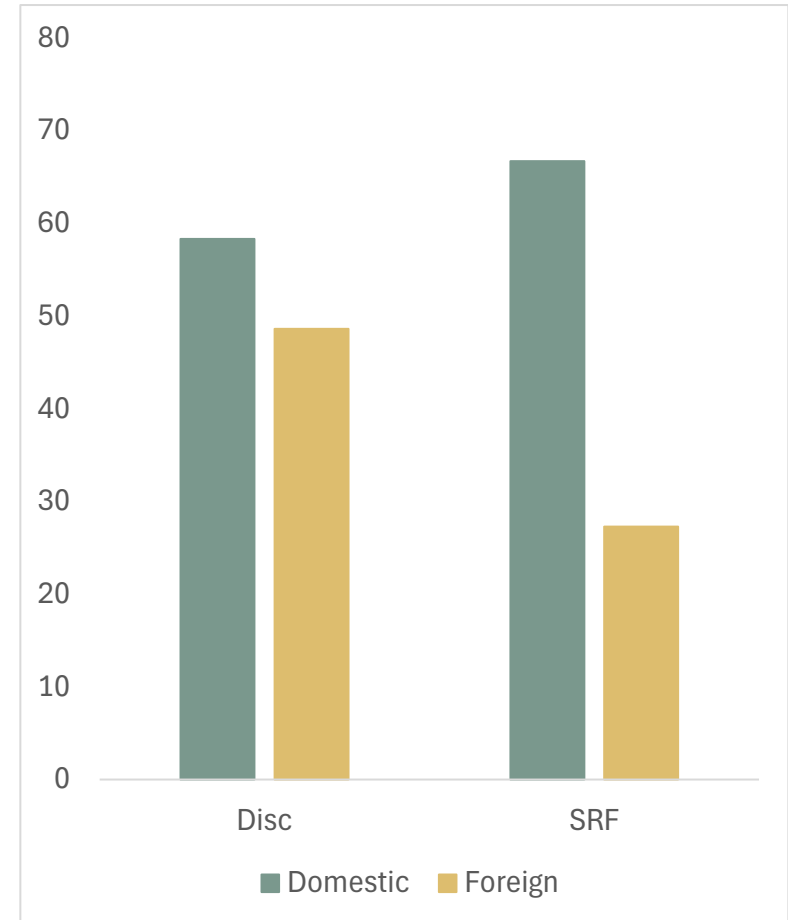
1/ See "[Senior Financial Officer Survey](#)", Federal Reserve Board, March 2025.

Note: -4 "strongly discourages" use while 4 "strongly encourages use."
Sources: Federal Reserve, SMBC Nikko

Do banks include borrowing from the Fed in their liquidity plans?

- In addition to reserves, banks hold liquid assets (such as Treasuries) that they can monetize in a funding crisis
- They can include discount window and SRP access in their regulatory stress test planning to monetize these assets
 - But not all banks assume access
 - And non-US banks seem more reluctant to incorporate SRP access into their liquidity stress testing^{1/}

Indicating borrowing is included (%)



1/ See "[Senior Financial Officer Survey](#)", Federal Reserve Board, September 2025.

Sources: Federal Reserve, SMBC Nikko

SRP: Policy dilemma

- Frequent but small use of the SRP raises an interesting policy dilemma – especially when there are transactions that occur above the program rate
 - How frequent should program use be if reserves are ample?
 - Is frequent – almost daily use – an indication of reserve scarcity or a sign that the program is being used as a normal supplemental funding source?
 - How much use?
 - While the Fed removed the cap on the program in December, average daily use between mid-October and mid-November 2025 was only \$6bn/day^{1/}
 - Which hardly suggests that the market is experiencing funding pressure
 - Although, repo rates suggest otherwise^{2/}

1/ Across all collateral and both daily operations.

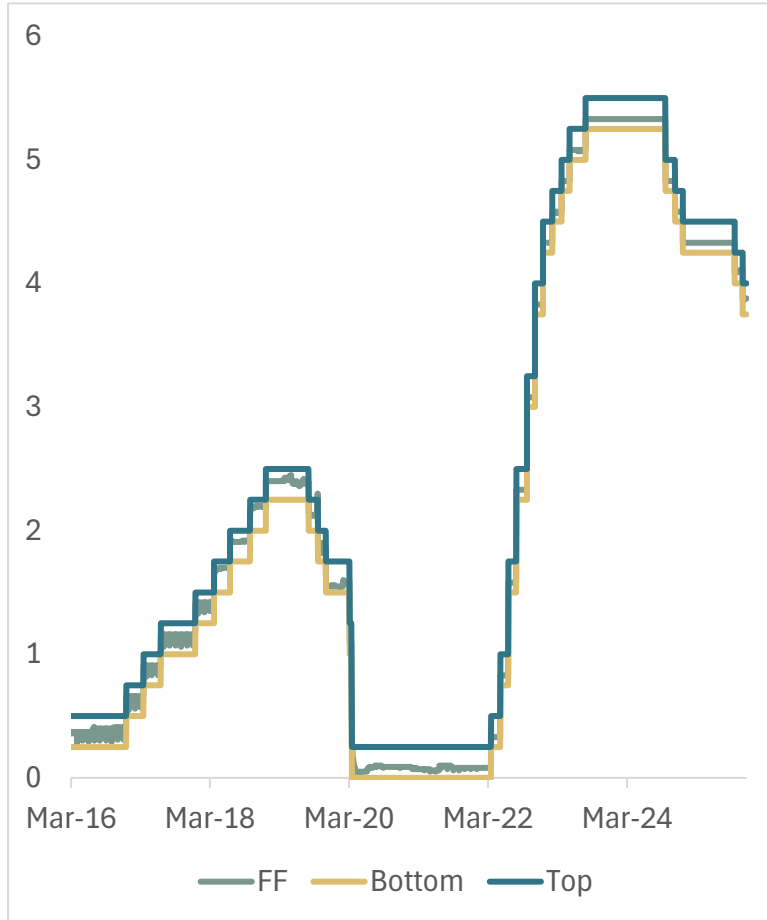
2/ This point was recently raised by Dallas Fed President Logan, see “[Ample Liquidity for a Safe and Efficient Banking System](#)”, Federal Reserve Bank of Dallas, October 31, 2025.

IORB: Interest on reserve balances

- The Fed pays banks interest on their reserve balances
 - The payment is meant to encourage banks to hold liquidity buffers at the Fed in the form of reserves
 - As unremunerated balances might prompt banks to minimize their liquidity holdings
 - Which could create systemic risk
- Currently, the IORB rate is set 10bp below the top of the policy band although the Fed has adjusted this spread in the past to bring down overnight interest rates
- While the GSEs can leave their cash at the Fed, their balances are unremunerated. Likewise, money funds and primary dealers are unable to earn IORB and must instead use the RRP
 - Banks can use the RRP but they prefer to keep their cash in reserve deposits because the IORB rate is higher
- IORB is not designed to be a ceiling on overnight rates
 - Although where overnight rates trade in relation to IORB is an important indicator of reserve scarcity

Fed funds targeting

Fed funds (%)



- The Fed has successfully kept the effective fed funds rate within its target bands
 - In spite of a large balance sheet

Sources: Federal Reserve, SMBC Nikko

Fed funds market

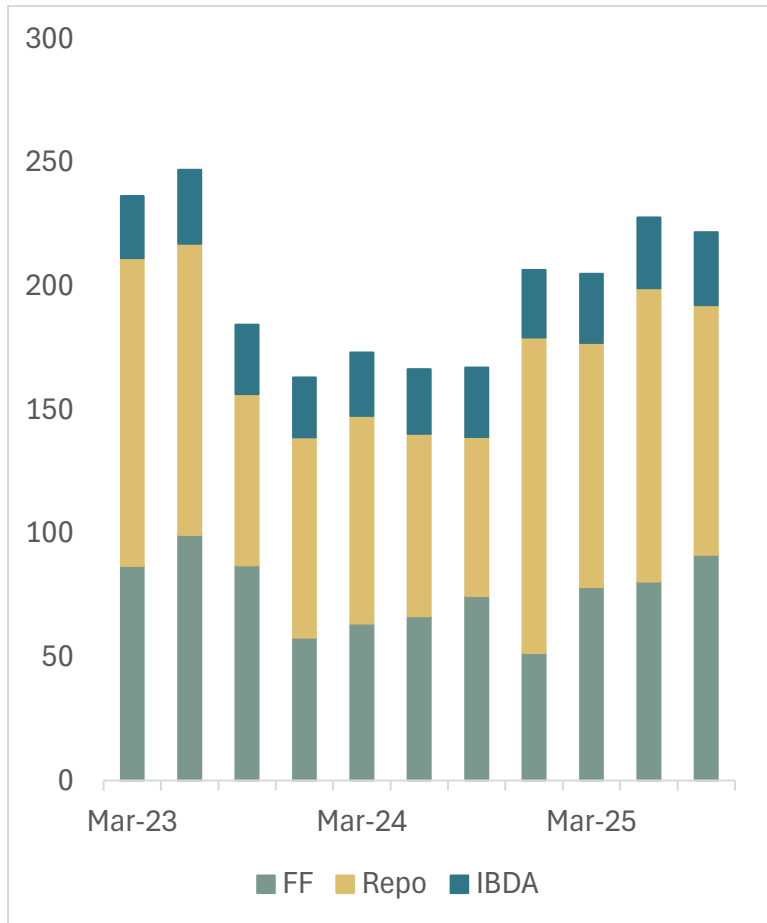
- In an ample reserves regime, the scope of the fed funds market has narrowed
- Banks do not need to borrow in the market to top up their reserve balances
 - And instead, if bank reserves are ample, the market reflects an arbitrage between the FHLBs and non-US banks^{1/}
- The FHLBs are unable to earn IORB so they sell their cash into the fed funds market where non-US banks (with access to IORB) borrow the funds and earn the spread between fed funds and IORB
 - Overnight fed funds transactions unwind early the following morning^{2/}
 - So, the FHLBs can receive their cash back early enough to accommodate any sudden or unexpected increase in the demand for advances
- Domestic banks do not participate in the arb because their activity is subject to deposit insurance assessments tied to the size of their assets
 - Deposit insurance assessments are between 5-8bp

1/ The Federal Home Loan Banks are government sponsored banks that provide liquidity to banks to support home lending. They provide liquidity through collateralized loans known as advances. Advances can be collateralized with securities or whole loans.

2/ FHLBs also keep some of their cash in tri-party repo, but most of these transactions unwind the following afternoon. See next slide.

Fed funds lending

FHLB cash holdings (\$bn)

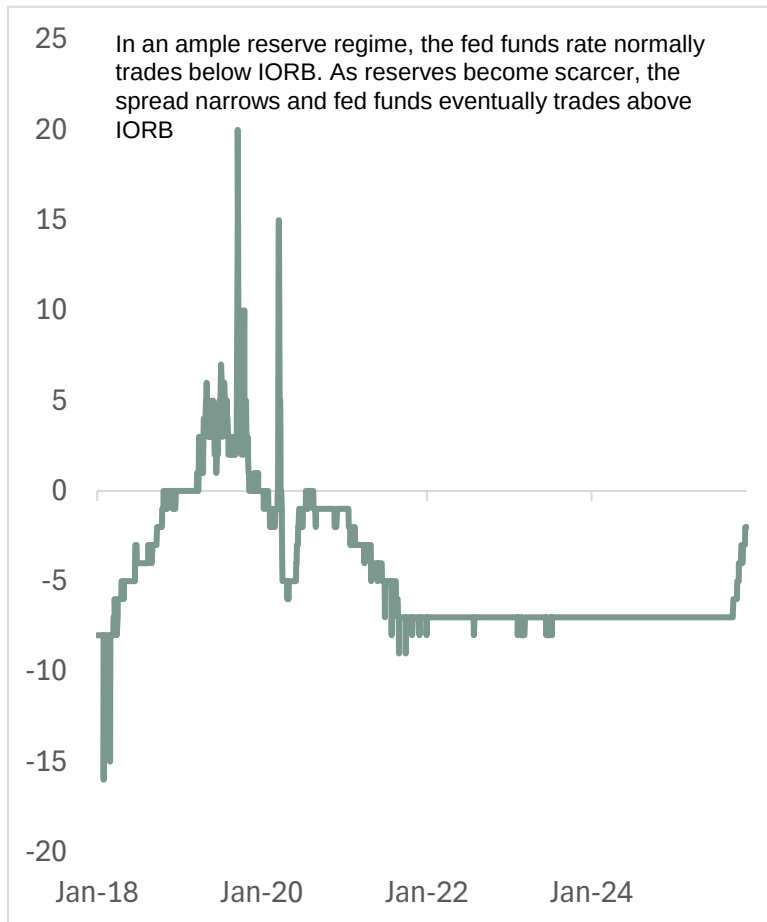


- The FHLBs account for nearly all the lending in the fed funds market
 - They can also invest their cash in repo and interbank deposits (IBDAs)
 - Yields on IBDAs are higher than fed funds
 - And allow the FHLBs to invest their cash late in the day

Sources: FHLB, SMBC Nikko

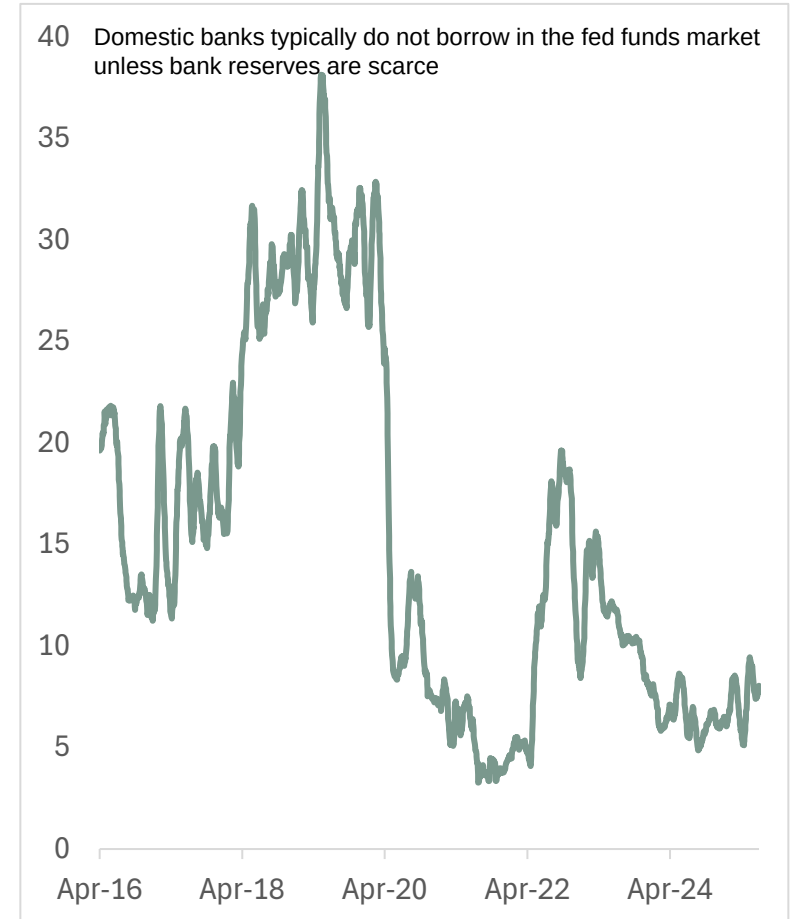
Fed funds trading

FF-IORB (bp)



Sources: Federal Reserve, SMBC Nikko

Domestic bank borrowing (% fed funds)

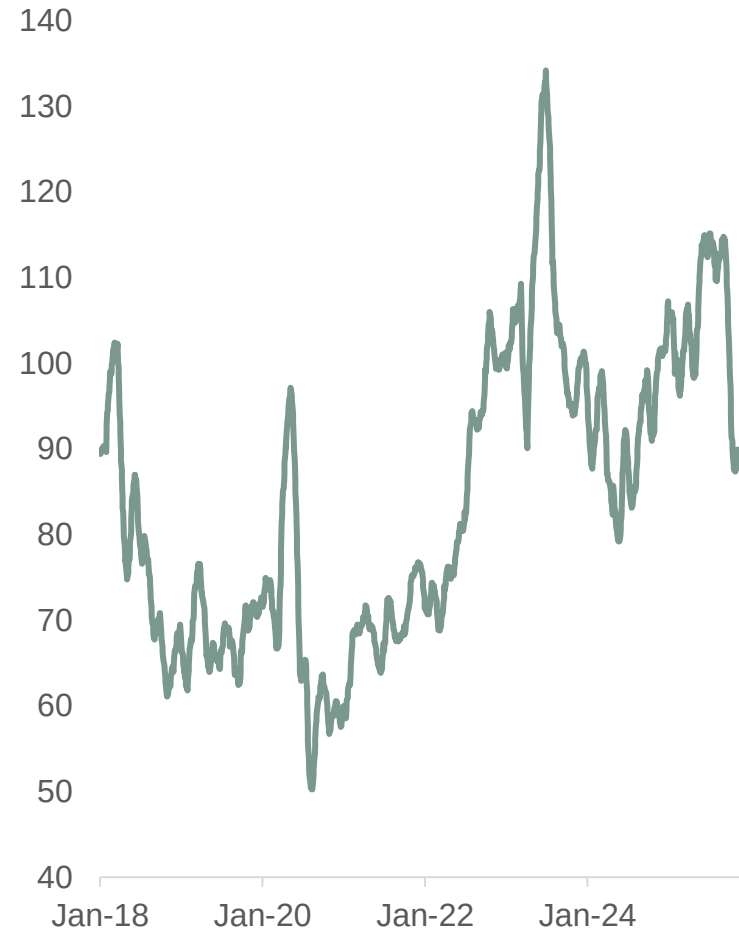


Sources: Federal Reserve, SMBC Nikko

Fed funds volumes

- But in an ample reserve regime, banks do not need to borrow in the fed funds market
 - To top up their reserve balances
- As a result, the fed funds market has shrunk from \$250bn/day to less than \$100bn/day
 - And become very idiosyncratic

Fed funds volumes (\$bn)



Note: 20d average. Sources: Federal Reserve, SMBC Nikko

Replacing fed funds

- Dallas Fed President has brought up replacing the fed funds rate as the Fed's policy target with the tri-party rate (TGCR)^{1/}
 - The Fed is no longer operating a scarce reserves regime, so banks do not need to borrow in this market to top up their intraday liquidity^{2/}
 - The narrowness of the market makes it vulnerable to changes in the behavior of either non-US banks or the FHLBs
 - Which could cause an abrupt plunge in its already thin activity
- The ideal replacement rate should be both a tool to communicate the Fed's policy intentions as well as an instrument to monitor liquidity conditions

1/ See "[Options for Modernizing the FOMC's Operating Target Interest Rate](#)", L. Logan and S. Schulhofer-Wohl, Federal Reserve Bank of Dallas, September 25, 2025.

2/ Assuming bank reserves are at least ample.

Federal Reserve balance sheet mechanics

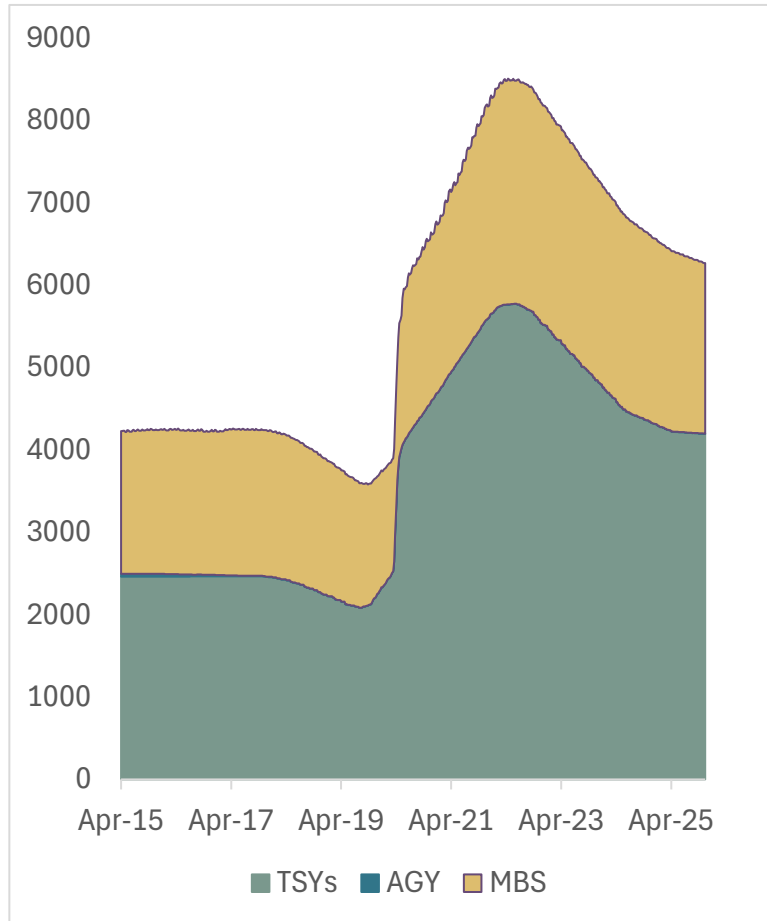
Federal Reserve balance sheet mechanics

- In an ample reserve regime, the Fed's portfolio of securities is large enough that it can "implement monetary policy efficiently and effectively"
 - Ample reserves allow the Fed to control interest rates through administered rates
 - Without the need for the Fed to adjust the supply daily
- While the size of the Fed's balance sheet determines the supply of reserves, banks' demand is a function of both their liquidity requirements and their decisions about how to meet these requirements^{1/}
 - Banks build buffers above their minimum regulatory requirements and their internal liquidity stress testing results
- *Overnight markets help to shift reserves from institutions with surpluses to those who are looking to increase their balances*

^{1/} Specifically, how banks decide to meet their LCR and internal liquidity requirements and the split between Treasuries, bank reserves, and GNMA debt in their Level 1 HQLA (high quality liquid assets).

QE and QT: Balance sheet expansion and contraction

Securities holdings (\$bn)

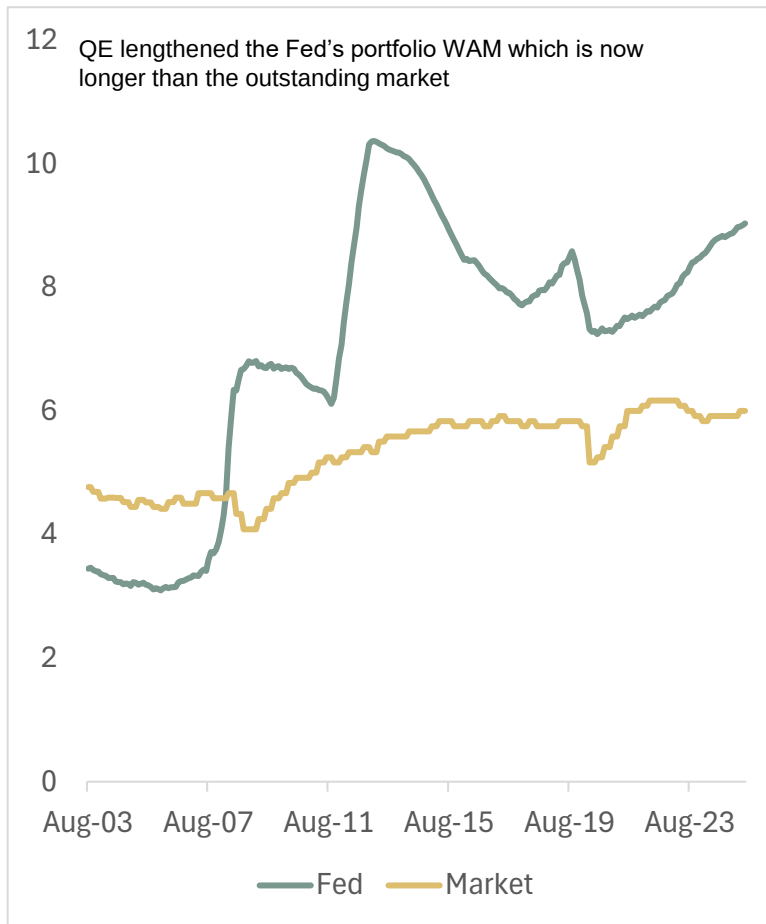


- The Fed buys securities to increase reserves through QE
 - It purchases Treasuries and MBS in the secondary market
 - Crediting the sellers' bank accounts with reserves (that previously did not exist)
- It can shrink its balance sheet and reduce the level of reserves by allowing the securities in its portfolio to mature without reinvestment (QT)

Note: The Fed holds a very small amount of Agency debt leftover from the financial crisis QE. Sources: Federal Reserve, SMBC Nikko

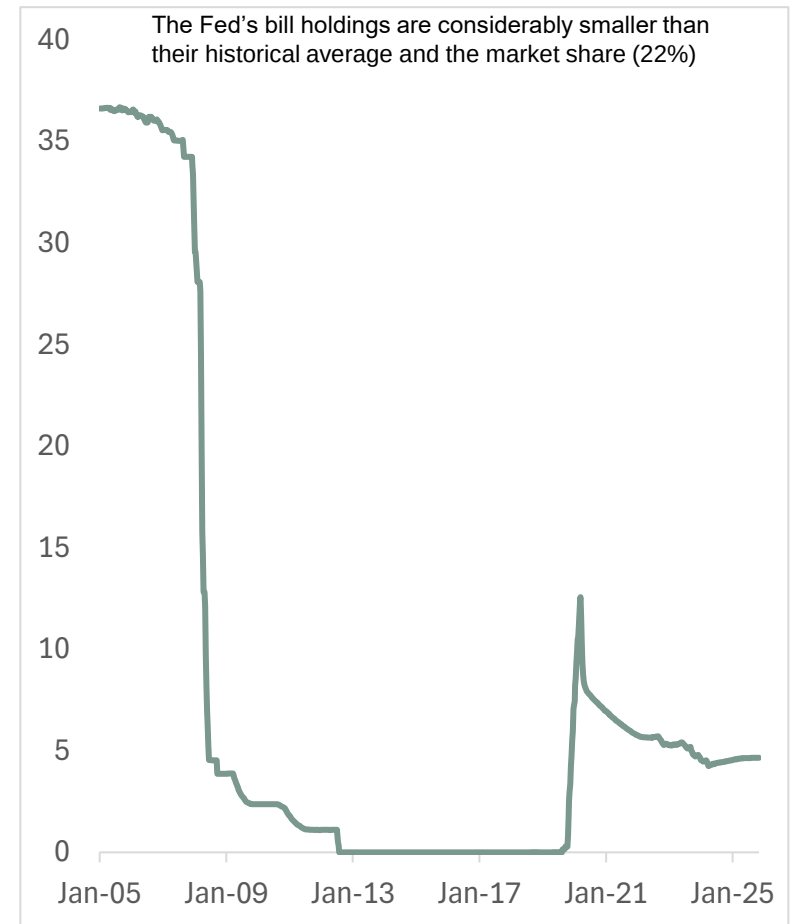
Federal Reserve bill holdings

Fed portfolio and market WAMs (y)



Sources: US Treasury, Federal Reserve, SMBC Nikko

Bills (% Fed Treasury holdings)



Sources: Federal Reserve, SMBC Nikko

The case for more bills^{1/}

- More bills would increase the Fed's operational flexibility and reduce the portfolio's influence on market rates outside of QE
 - A larger share of bills in the portfolio makes it easier for the Fed to do MEP (maturity extension purchases) where it exchanges bills for term debt to bring down term rates^{2/}
 - Without expanding its balance sheet
- But it is unclear how quickly the Fed wants to get to a more bill-heavy portfolio^{3/}
 - If the Fed invests all its MBS, liability offsetting, and reserve management purchases it could reach "bill neutrality" by 2029^{4/}
 - This would require annual secondary bill market purchases of \$300-\$350bn/y over the period.
- However, a bill-heavier portfolio will also mean that the market must absorb more term debt.
 - Assuming no changes in Treasury issuance, this could increase term premia^{5/}
- *In the long run, once its bill holdings have been normalized, most Fed officials favor a market neutral portfolio that matches the WAM of the debt outstanding^{6/}*

1/ See slide 25.

2/ The Fed successfully engaged in \$670bn of MEPs beginning in September 2011.

3/ The Minutes from the October 2025 FOMC meeting suggest some Fed officials had concerns about the pace of transition and the potential to create disruption in the bill market.

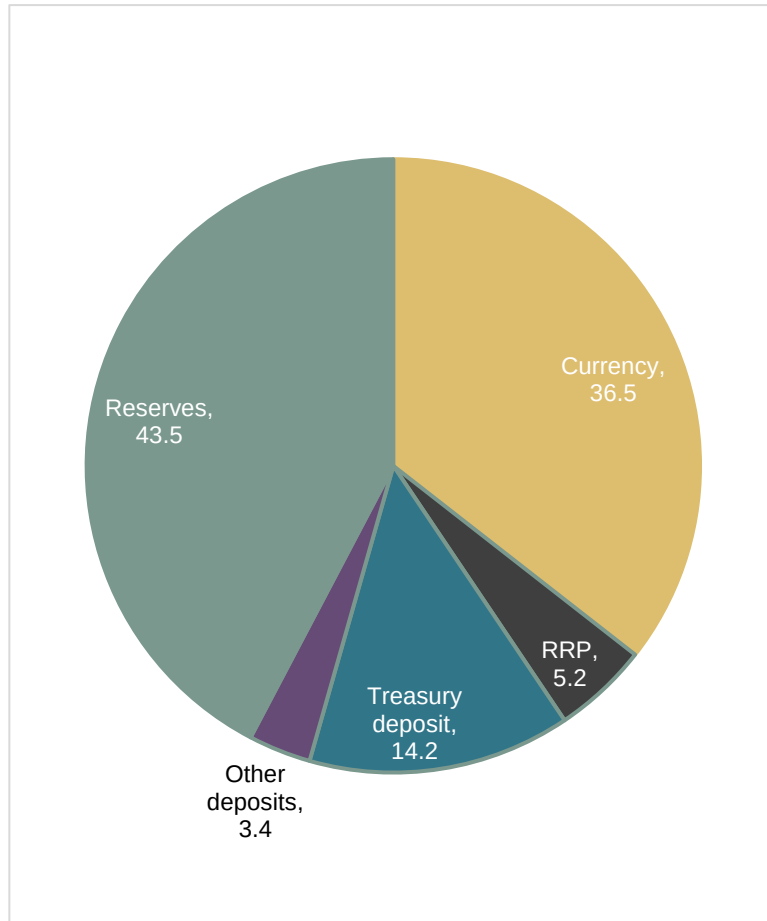
4/ We define bill neutrality as the point at which the Fed's bill holdings match the current bill/debt share (of 22%).

5/ See "[Transitioning to the Long-run Composition of the SOMA Portfolio: A Preliminary Analysis](#)", FOMC preparation material, April 19, 2019.

6/ See [October 2025 FOMC Minutes](#).

Federal Reserve liabilities

Federal Reserve liabilities (%)

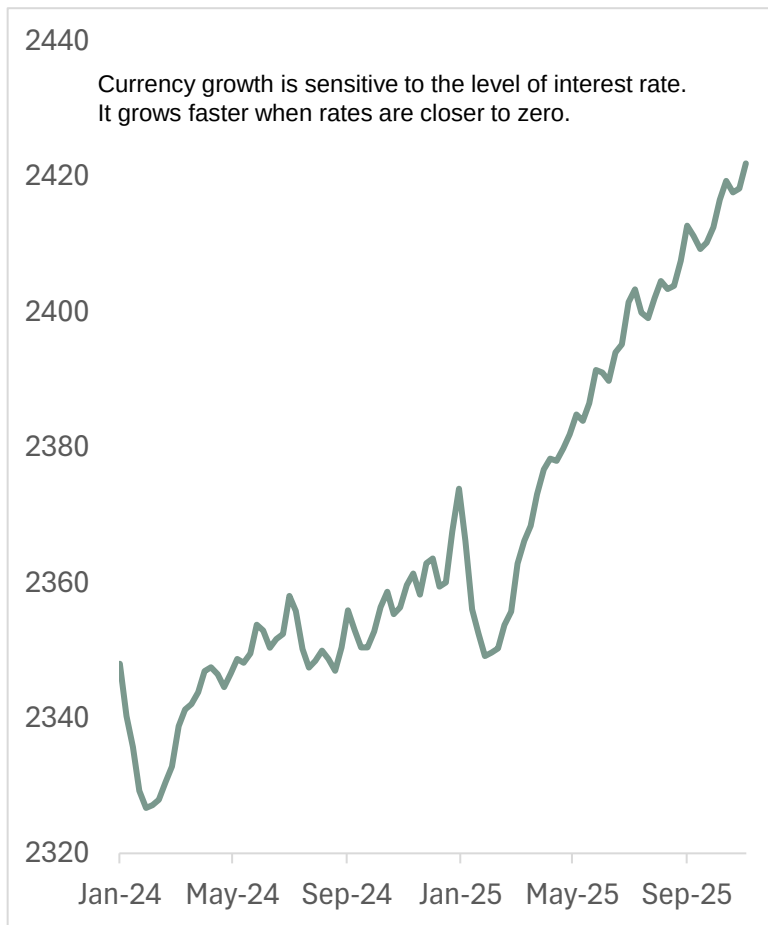


- While the Fed has control over the asset (portfolio) side of its balance sheet, the liability side is influenced by factors outside its control
 - Debt ceiling delays create swings in the Treasury's operating account at the Fed
 - And interest rates influence the growth of currency
- And, importantly, the demand for bank reserves is a function of (changing) bank preferences

Note: As of November 12, 2025. Sources: Federal Reserve, SMBC Nikko

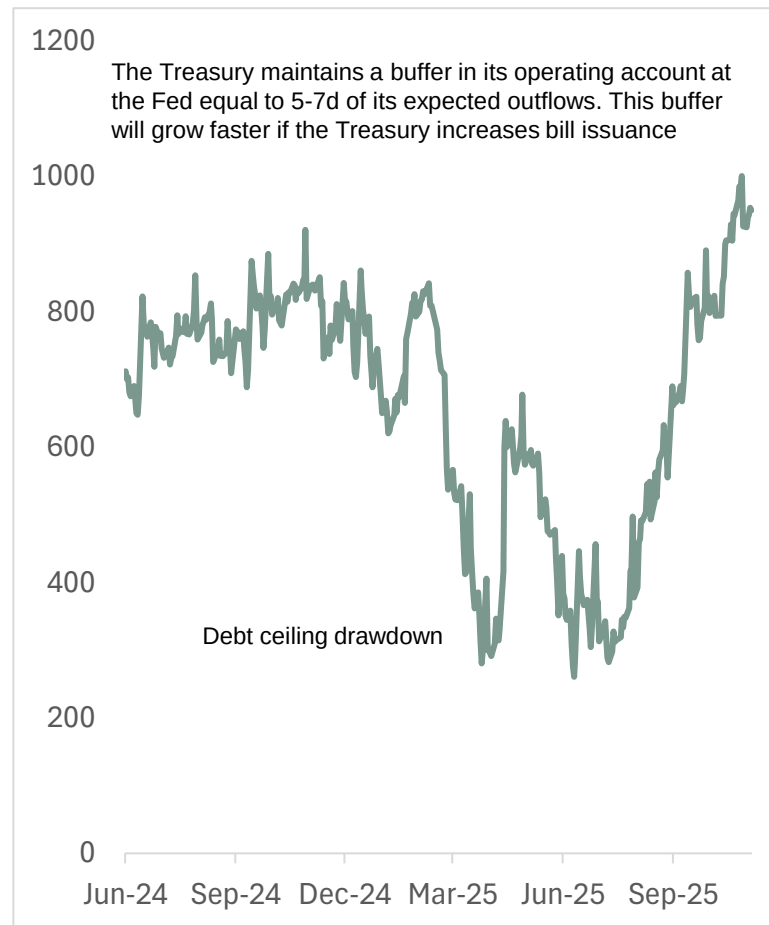
Federal Reserve: Other liabilities

Currency (\$bn)



Sources: Federal Reserve, SMBC Nikko

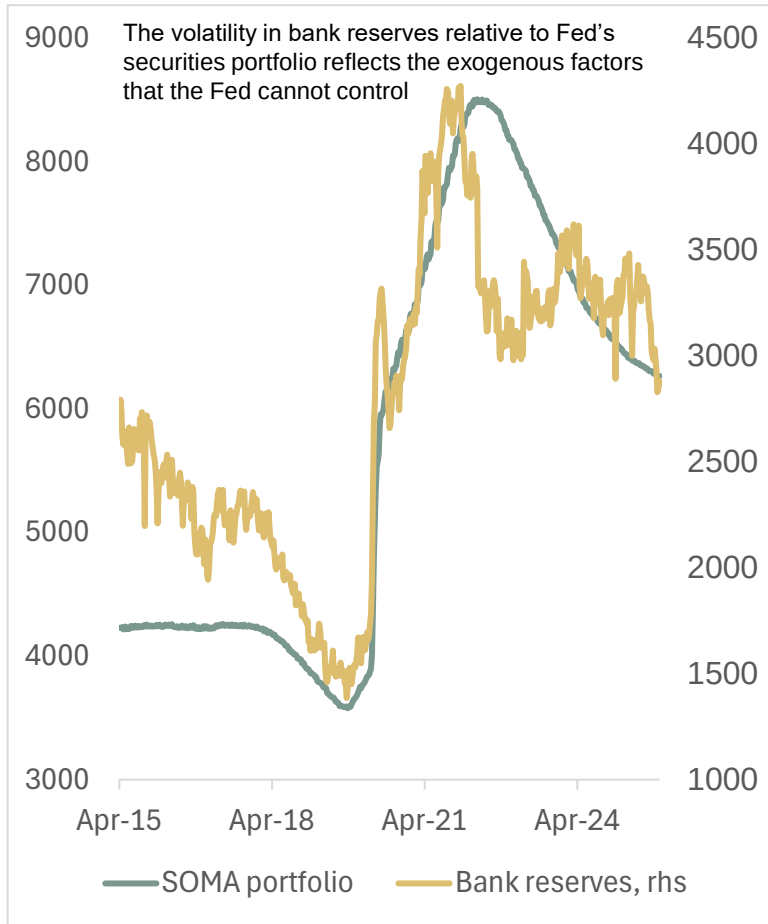
Treasury cash balance (\$bn)



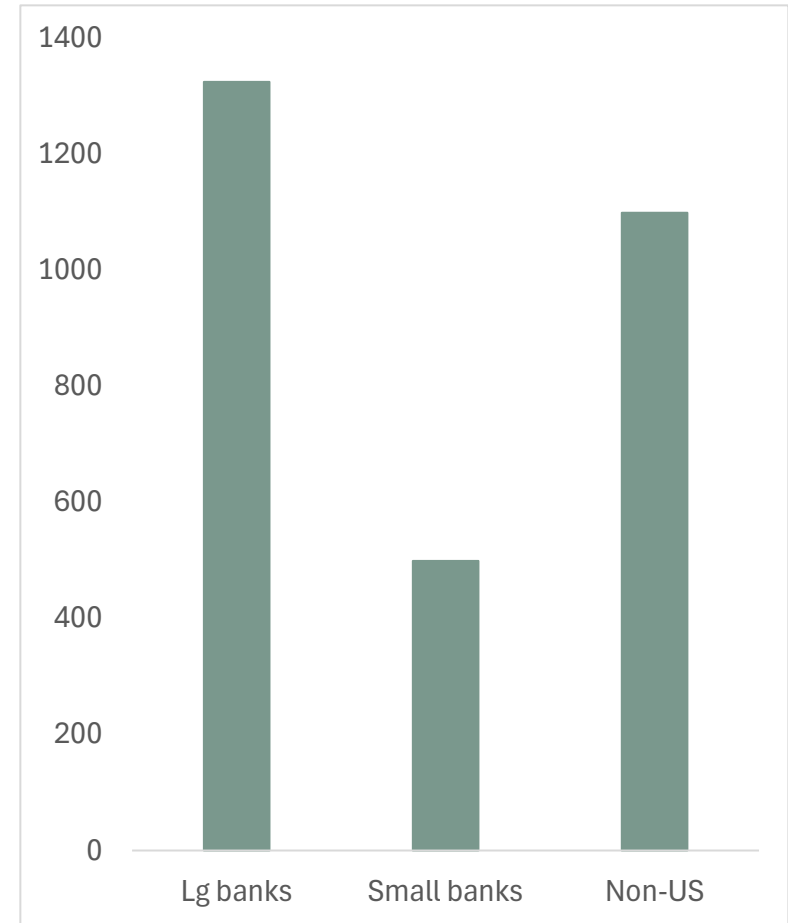
Sources: US Treasury, SMBC Nikko

Bank reserves

Bank reserves (\$bn)



Holdings by bank type (\$bn)



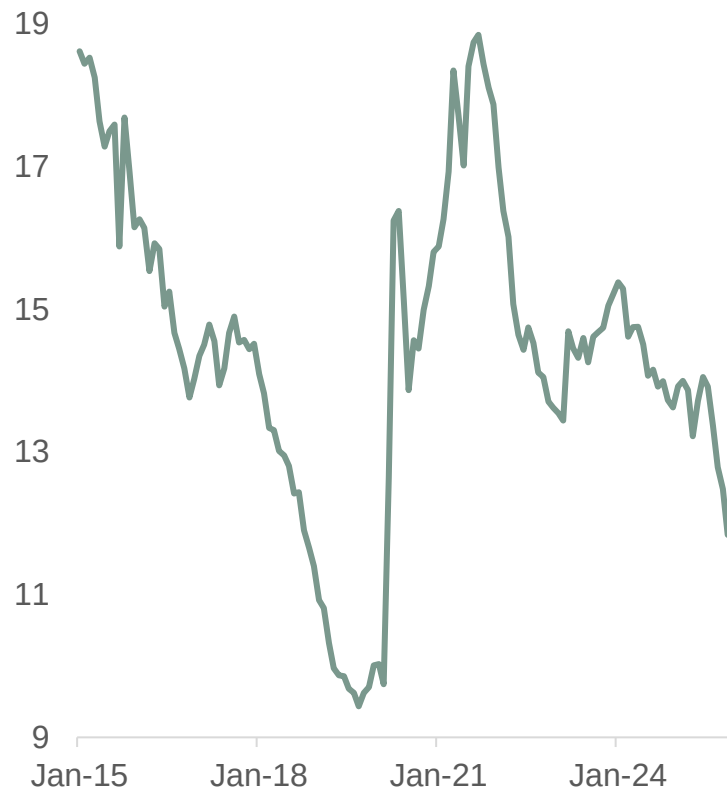
Sources: Federal Reserve, SMBC Nikko

Note: As of November 5, 2025. Sources: Federal Reserve, SMBC Nikko

Bank reserves: Measuring amplenness

Bank reserves (% bank assets)

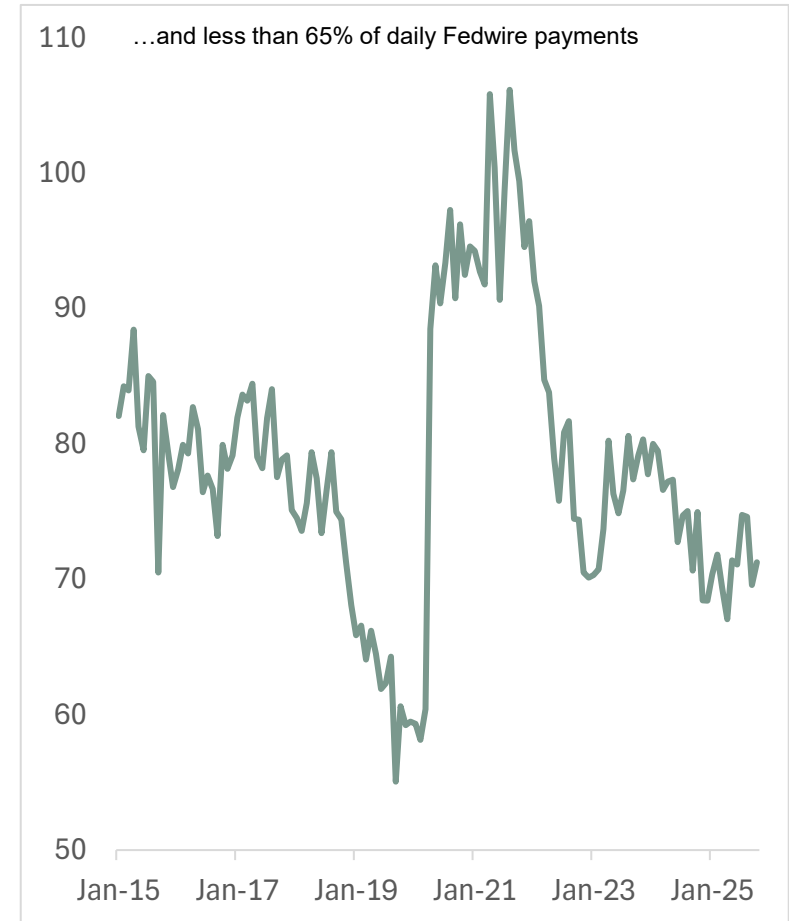
21 Reserves became scarce in 2019 at less than 10% of their assets...



Sources: Federal Reserve, SMBC Nikko

Bank reserves (% Fedwire payments)

110 ...and less than 65% of daily Fedwire payments

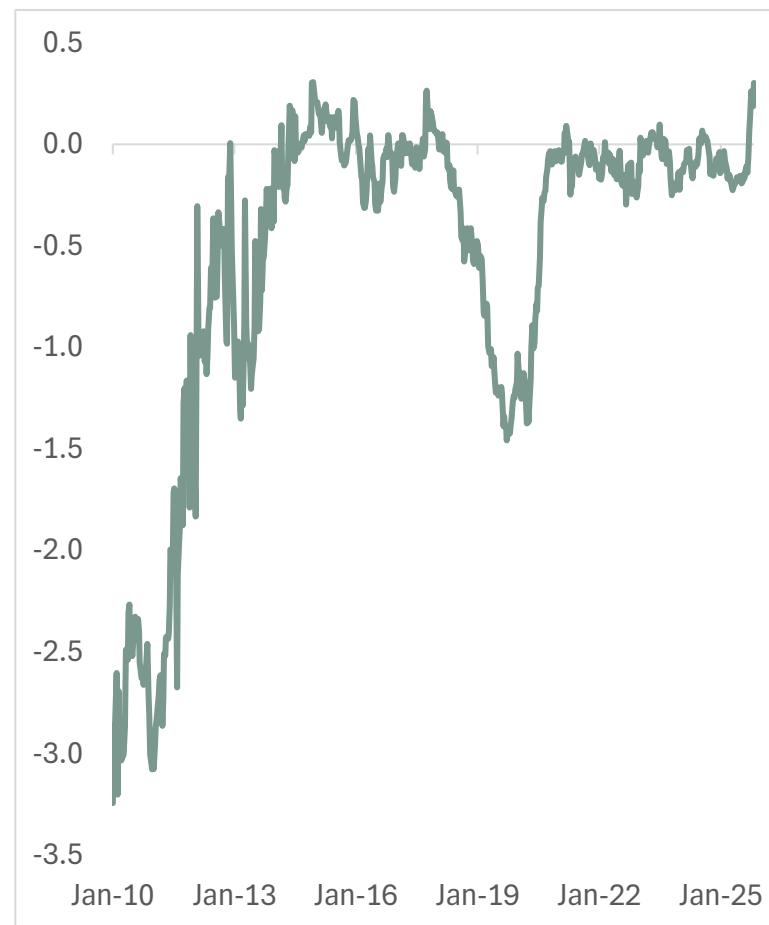


Sources: Federal Reserve, SMBC Nikko

Bank reserves: Measuring ampleness

- Reserve demand elasticity (RDE) measures the sensitivity (in bp) of a 1% change in the ratio of cash/bank assets on the FF-IORB spread.
 - It is the slope of banks' reserve demand curve
- When RDE is close to zero, the Fed can shrink the level of bank reserves without putting upward pressure on the fed funds rate
- But changes in fed funds trading may have reduced the strength of the signal from the RDE
 - And it may be better to define RDE using the spread between TGCR and IORB^{1/}

Median reserve demand elasticity (bp)

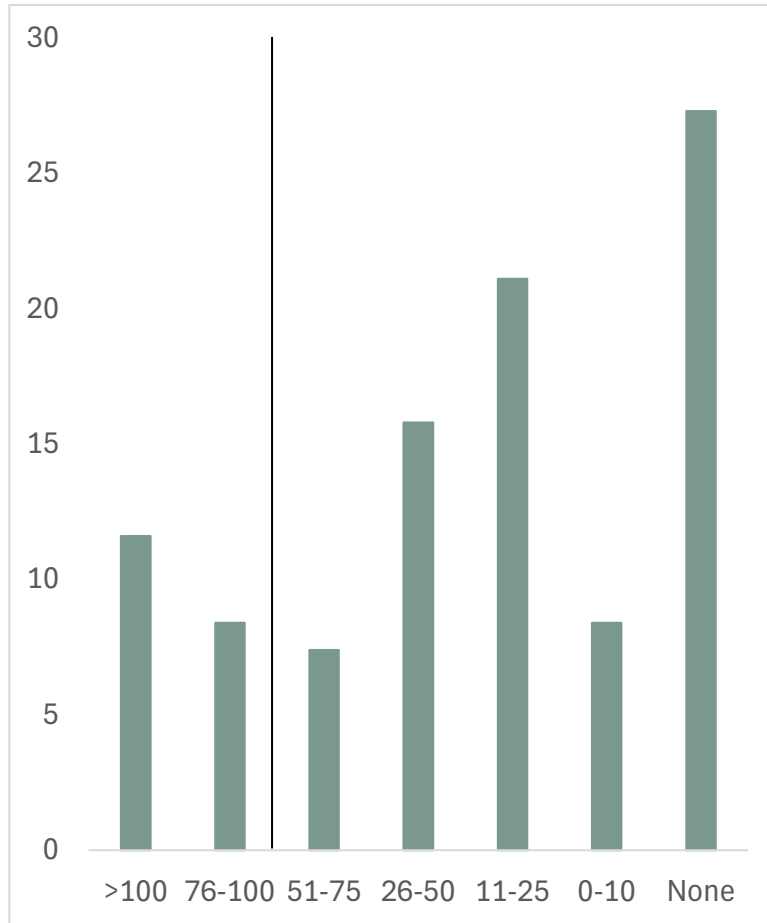


^{1/} See slide 19.

Sources: Federal Reserve, SMBC Nikko

Reserve demand: Survey evidence^{1/}

Percent balances over LCLoR (%)



- Most banks (72.6%) prefer to maintain reserve balances above their least comfortable level of reserves (LCLoR)
 - And nearly 20% of banks prefer to keep very large balances (>76%) above their LCLoR

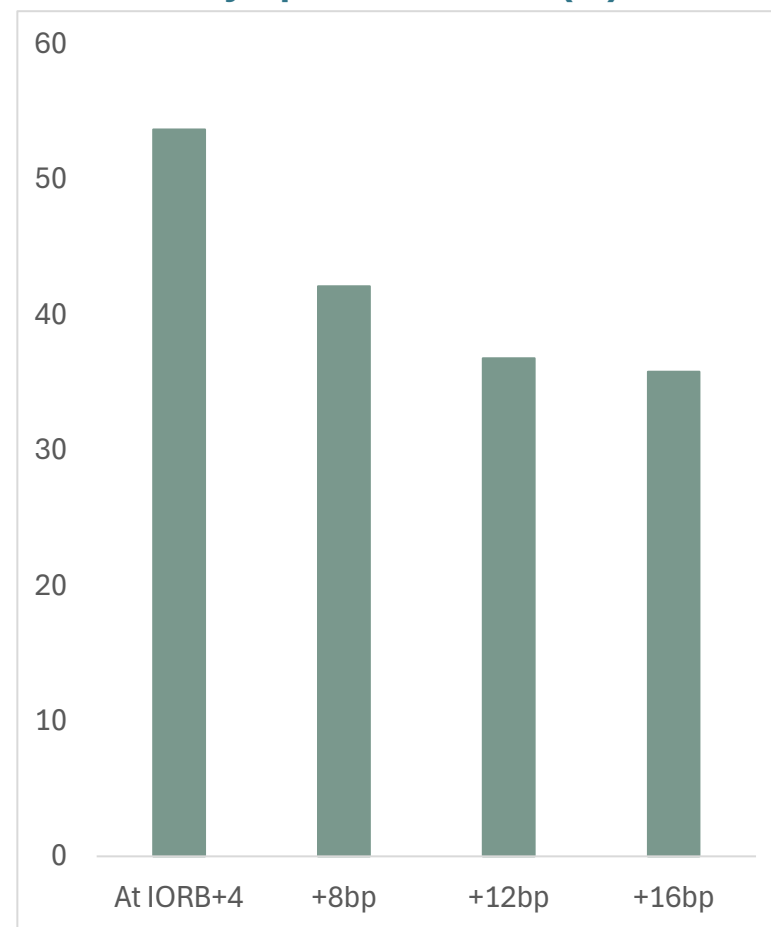
Note: The x-axis is the percentage of preferred balances of LCLoR above their minimum comfortable level. Sources: Federal Reserve, SMBC Nikko

1/ See, "[Senior Financial Officer Survey](#)", September 2025, Federal Reserve Board.

Higher rates and reserve demand

- High overnight rates (above the return to reserves, or IORB) reduce the demand for bank reserves^{2/}
 - And increase banks' willingness to lend their cash into the repo market
- But repo rates may need to be at *least 8bp* above IORB to tempt more than half of banks to shift balances from reserves
 - And lend in the repo market

Percent reporting no change in reserve balances by spread to IORB (%)^{1/}



1/ See, "[Senior Financial Officer Survey](#)", September 2025, Federal Reserve Board.

2/ As banks can earn more than IORB by lending their cash in the repo market.

Sources: Federal Reserve, SMBC Nikko

Reducing reserve demand

- *Can the Fed reduce bank demand for reserves?*
- Banks can reduce their demand for reserves if they are able to easily monetize the Treasury holdings in their liquidity buffer^{1/}
 - Allowing them to substitute Treasuries for reserves
- Banks can monetize their Treasuries:
 - By selling them in the market
 - Repo'ing them in the market
 - Or with the Fed in either the discount window or the SRP^{2/}
 - While the SRP is structured as an auction, borrowing from the discount window is a lender of last resort facility where banks are guaranteed cash against their eligible collateral^{3/}
- But monetizing Treasuries through the discount window or SRP may be problematic because of perceptions that use reflects structural weakness
 - Even though both are meant to be used as regular liquidity management tools designed to arb market interest rates

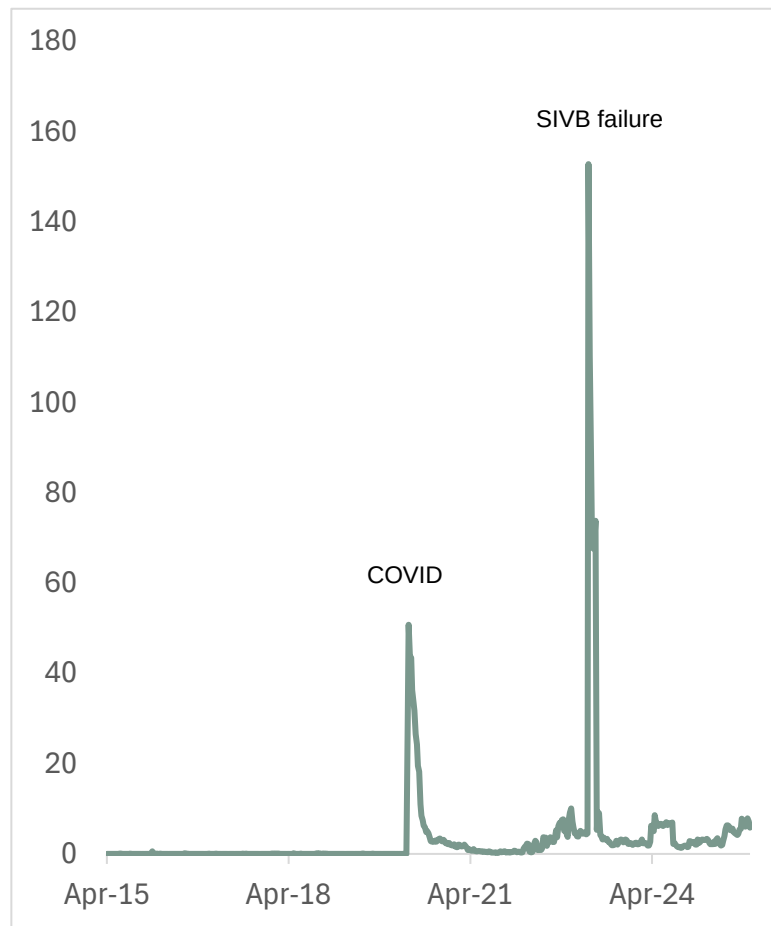
1/ Banks can satisfy their regulatory liquidity requirements with cash at the Fed or Treasuries.

2/ See slide 8.

3/ The eligible collateral mix is broader than the SRP and includes whole loans.

Discount window borrowing

Primary credit (\$bn)



- Historically, borrowing from the discount window has been highest in periods of financial market stress^{1/}
- Since 2023, the Fed has encouraged banks to view borrowing from the discount window as normal
 - Banks have been encouraged to maintain “pre-placed” collateral at the Fed^{2/}
 - So that it is always available to pledge

1/ Which reinforces the sense that any borrowing is unusual and a sign of bank stress.

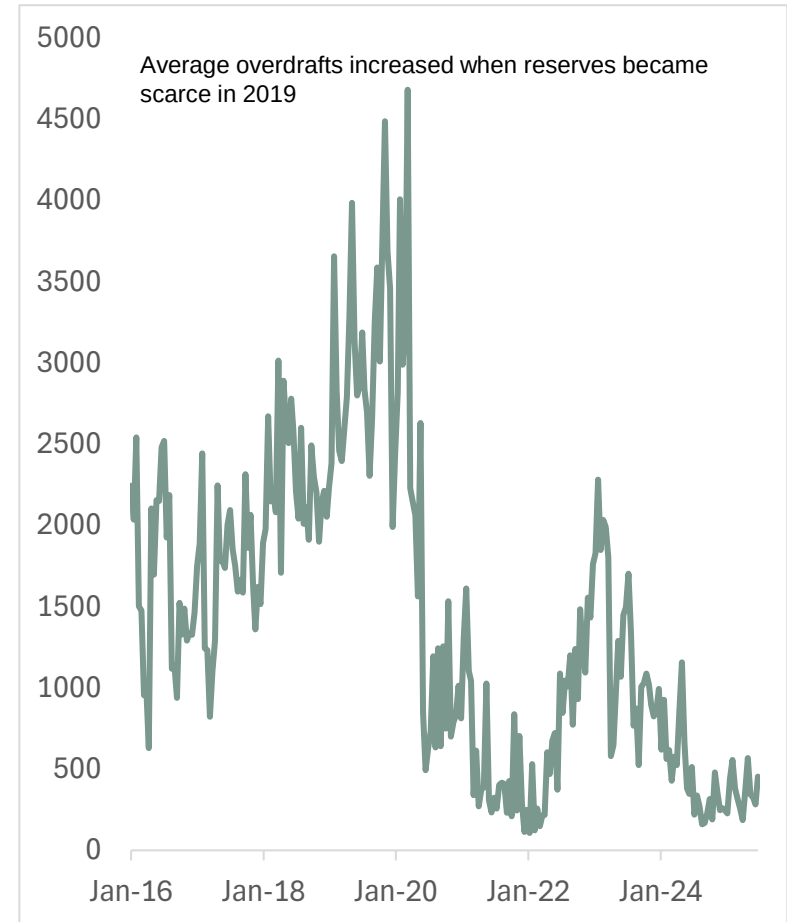
2/ Banks have about \$3trn in pre-placed collateral at the Fed, mostly whole loans.

Sources: Federal Reserve, SMBC Nikko

Intraday overdrafts

- Pre-placed collateral allows banks to temporarily overdraw their clearing account at the Fed
 - Without incurring a fee

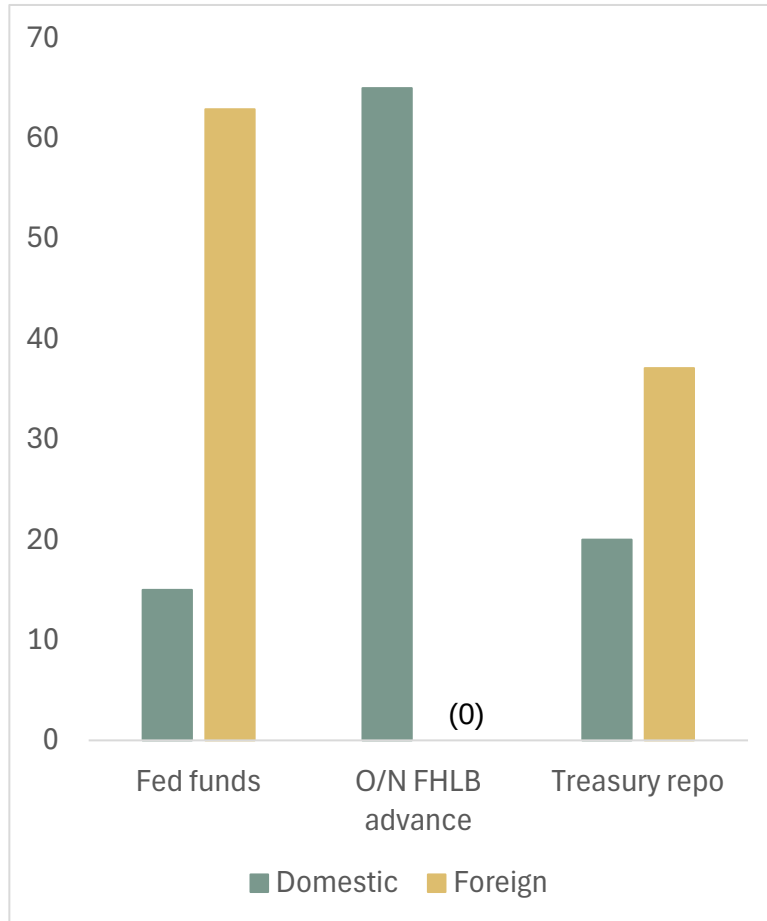
Average intraday overdrafts (\$mn)



Sources: Federal Reserve, SMBC Nikko

FHLB liquidity provision^{1/}

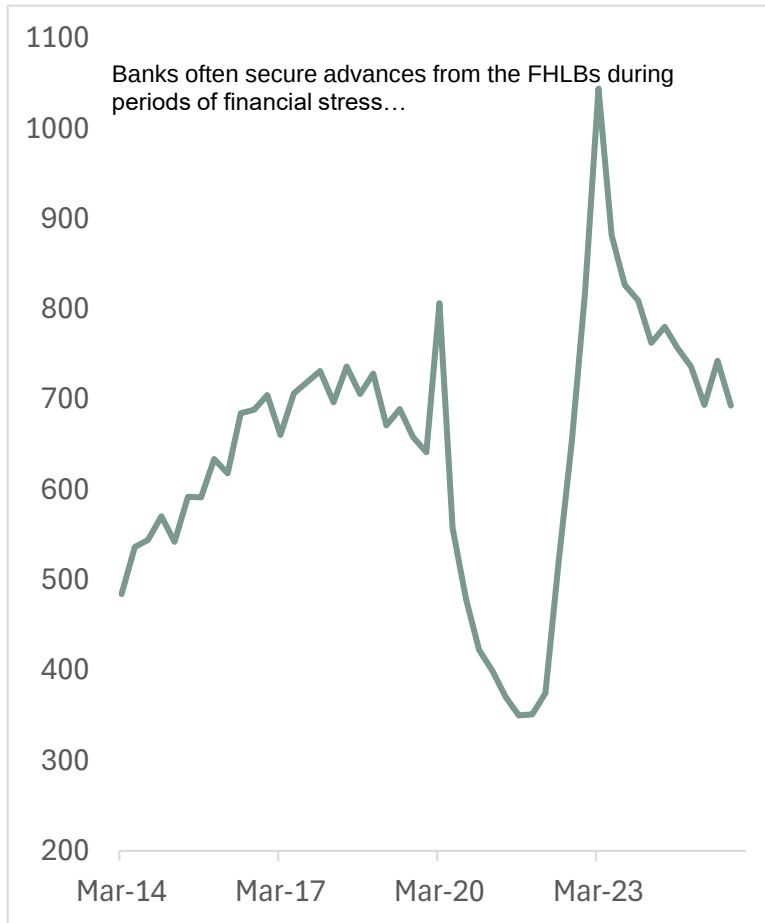
Preferred sources (%)



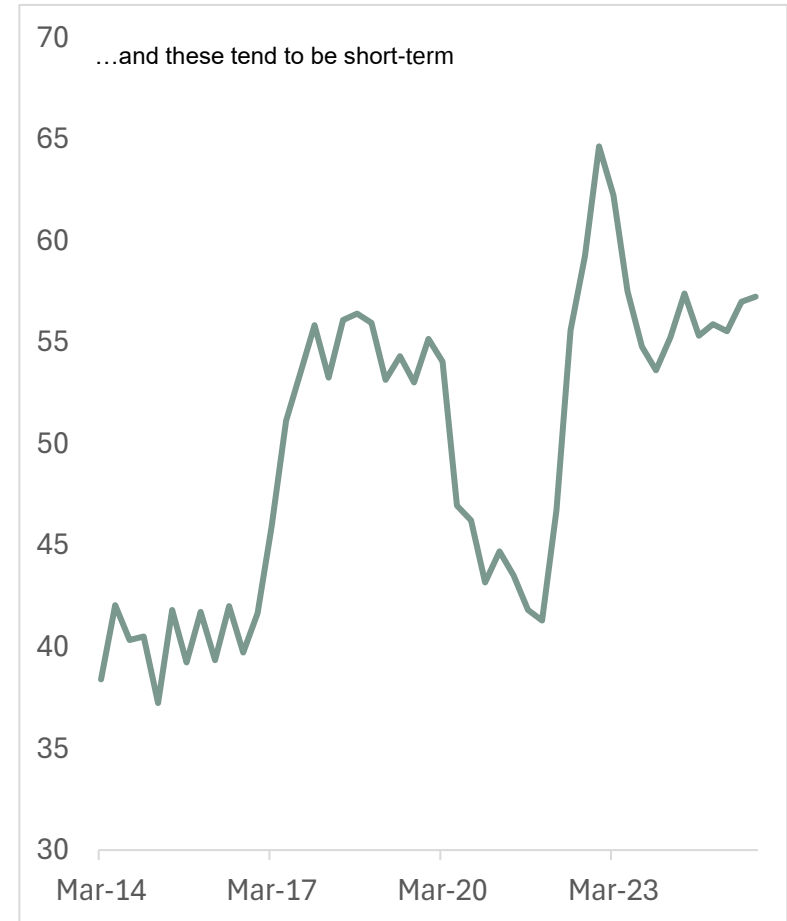
- When faced with an overnight funding need, most domestic banks prefer advances from the FHLB to borrowing in either the fed funds or repo markets
- Non-domestic banks do not have access to FHLB advances
 - They still prefer securing cash from the FHLBs
 - Through borrowing in the fed funds market

FHLB advances

Advances (\$bn)



Advances <1y (% total)



Sources: FHLB, SMBC Nikko

Sources: FHLB, SMBC Nikko

After QT: Three steps

- *The Fed's balance sheet normalization will not end with the end of QT*
- Instead, the Fed must make three additional adjustments to its balance sheet to keep bank reserves ample
- **Step 1:** Keep its securities portfolio balance steady
 - Once QT ends, the Fed will immediately reinvest its maturing securities to keep the portfolio from shrinking. Treasuries will be rolled over at the next auction; MBS will be rolled into bills.
- **Step 2:** Keep the level of bank reserves steady
 - But even with a steady portfolio, the level of bank reserves will shrink as currency demand grows and the Treasury's cash balance increases
 - The Fed will need to offset these drains on reserves by buying Treasuries^{1/}
- **Step 3:** Increase the level of bank reserves in line with the growth in bank assets
 - As bank assets grow, bank demand for reserves increases as they seek to maintain proportional liquidity balances
 - It is unclear how soon these Treasury purchases will begin
 - Or how they will be invested
 - *The Fed is looking to increase its bill holdings, but it also would like a “market neutral” portfolio – one in which the maturity distribution matches the outstanding Treasury market*

^{1/} The Fed has already begun these reserve management purchases. It will initially buy \$40bn/mo in bills. The purchase pace will slow after the April tax date

MBS re-investment

- Mechanically, the Fed is removing the roll-off cap on its Treasury re-investments, so all its maturing Treasuries will be rolled over into the next auction as add-ons
- It plans to continue letting its MBS holdings roll off while re-investing the proceeds into bills
 - Bill purchases will be made in the secondary market in two maturity tranches
 - 75% in bills with remaining maturities of 1-4m
 - 25% in bills with remaining maturities of 4-12m
 - The Fed's purchases will be mid-month, multi-price auctions
 - Around the ninth business day of the month the Fed will announce how much it will be re-investing in bills
 - Our sense is that this amount will be around \$15-20bn/mo

Reserve management purchases (RMPs)

- *The Fed plans to begin its reserve management purchases in December*
 - *These purchases are meant to offset the growth in the Fed's non-reserve liabilities such as currency and the Treasury account*
 - *All the purchases will be in the secondary market*
- The initial RMPs will be \$40bn (in December)
 - And be directed to bills
 - Although the Fed indicated that it could buy <3y paper if market conditions make it difficult to buy the full amount in bills
 - Most of the bill purchases (75%) will be in maturities of between 1 and 4m; the balance will be in bills out to 1y
 - The Fed will not buy bills with less than 4w to maturity
- The purchases will be announced around the ninth business day of the month
 - And occur from the middle of the month through the middle of the following month

Fine tuning RMPs

- The Fed will fine tune its RMPs
 - It plans to ramp up (or down) the pace of its RMPs based on seasonal, non-reserve flows
- In the near-term the Fed seeks to increase the level of reserves in anticipation of the April tax date
 - It plans to oversupply reserves through its monthly RMPs
 - And then, after the tax date, the increase in the Treasury's cash account will whittle down the oversupply
 - So that reserves move closer to ample
- In 2024, the Treasury's cash balance increased \$160bn in April^{1/}
- As a result, we think its RMPs through the end of March may total \$200bn
 - With the monthly purchase pace slowing to \$5bn/mo in April and May

1/ We use 2024 for comparison as 2025 was affected by the debt ceiling.

Short-term interest rates

Repo: General collateral and specials

- A repo is the sale of a security combined with an agreement to repurchase that security as a specific future date at a pre-determined price (yield)
- There are two types:
 - **General collateral (GC)**
 - Issues that trade near the same price
 - The lender of cash is indifferent between the specific CUSIPs pledged
 - The CUSIPs pledged are effectively interchangeable
 - **Issue specific collateral**
 - The security borrower is looking for a specific CUSIP
 - Like looking for the “right” sock to match the left one
 - If the security is in high demand its borrowing rate will trade below GC (or special)
 - The security is held by lenders who do not lend out their holdings
 - The security is in high demand because many investors need it to cover their shorts
 - The security may not be available from the Fed’s security lending program^{1/}
 - Or the issue size is small
- Market participants frequently do both types of transactions – swapping GC issues for issues trading special

^{1/} See slide 48.

Haircuts

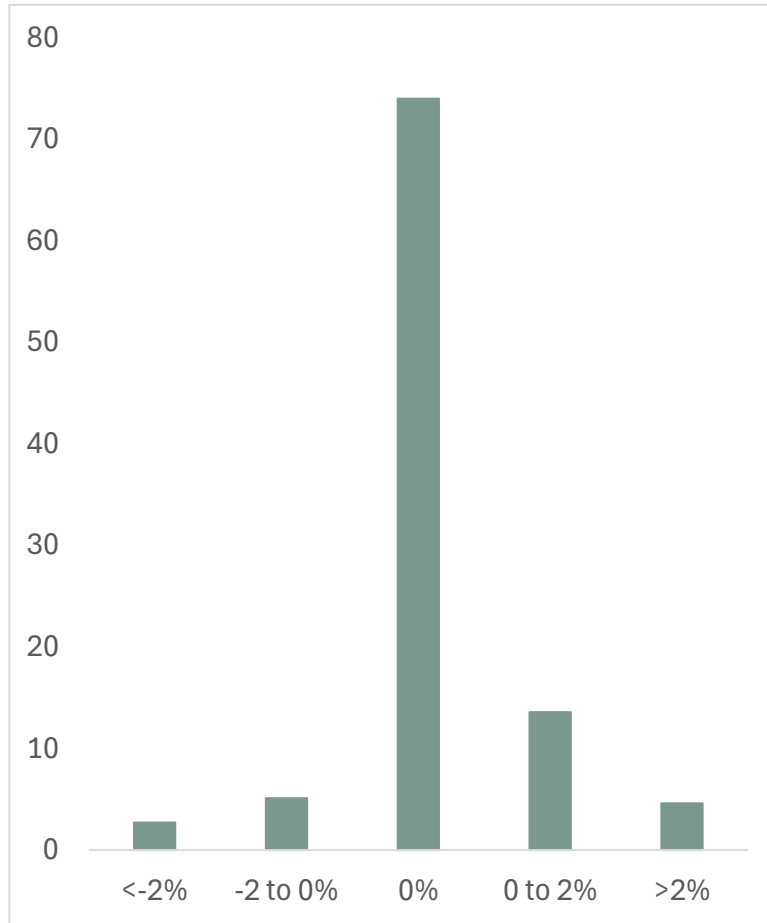
- Lenders require a haircut or margin on their repo trades
 - Where the market value of the securities pledged is greater than the cash lent
 - Haircuts are determined by the price volatility of the pledged collateral
- Haircuts are meant to protect the cash lender from a counterparty default
 - In which the lender would need to sell the pledged collateral to recover its cash
- Haircuts are frequently agreed to a trade-by-trade basis
- In theory, the SEC's central clearing mandate should eliminate unhaircutted transactions
 - As these transactions would be subject to the FICC's VaR margining rules
 - But, even after the clearing mandate takes effect, not all repo trades will have to be centrally cleared
 - For example, on open trades that do not have a specific end date^{1/}
 - The SEC requires the FICC to collect margin which it calculates and collects twice a day
 - But it does not specify who ultimately pays the margin – the direct member or its indirect client
 - The Treasury Market Practices Group (TMPG) notes that while this may not be prudent or practical once the market is fully cleared it is not recommending specific changes
 - Or requiring minimum haircuts^{2/}

1/ At least, for the moment.

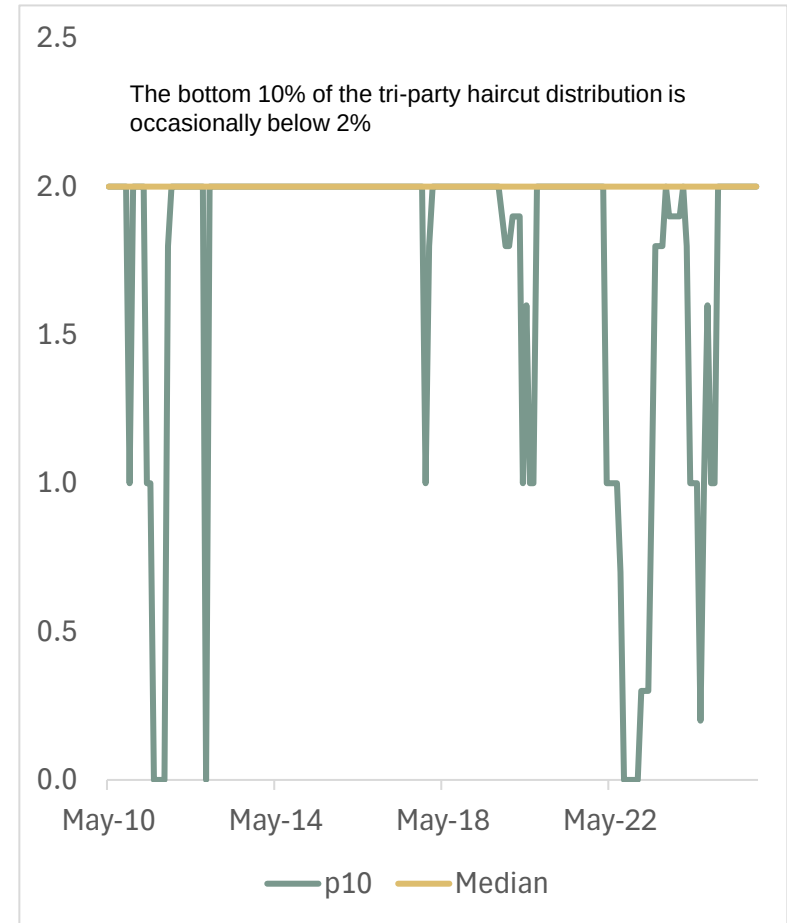
2/ See, [“Non-Centrally Cleared Bilateral Repo and Indirect Clearing in the US Treasury Market: Focus on Margining Practices”](#), Treasury Market Practices Group White Paper, May 2025.

Treasury repo haircuts

Uncleared bilateral haircuts^{1/} (%)



Tri-party haircuts (%)



Sources: Hempel et al., SMBC Nikko

Sources: Federal Reserve Bank of New York, SMBC Nikko

Zero haircuts^{1/}

- Leverage can build up in dealers that do not collect haircuts on their secured lending. But the prevalence of no haircut repo may reflect other factors
 - Much of the 70% share of uncleared bilateral repo transactions with no haircut reflects packages where the counterparty exposure nets down^{2/,3/}
 - And a portion of these transactions reflects other techniques for reducing counterparty risk including position limits and cross-product margining

1/ See Higher leverage and no haircut, SMBC US Rates Strategy, August 25, 2025.

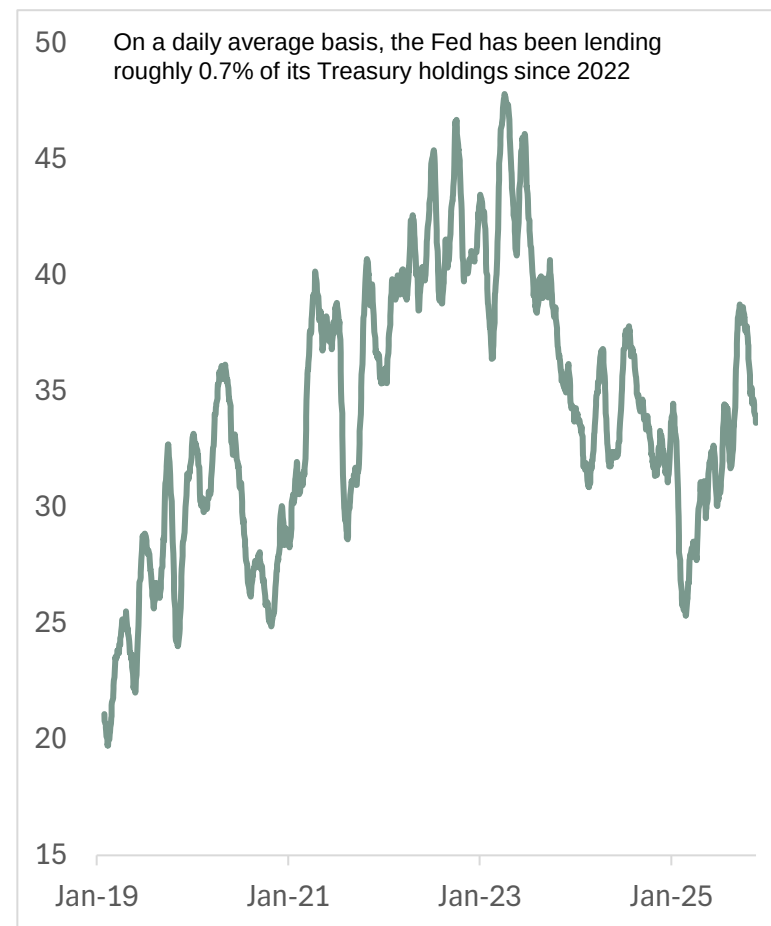
2/ See previous slide.

3/ According to Hempel et al, this share was about 60%.

Federal Reserve securities lending

- The Fed lends Treasury securities from its portfolio to primary dealers at a daily competitive auction
 - To help market liquidity and reduce fails or incomplete trades
- Dealers can borrow a specific CUSIP at the auction rate plus a 5bp fee in return for pledging GC^{1/2/}
 - Each dealer can borrow up to 25% of the Fed's available holding
 - There is no limit on the number of securities the dealer can borrow
 - But each dealer has a \$5bn counterparty limit

Securities lending volume (\$bn)



1/ As this is a “bonds-for-bonds” program there is no effect on the level of reserves.

2/ Securities with 14d or less to maturity are not available to borrow.

Note: 20d average. Sources: Federal Reserve, SMBC Nikko

Centrally clearing repo

- The SEC has mandated that Treasury repo trades with members of the FICC be centrally cleared beginning mid-2027
- Central clearing reduces dealer's intermediation constraints and reduces counterparty risk
 - As all transactions face the same counterparty (the FICC) they can be netted off against each other
 - Multilateral netting increases the flexibility of dealer balance sheet capacity
- Direct members of FICC are required to post margin on their transactions
 - Initial margin requirements are determined by the FICC's VaR model
 - The FICC calculates and collects margin twice a day^{1/}
 - And direct members contribute to a liquidity pool to support trading in the event of a member default^{2/}
- The FICC has a loss waterfall where the first tranche is the defaulting member's margin and then its default fund contribution
 - The FICC can unwind or settle the defaulting member's positions to minimize asset fire sale risk

1/ Although in periods of financial stress it can calculate and collect margin more frequently.

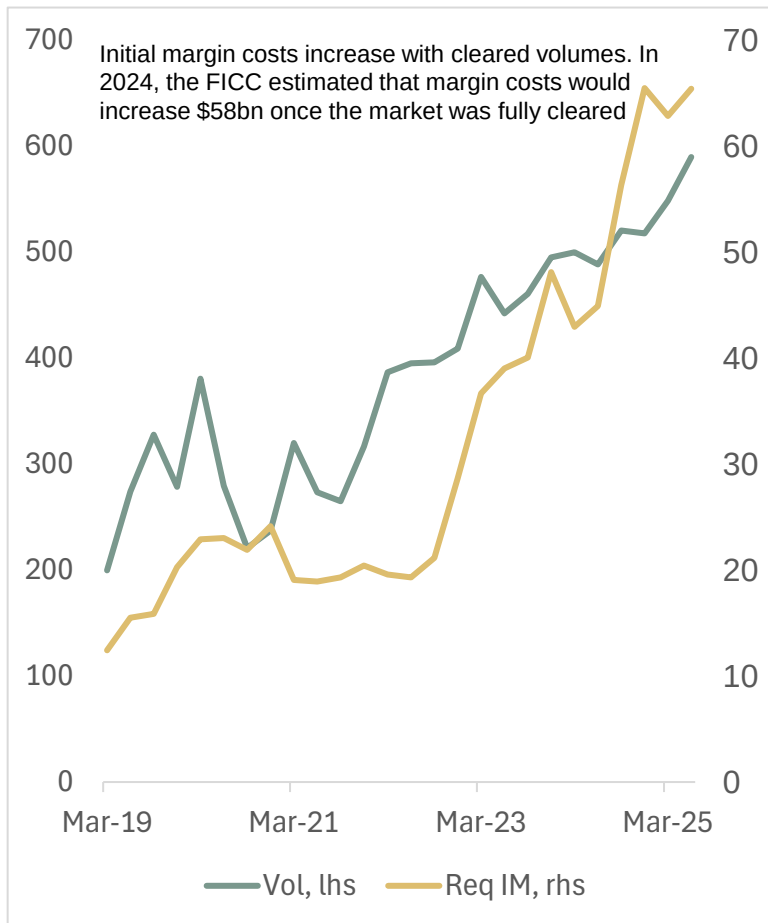
2/ In FICC's case, the Capped Contingent Liquidity Facility (CCLF), see slide 48.

Centrally clearing repo (2)

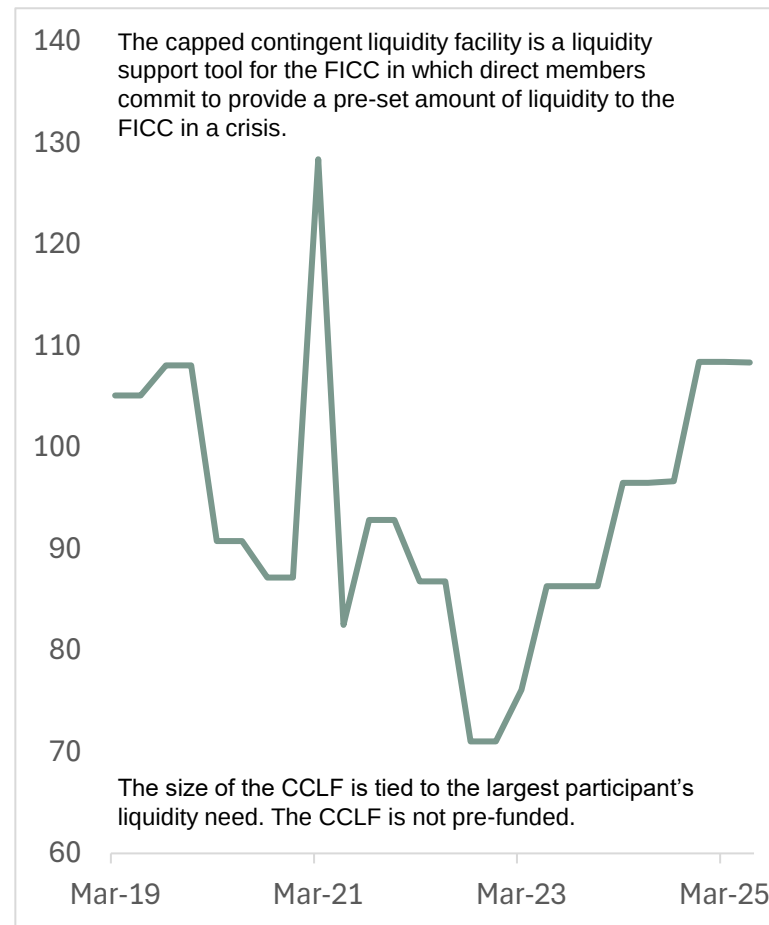
- As central clearing reduces counterparty risk it lowers bank capital requirements
 - Risk weightings are lower on centrally cleared repo trades because the FICC assumes the risk
- Central clearing reduces settlement fails – or incomplete deliveries
 - Settlement fails create counterparty exposure risk
 - And (security) replacement risk
 - The counterparty needs to replace the original transaction and securities prices may have moved since the trade was initiated
- It also gives regulators more insight into activity in the repo market
 - And any build-up in leverage

Clearing costs

Margin costs (\$bn)



CCLF (\$bn)



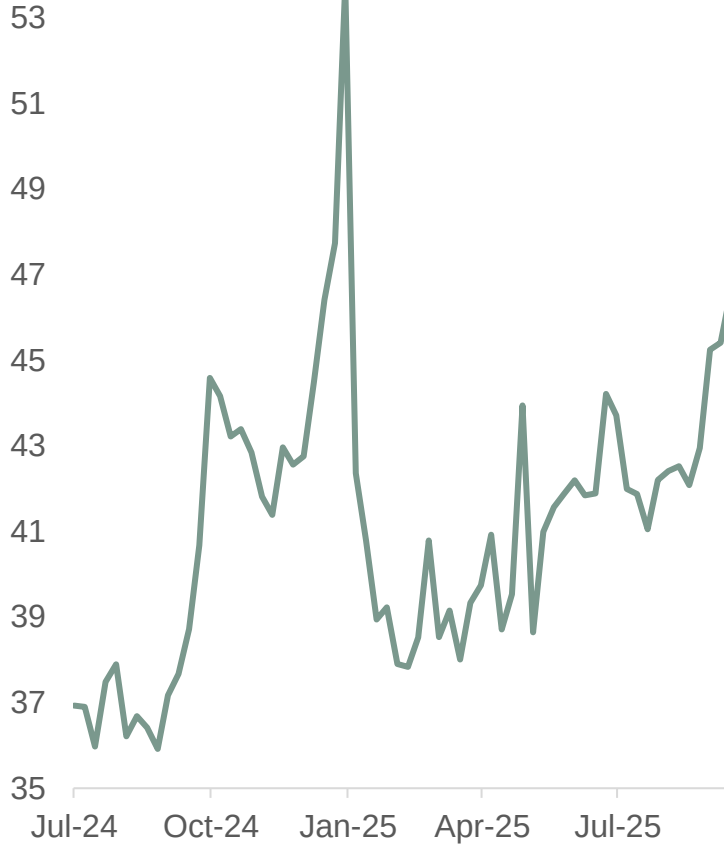
Sources: DTCC, SMBC Nikko

Sources: DTCC, SMBC Nikko

Cleared repo is growing...

Cleared repo (% total)

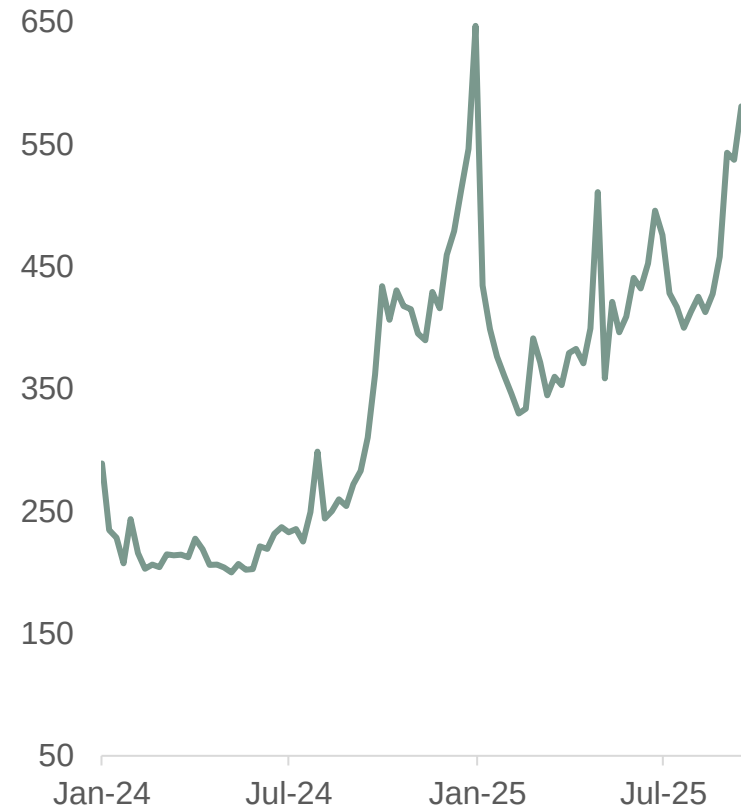
55 Cleared repo volumes are increasing as a share of total dealer lending...



Note: Dealer reverses (dealer lends cash). Sources: Federal Reserve Bank of New York, SMBC Nikko

Sponsored repo (\$bn)

750 ...with an especially sharp increase in sponsored activity

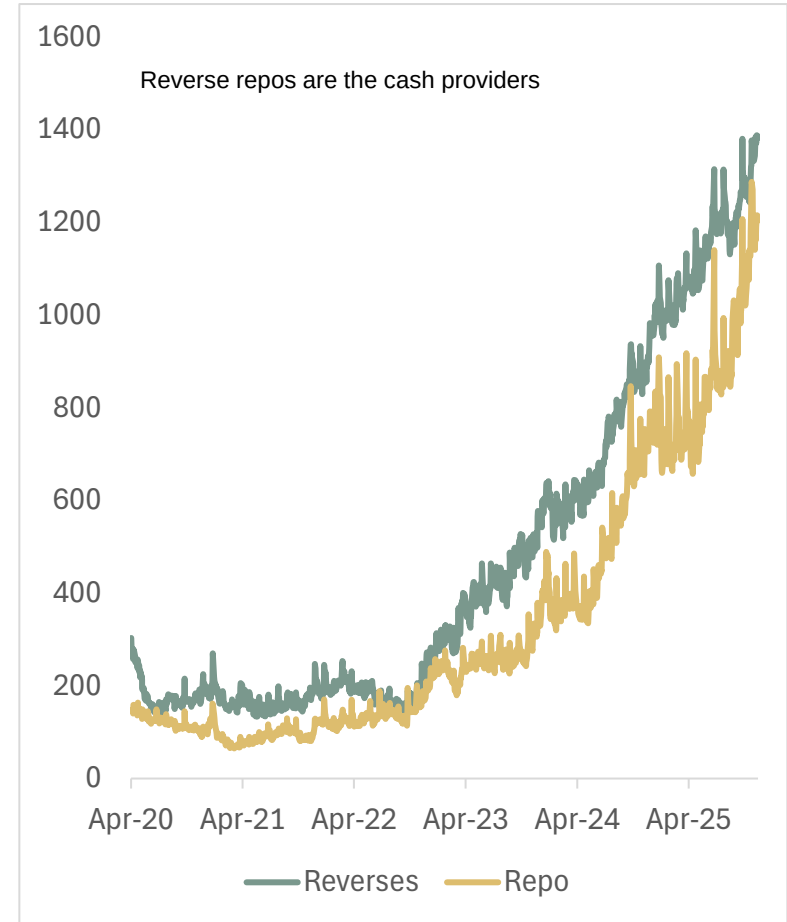


Note: Dealer reverses (dealer lends cash). Sources: Federal Reserve Bank of New York, SMBC Nikko

Sponsored repo

- Sponsored repo gives market participants access to central clearing without becoming a direct FICC member
 - The direct member “sponsors” its client who gains remote access
- Sponsored repo expands dealers’ ability to net down transactions

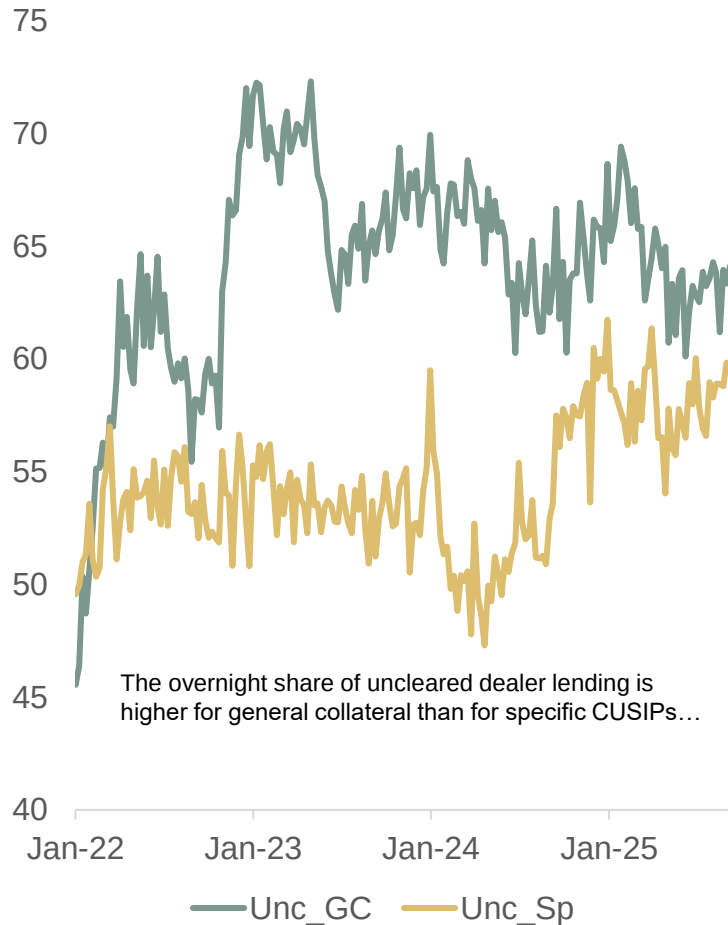
Sponsored repo volumes (\$bn)



Sources: DTCC, SMBC Nikko

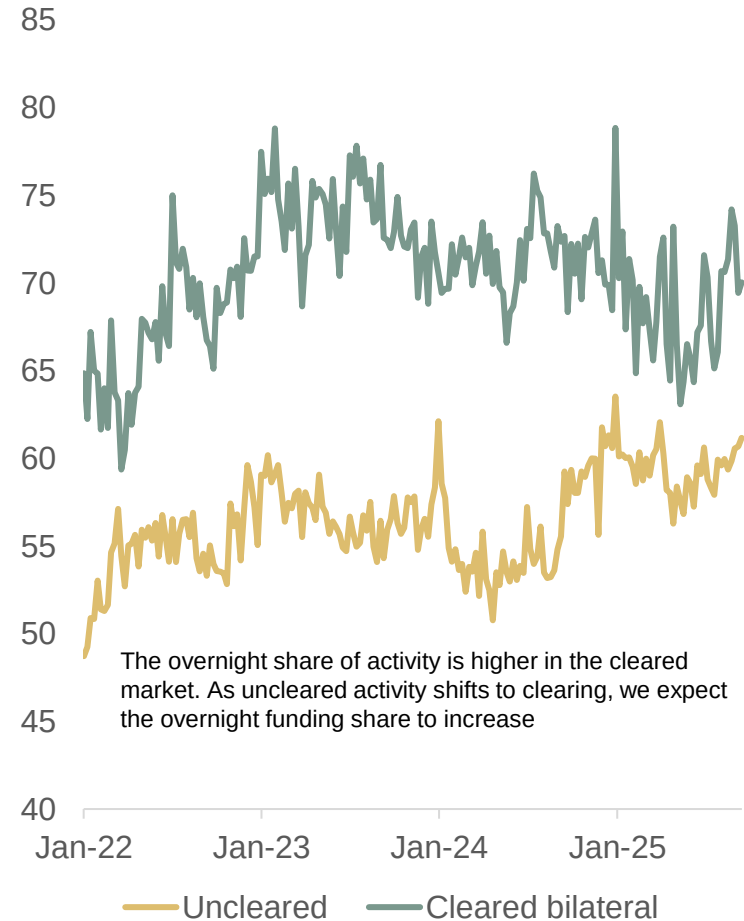
Cleared repo tends to be more overnight than uncleared

Overnight uncleared repo (% total)



Note: Dealer reverses (dealer lends cash). Sources: Federal Reserve Bank of New York, SMBC Nikko

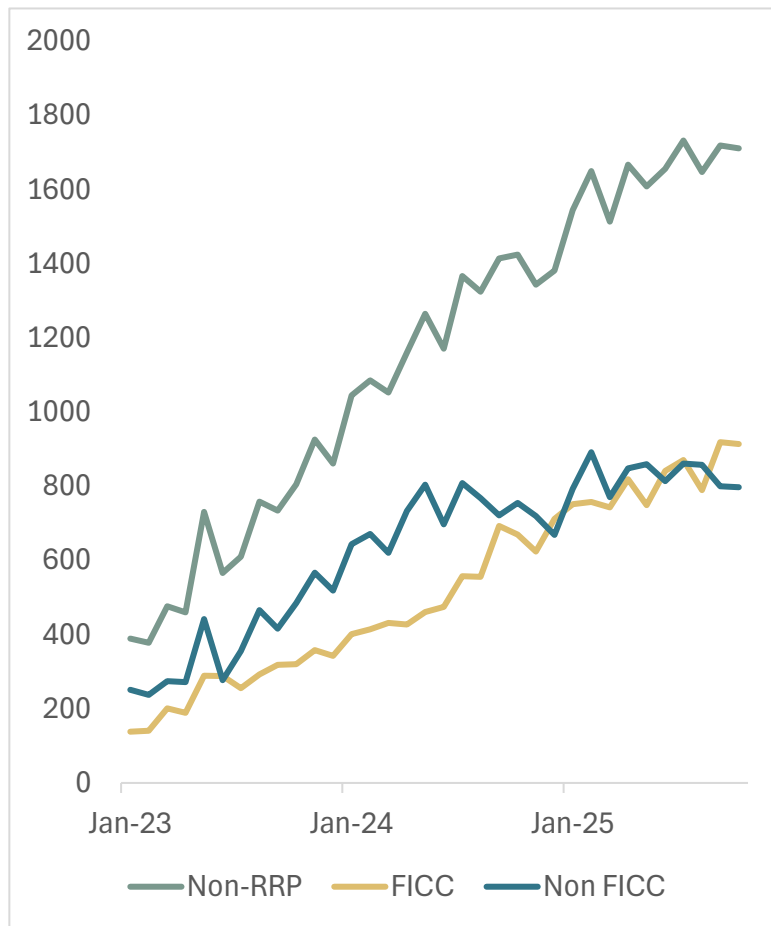
Overnight repo (% total)



Note: Dealer reverses (dealer lends cash). Sources: Federal Reserve Bank of New York, SMBC Nikko

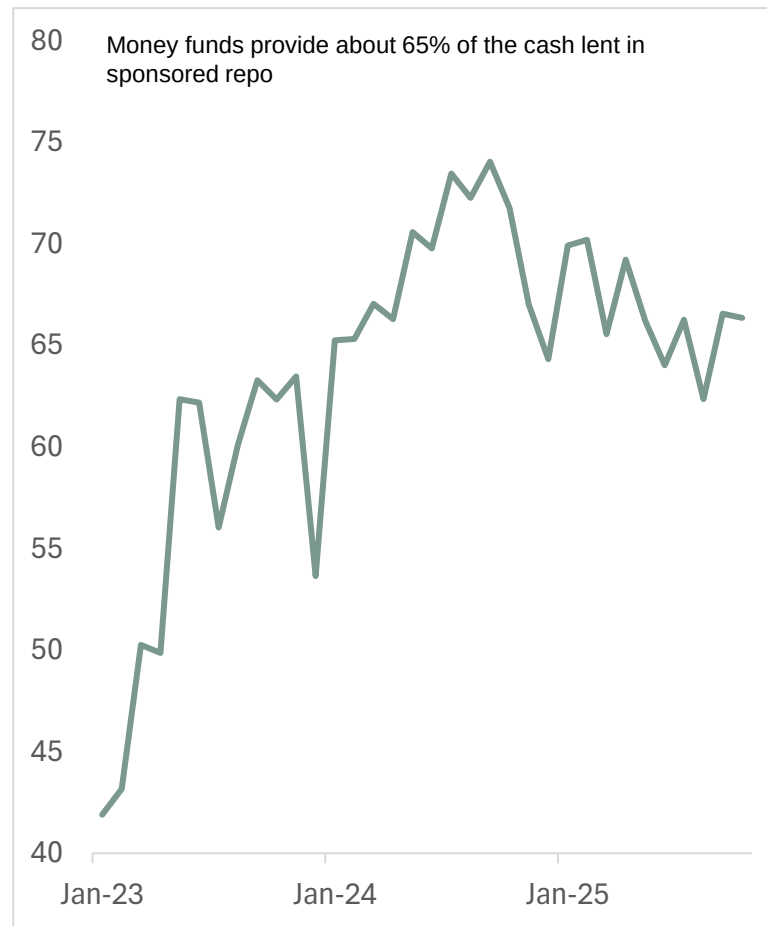
Money fund repo activity

Money fund repo (\$bn)



Note: Against Treasury collateral. Excluding balances in the RRP.
Sources: Crane's Data, SMBC Nikko

Money fund (% sponsored cash)



Sources: Crane's Data, Federal Reserve, SMBC Nikko

Repo settlement

- Tri-party repo transactions are settled in an account at the clearing bank
 - Cash and collateral are exchanged in the account (“box”)
 - The clearing bank monitors the value of the pledged collateral and applies haircuts
 - Collateral can be substituted throughout the day
 - Trades unwind at 3.30 in the afternoon^{1/}
 - The tri-party market is a client-to-dealer market; where dealers raise cash
 - The Fed’s RRP and SRP are both tri-party repo transactions
 - Can be centrally cleared although this is less common than in the bilateral market
- Bilateral (delivery versus payment, DVP)
 - Counterparties agree to exchange cash and collateral and make arrangements with their respective banks
 - Typically, the collateral is specified even if it may trade at a general collateral rate
 - As a result, they need to monitor the value of pledged collateral and apply haircuts on their own
 - The bilateral market is a dealer-to-client; where the dealers lend cash
 - Can be centrally cleared

^{1/} Although Bank of New York has recently introduced an intraday market where cash and collateral can move settle for different periods.

Repo rates

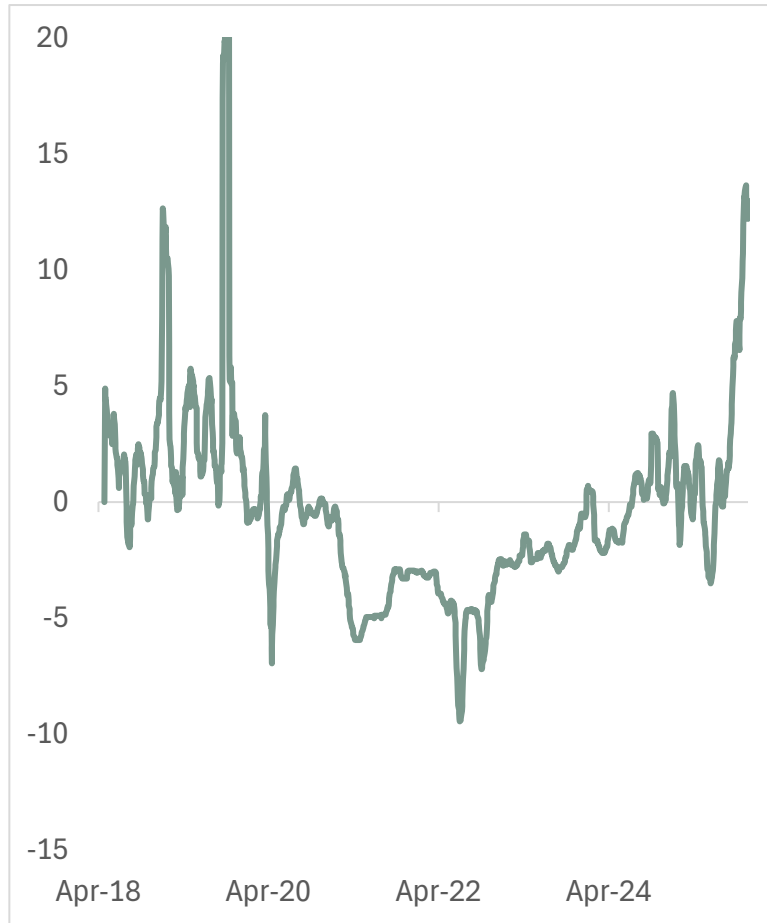
- SOFR – Secured Overnight Financing Rate
 - “The Secured Overnight Financing Rate (SOFR) is a broad measure of the cost of borrowing cash overnight collateralized by Treasury securities”^{1/}
 - It includes tri-party and cleared bilateral transactions
 - Volume median – transactions are sorted from the lowest to highest rate and the rate on midpoint of the distribution is published^{2/}
 - *To exclude the effect of specials, the Fed removes to bottom 20% of the cleared bilateral transaction distribution before calculating SOFR*
- TGCR – Tri-party General Collateral Rate
 - Composed of tri-party transactions
 - But excludes the Fed’s RRP and SRF transactions
- GCF – General Collateral Financing rate
 - Cleared tri-party transactions between dealers
 - On the FICC’s blind, brokered platform
 - Overnight daily volumes are small
 - Although the rate is frequently quoted in transactions

1/ See [Federal Reserve Bank of New York](#).

2/ The published fed funds and TGCR rates are also volume-medians.

SOFR: Secured overnight funding rate

SOFR less fed funds (bp)



- SOFR has traded flat to the unsecured fed funds rate since April 2018 on average
 - In an ample but not abundant reserve regime the spread is also close to 0bp^{1/}

Note: 20d average. Sources: Federal Reserve, SMBC Nikko

1/ The average is 0.43bp over the period when reserves were above 13% of bank assets but below 14%, from November 2024-August 2025. The average over the entire period is -0.36bp.

Will central clearing increase SOFR?

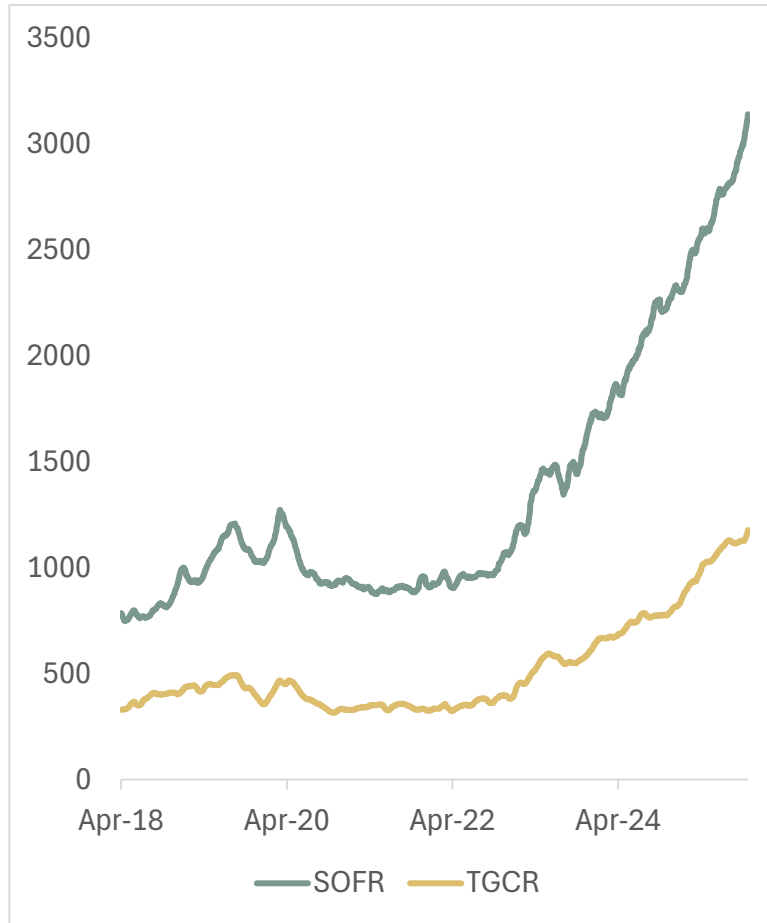
- Central clearing *may* increase repo rates through higher margin costs^{1/}
 - Although the effect is ambiguous and could depend on the access model^{2/}
- Clearing could lower tri-party rates
 - As money market funds are unable to pay margin, the cost of clearing their transactions may be reflected as a lower rate
 - But this is bounded by the RRP rate
 - And it might change if their trades are cleared in a “collateral in lieu” structure
- Bilateral rates may rise to reflect higher margin costs
 - Or these may be shared with the clearing agent depending on the access model as well as portfolio margining
 - FICC’s VaR margin is sensitive to the maturity of the pledged collateral
 - So, it is possible that differences in the pledged collateral are reflected in the rate
- SOFR and TGCR are volume medians
 - For the rate to change, the volume distribution of transactions has to shift after clearing

1/ See slide 51.

2/ We have not considered the effect of multiple CCPs.

SOFR and tri-party volumes

Overnight trading volume (\$bn)

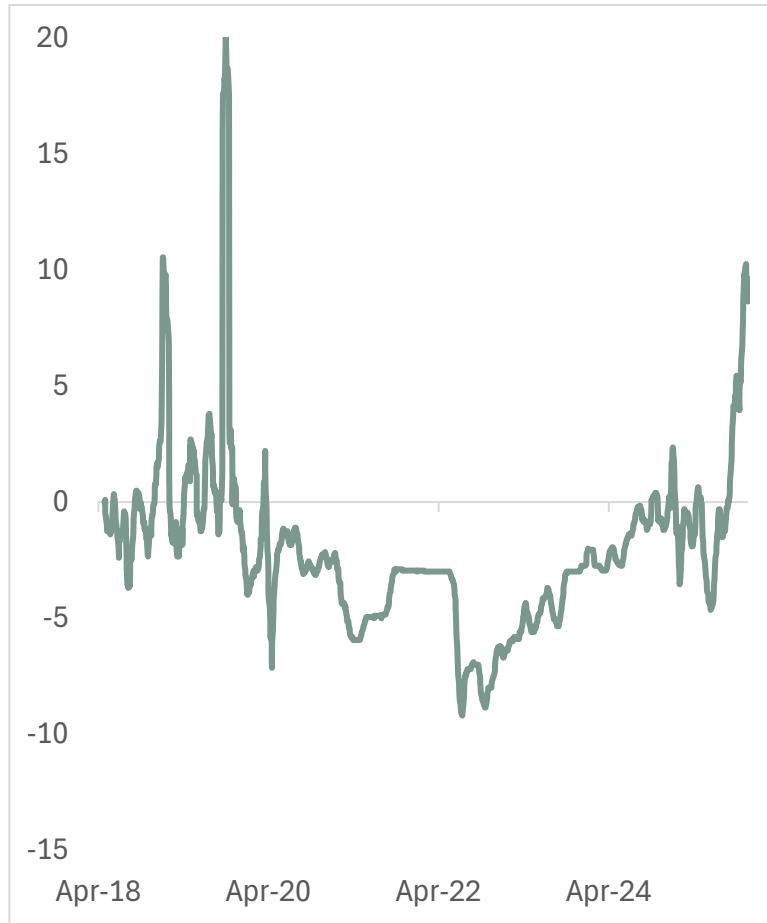


- SOFR trading volumes are higher than tri-party because the former includes cleared bilateral transactions
 - Cleared bilateral volumes increased sharply after the SEC's clearing mandate was announced in late 2023.

Note: 20d average. Sources: Federal Reserve, SMBC Nikko

TGCR: Tri-party general collateral rate

TGCR less fed funds (bp)

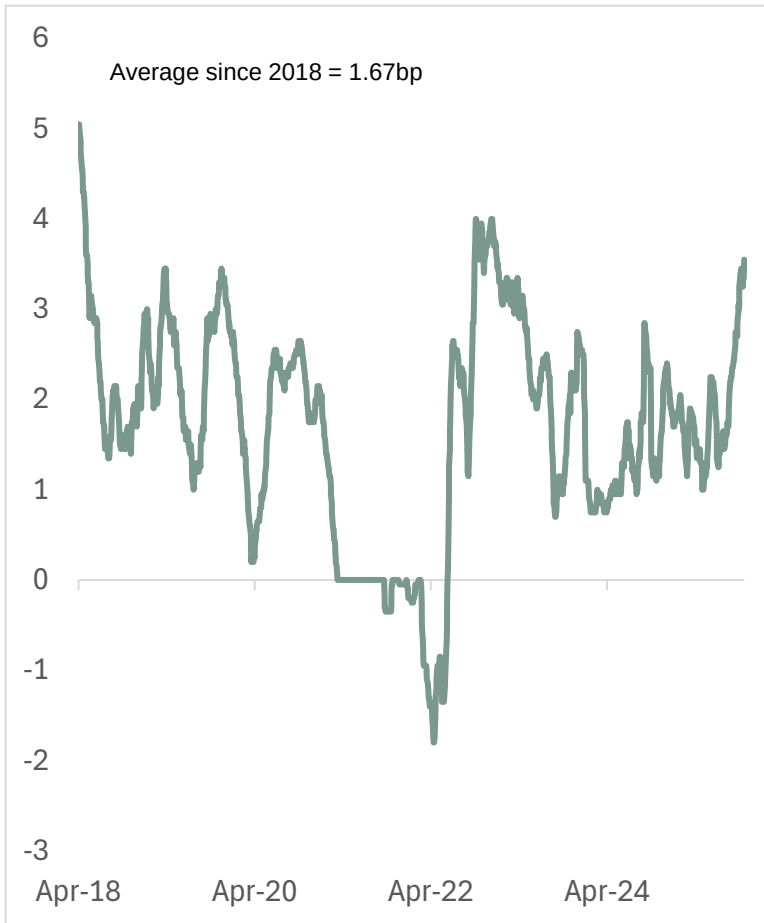


- The overnight tri-party rate has traded about 2bp below fed funds since 2018
 - And in periods when bank reserves are ample, the spread has averaged about -1.26bp

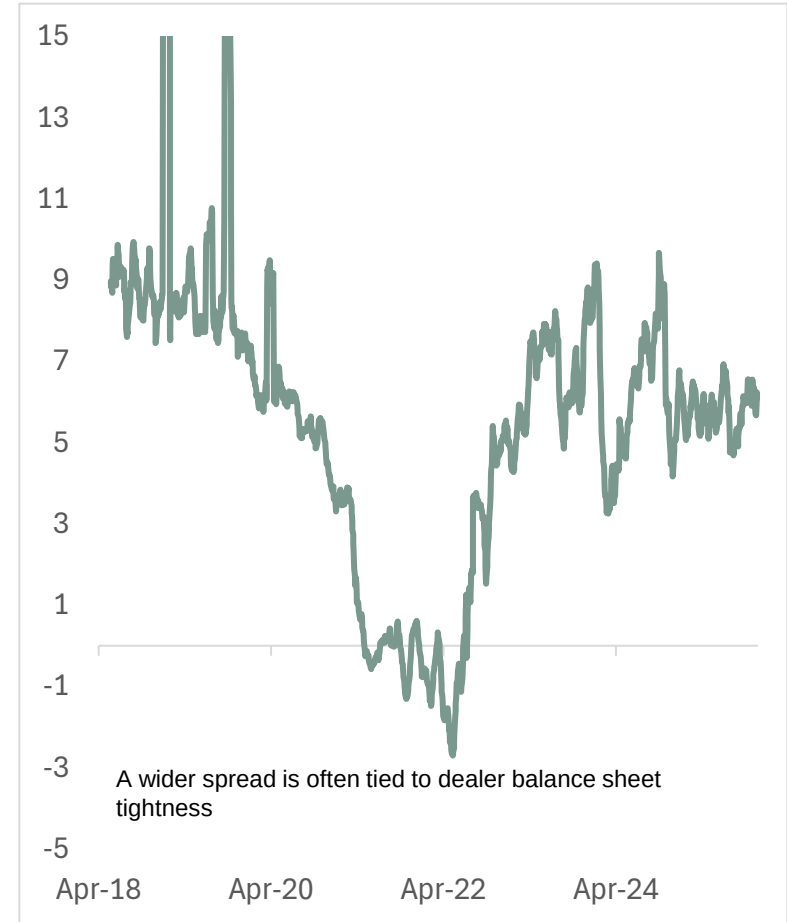
Note: 20d average. Sources: Federal Reserve, SMBC Nikko

Repo spreads

SOFR less TGCR (bp)



GCF less TGCR (bp)



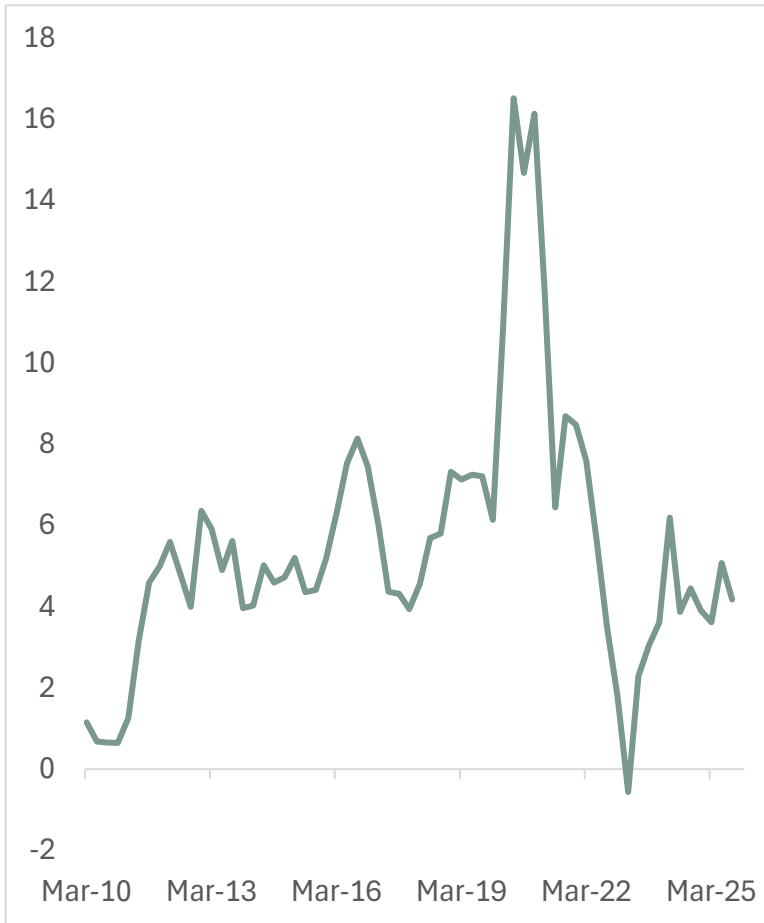
Note: 20d average. Sources: FHLB, SMBC Nikko

Note: 20d average. Sources: DTCC, SMBC Nikko

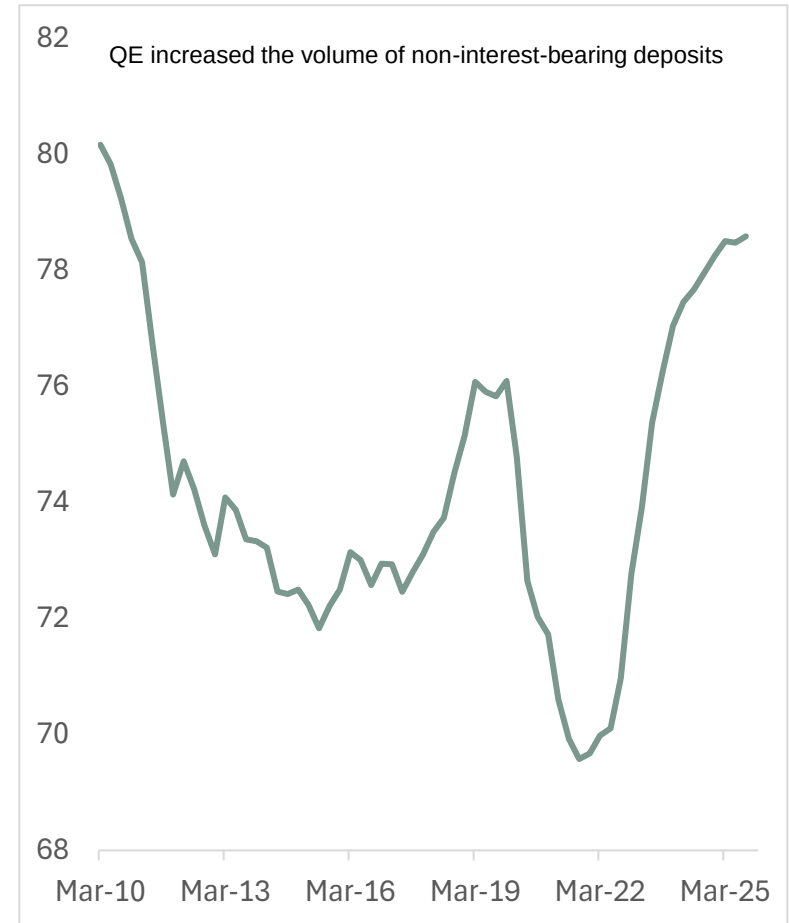
Deposits

Deposit funding

Interest-bearing deposits (%/y)



Of total domestic deposits (%)

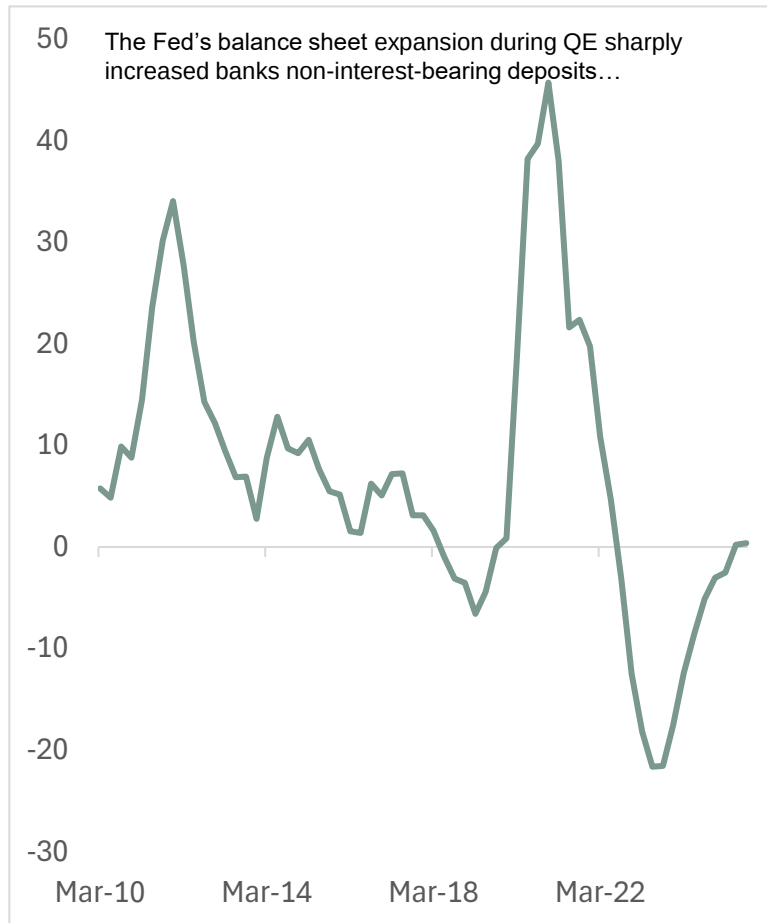


Sources: FDIC, SMBC Nikko

Sources: FDIC, SMBC Nikko

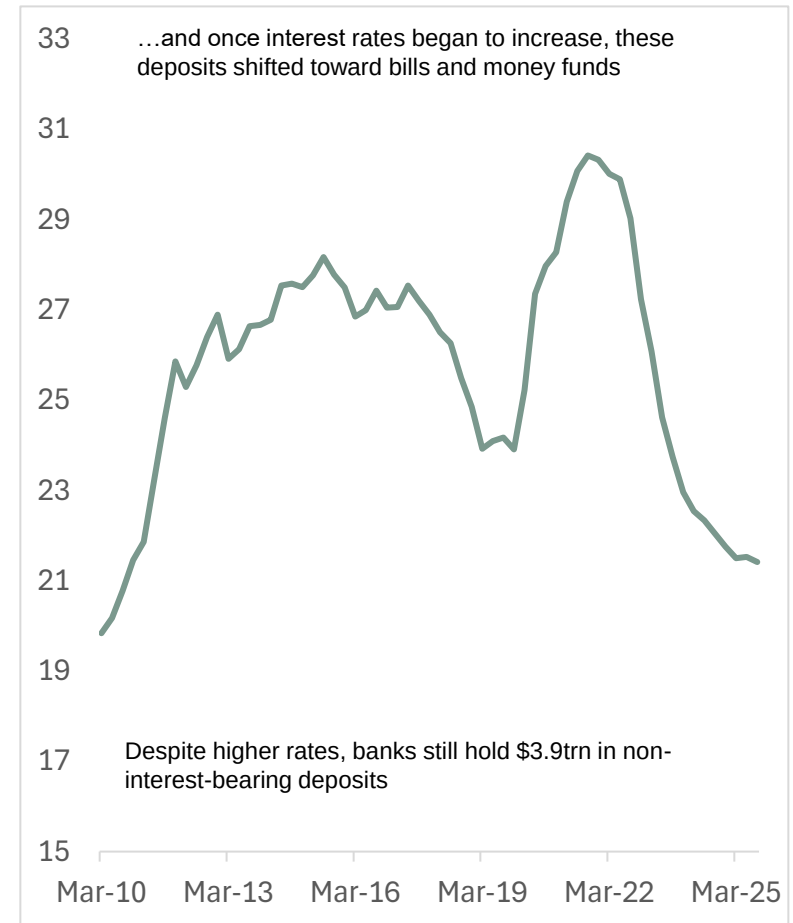
Deposit funding (2)

Non-interest-bearing deposits (%/y)



Sources: FDIC, SMBC Nikko

Of total domestic deposits (%)

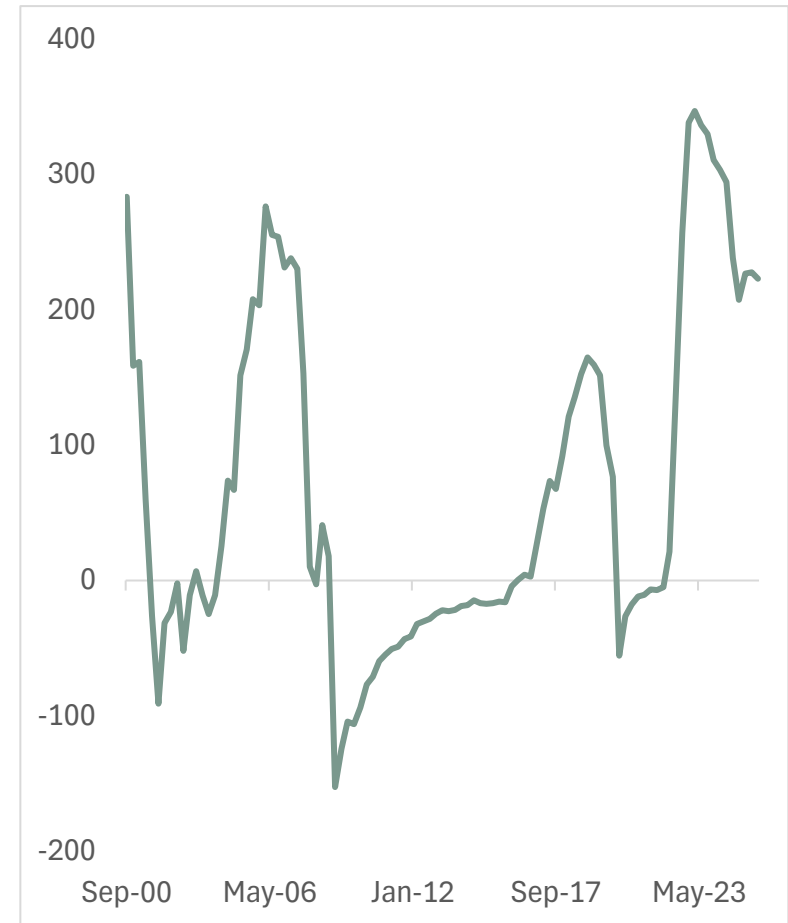


Sources: FDIC, SMBC Nikko

Deposit rates

- Money funds yields have been higher than bank deposit rates since 2022
- However, banks may not compete with themselves and money funds exclusively on explicit interest
 - They also compete on unpriced services like asset custody, cash management, and lending

FF less money fund yields^{1/} (bp)

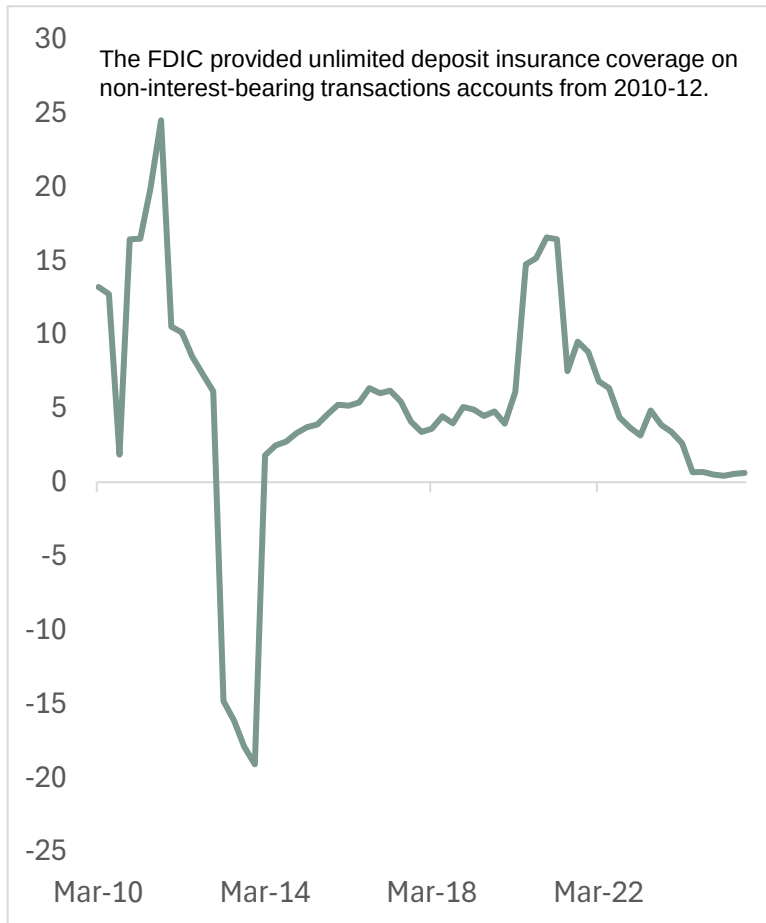


^{1/} The fed funds rate is a good proxy for 7d money fund yields over time. We calculate deposit rates across all types of interest-bearing deposits.

Sources: Federal Reserve, SMBC Nikko

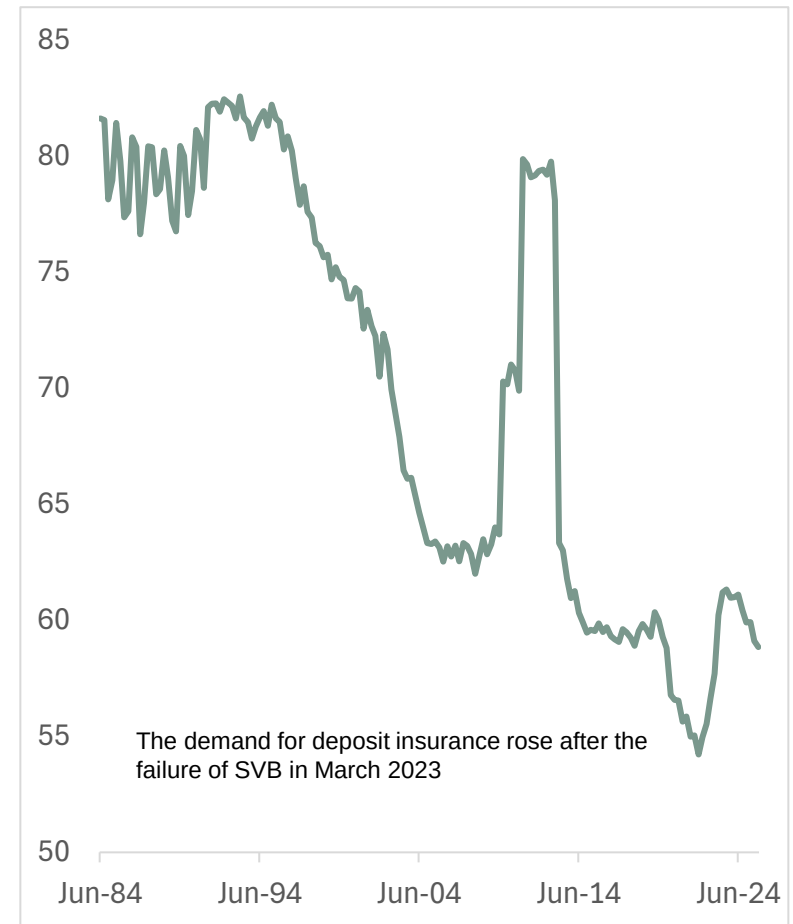
Insured deposits

Insured deposits (%/y)



Sources: FDIC, SMBC Nikko

Of domestic deposits (%)

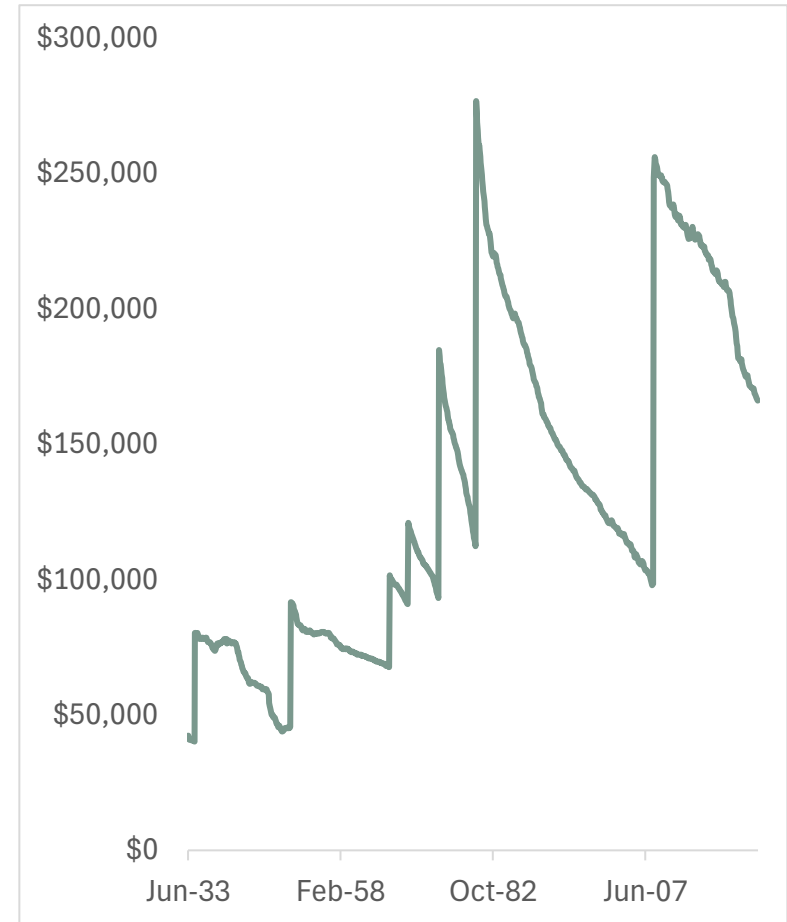


Sources: FDIC, SMBC Nikko

Deposit insurance coverage

- Inflation has eroded the value of the \$250,000 insurance coverage limit since it was last increased in 2008
- Any increase in the coverage limit would require Congressional approval

Insurance coverage limit (\$2008)



Sources: FDIC, SMBC Nikko

Deposit insurance fund (DIF)

- By law, the FDIC is required to maintain an insurance fund equal to 1.35% of insured deposits
 - When the coverage ratio falls below this amount, the FDIC adjusts its assessments
 - To ensure that the ratio returns to 1.35% within 8y

DIF (% insured deposits)



Sources: FDIC, SMBC Nikko

Deposit insurance assessment rates

- Banks pay deposit insurance premiums on their total assets less Tier 1 capital quarterly
- The assessment rate is determined by bank-specific risk factors
 - Including CAMELS ratings, reliance on short-term wholesale funding and brokered deposits^{1/}
- For the largest banks, the average assessment rate is between 5 and 8bp
- Because fed funds trading adds to the banks' assets, it increases their insurance assessment base
 - And given the average assessment rate, the spread between fed funds and IORB is too narrow for domestic banks to arbitrage^{2/}
 - As non-US banks do not have insured deposits, they can earn more on this arb

1/ CAMELS supervisory risk score = Capital adequacy, Asset quality, Management quality, Earnings, Liquidity, and Sensitivity to market risk.

2/ See slide 17.

Uninsured deposits

- Most of the \$7.4trn in uninsured deposits belong to corporations and high-net worth individuals
 - These investors are willing to trade unsecured bank exposure for the convenience of centralizing their payments from a single bank account and under one banking relationship
- Balances tend to be concentrated at the largest banks
 - Because these banks are systemically important, there is a sense that the government would not allow them to fail
 - As a result, accounts at these banks are perceived to have *de facto* unlimited coverage

Reciprocal deposits

- Reciprocal deposit networks allow banks to swap deposit balances over the coverage limit with other institutions in the network
 - This enables participating banks to provide higher coverage amounts all while the customer maintains a single bank relationship^{1/}
- Participating banks can privately self-insure their largest balances by redistributing them across other banks all without an increase in the FDIC's \$250,000 coverage limit
 - Customers are typically local businesses and state and local municipalities^{2/}
- The burden of splitting and coordinating large balances into insurable pieces is assumed by the bank network rather than the customer
- The network charges a participating bank a 10-15bp fee which most banks do not pass onto the depositor

1/ See "[Reciprocal deposit networks provide means to exceed FDIC's \\$250,000 account cap](#)", D. Ryfe and A. Saretto, Federal Reserve Bank of Dallas, November 28, 2023.

2/ State law requires municipalities to either collateralize their operating cash or keep it in an account with deposit insurance coverage.

Reciprocal deposits: Regulatory treatment

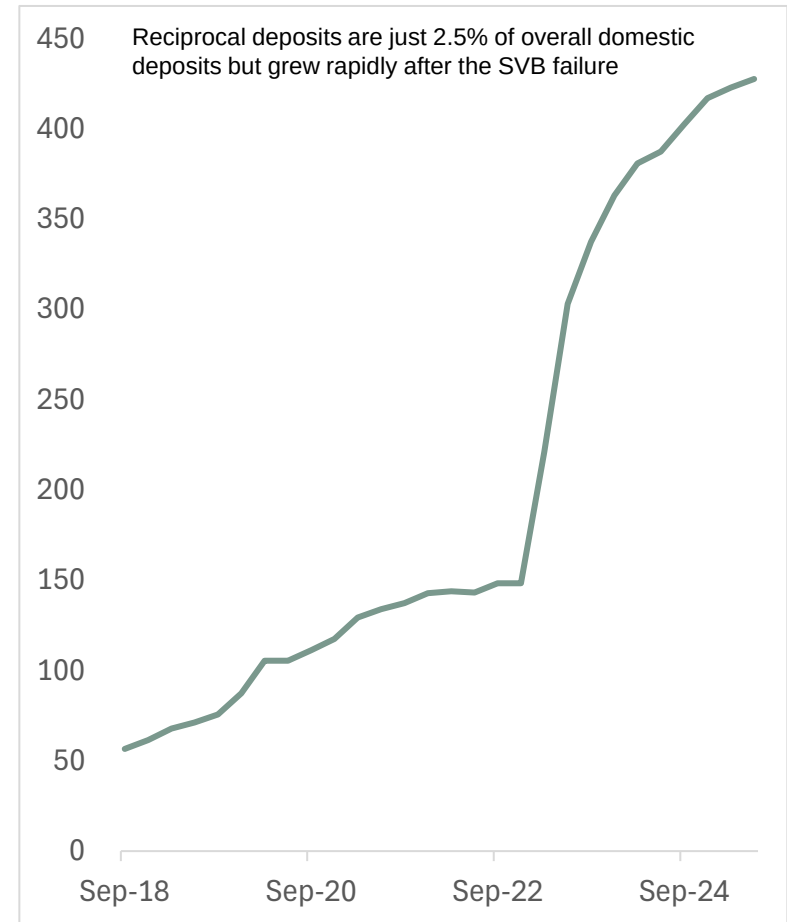
- Before 2018 bank regulators made no distinction between reciprocal and brokered deposit
 - Brokered deposits are gathered from a third party “engaged in the business” of gathering deposits
 - Brokered deposits are considered more interest rate sensitive and flight prone than banks’ core deposits
 - And, in the past, they have been associated with rapidly growing banks or those with more aggressive risk management^{1/}
 - As a result, they attract more regulatory scrutiny
- After a regulatory change in 2018, banks were allowed to treat their reciprocal deposits as core deposits *provided* they were the smaller of \$5bn or 20% of the bank’s liabilities.
 - While all banks can offer as many reciprocal deposits as they want, the \$5bn cap is too low to make them an attractive source of funding for the largest banks
 - Balances above the \$5bn cap are treated as non-core deposits and thus as less stable funding sources

^{1/} See, “[Deposit Inflows and Outflows in Failing Banks: The Role of Deposit Insurance](#)”, C. Martin, M. Puri, and A. Ufieri, FDIC Center for Financial Research, July 2022.

Reciprocal deposits (2)

- Most banks (64%) are members of reciprocal deposit networks
 - And nearly half of all commercial banks had some reciprocal deposits on their balance sheet at the end of 2023^{1/}
- Most of the reciprocal balances are held by small to medium sized banks with less than \$100bn in assets

Reciprocal deposits (\$bn)



^{1/} See, "[Reciprocal Deposits and the Banking Turmoil of 2023](#)", E. Prescott, and G. Rosenberger, Federal Reserve Bank of Cleveland, August 13, 2024.

Sources: Bank filings, SMBC Nikko

Brokered deposits

- Brokered deposits fell after a regulatory change in 2021 that clarified the definition of a deposit broker^{1/}
 - And streamlined exemptions for brokers whose “primary purpose” was not to provide funding to banks
 - Like a lawyer placing a trust deposit at a bank

Brokered deposits (% deposits)



^{1/} This allowed banks to classify more deposits as non-brokered.

Sources: FDIC, SMBC Nikko

Stablecoin deposit disintermediation

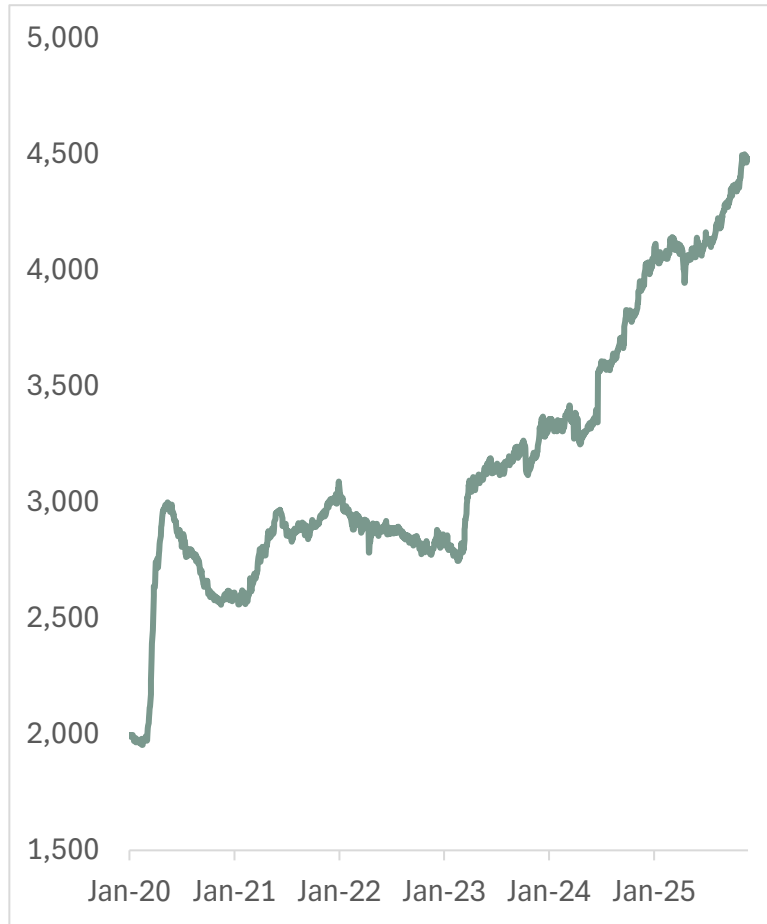
- Can payment tokens disintermediate bank deposits?
 - As households and businesses have access to faster payments they may shift their transactions balances from banks
 - That is, the convenience yield on tokens may be higher than on deposits even if neither pay interest
- Banks might reduce their lending as deposits shrink
- Or banks could need to pay higher rates to attract and retain deposits
- *Some of these effects are mitigated if stablecoin issuers hold some of their reserves in bank deposits^{1/2/}*
 - *But holding bank deposits could increase the risk that a run on a token issuer spills over to banks*

1/ We assume they might need to maintain their balances in explicitly insured deposits as opposed to simply keeping them at banks seen as too big to fail.

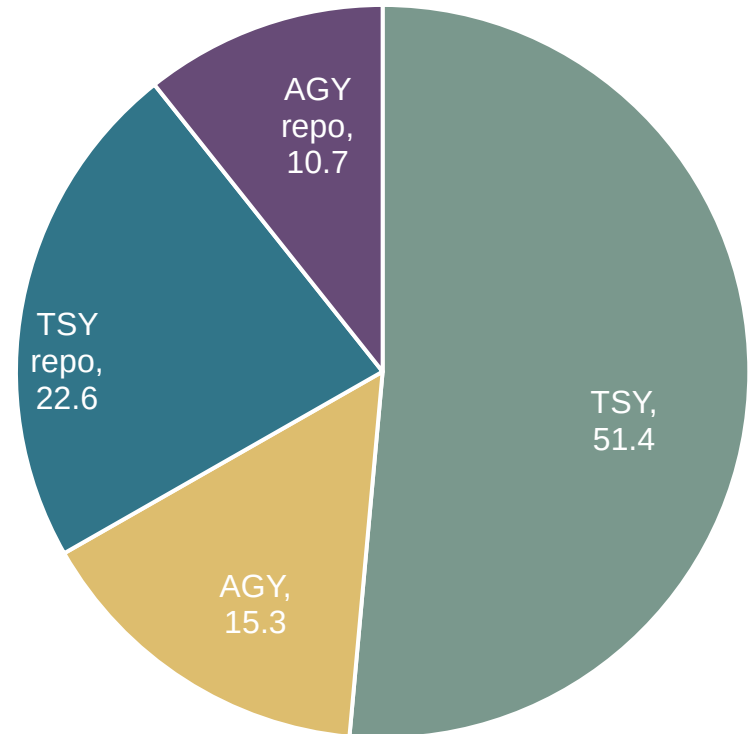
2/ Under the GENIUS Act issuers would be limited to Treasuries, repo, money fund shares and cash.

Money fund balances

Gov-only fund (\$bn)



Gov-only fund holdings (%)

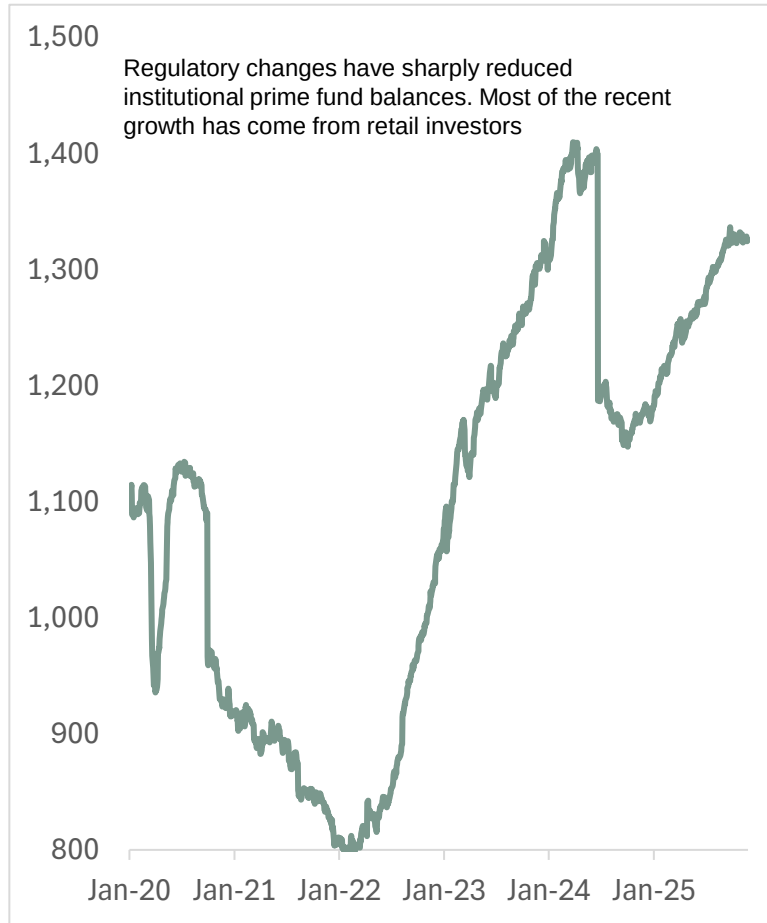


Sources: Crane's Data, SMBC Nikko

Note: As of October 31, 2025. Sources: Crane's Data, SMBC Nikko

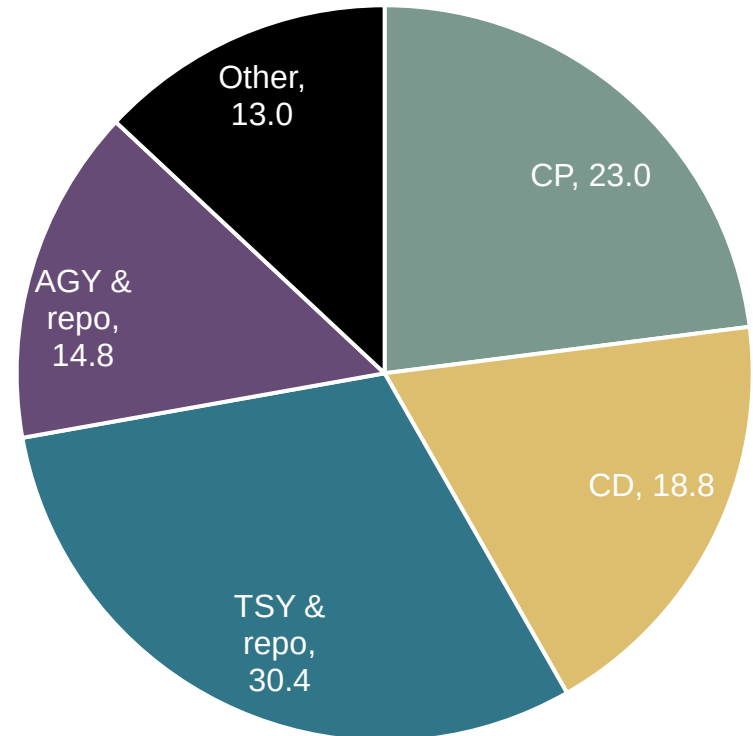
Money fund balances

Prime fund balances (\$bn)



Prime funds holdings (%)

Prime funds can purchase short-term credit such as CP and certificates of deposit



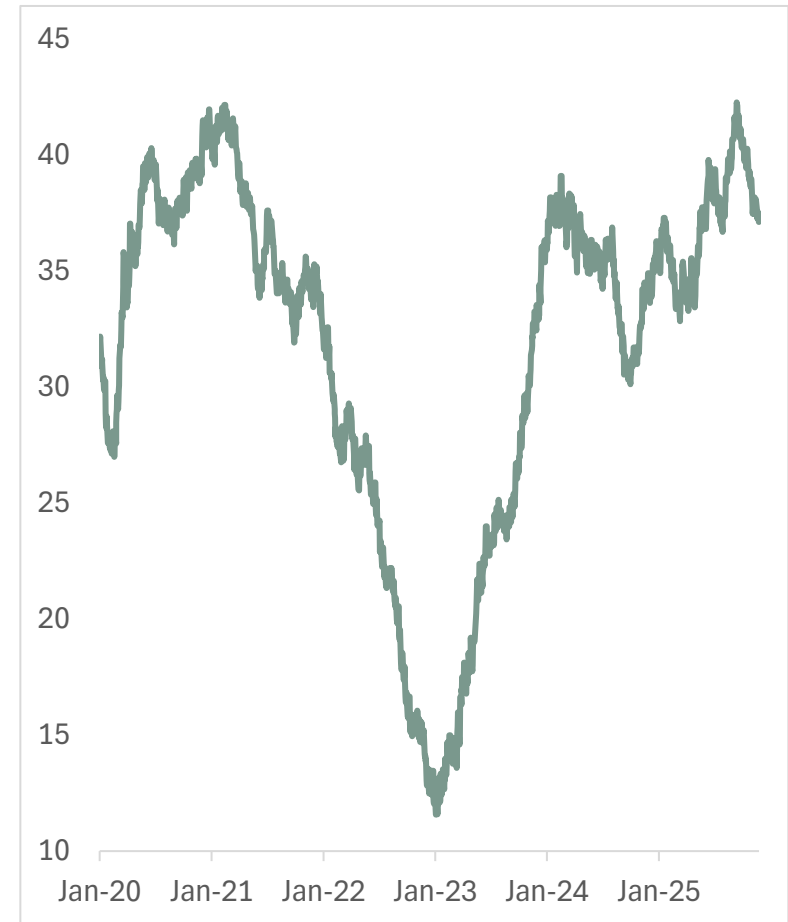
Sources: Crane's Data, SMBC Nikko

Note: As of October 31, 2025. Sources: Crane's Data, SMBC Nikko

Money fund maturities

- Money funds WAMs are sensitive to the expected direction and timing of policy changes
- WAMs also reflect substitution effects between repo and bills
 - Ahead of debt ceiling negotiations

WAMs (d)



Note: Gov-institutional funds. Sources: Crane's Data, SMBC Nikko

Stablecoins and money fund competition?

- While stablecoins are not federally insured, they are fully collateralized with short-term government assets
 - We think this makes them closer to money fund balances than bank deposits
- That said, money fund balances are used primarily for “liquidity storage” rather than to make transactions

Bills and Treasury issuance

Optimal Treasury issuance

- **The Treasury's choice of maturities seeks to minimize its debt service costs and their volatility.**
 - It can save on its servicing costs by shifting more issuance to bills but this increases their sensitivity to changes in market rates
 - But as term premia rise with maturity, shifting to a long-maturity heavy issuance portfolio increases servicing costs while reducing their volatility
 - The choice must also meet Treasury investor demand while keeping issuance “regular and predictable”
- **Should the Treasury increase its bill issuance further to bring down debt servicing costs?**
- The Treasury Borrowing Advisory Committee (TBAC) estimates the Treasury's current bill heavier maturity mix is near the efficient frontier between servicing costs and volatility^{1/}
 - Baseline debt servicing costs average 4.5% of GDP with volatility of about 1% over the 20y forecast horizon.

^{1/} See, TBAC Charge, November 2025 Quarterly Refunding presentation, November 5, 2025.

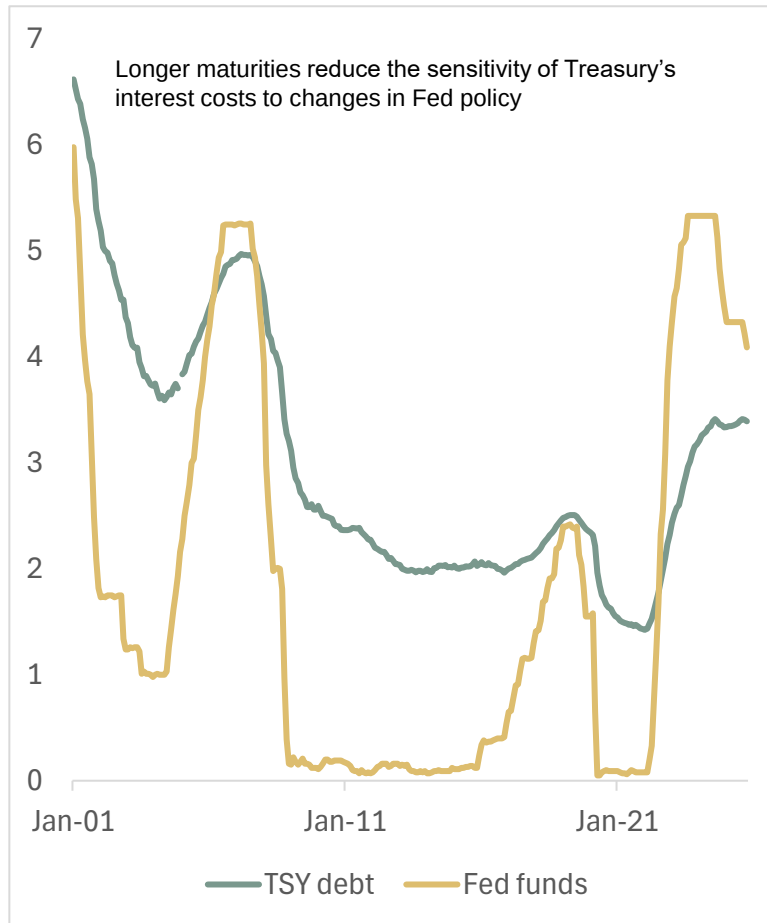
Optimal issuance is sensitive to economic and fiscal factors

- **But the optimal mix changes with shifts in the economy and term premia.**
- TBAC finds that the current mix is less efficient if growth slows or inflation rises^{1/}
 - Instead, the Treasury might consider a more conservative issuance portfolio
 - Shifting some of its bill issuance to coupons with maturities of 2-7y

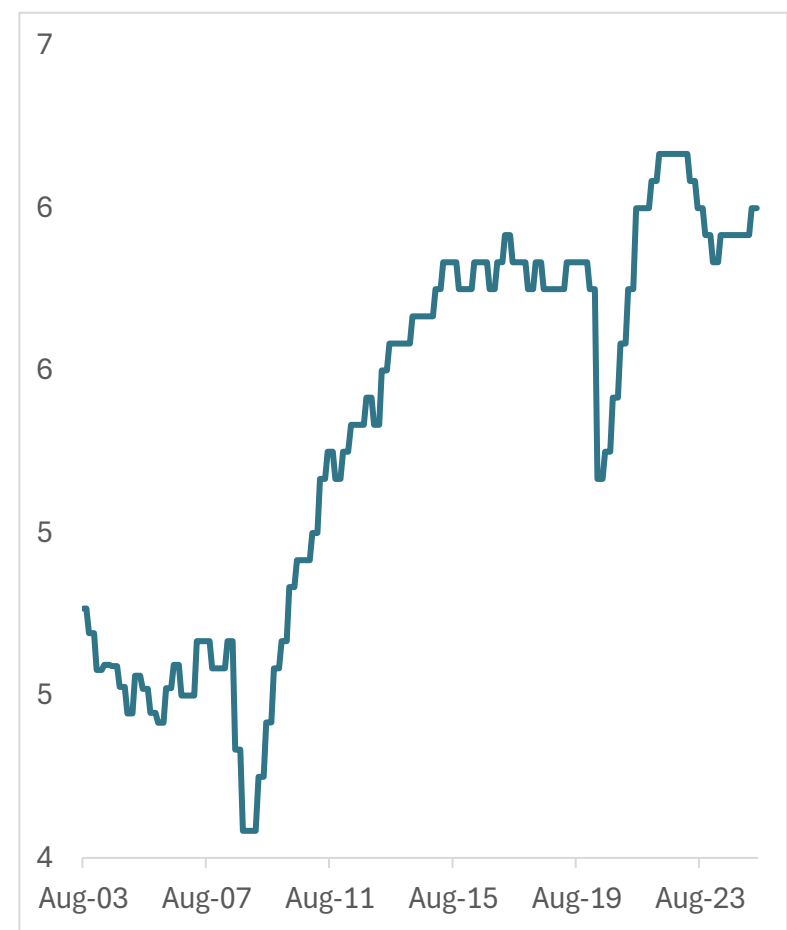
^{1/} The Treasury might be able to reduce the volatility of its servicing costs without much of an increase in cost.

Debt service costs

Average rate on Treasury debt (%)



Treasury market WAM (y)

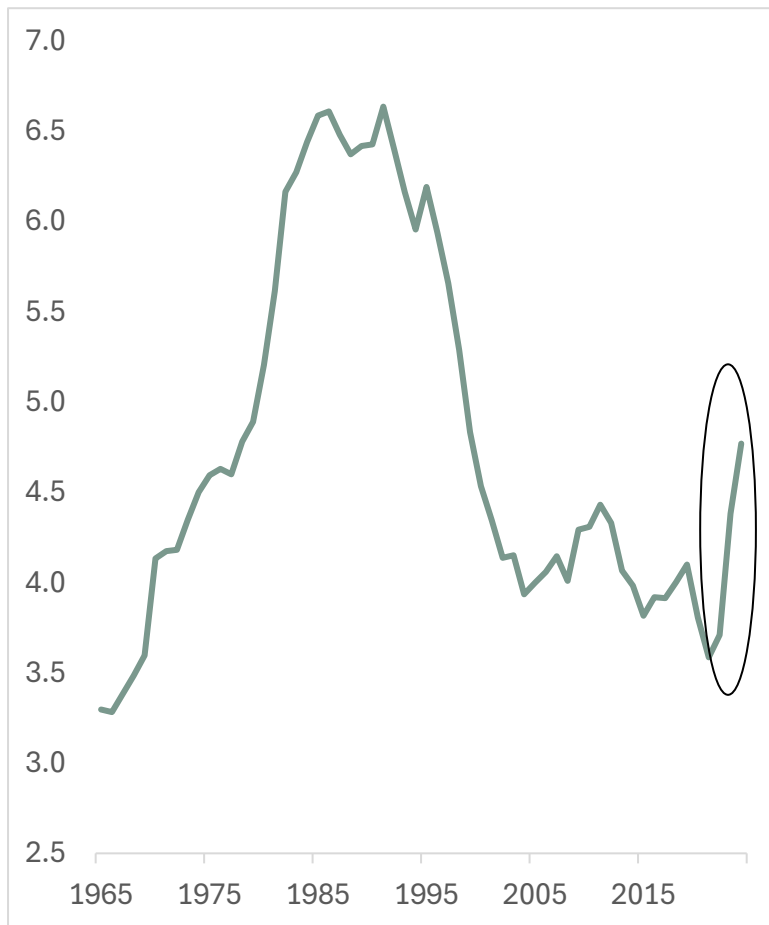


Sources: US Treasury, SMBC Nikko

Sources: US Treasury, SMBC Nikko

Debt servicing costs are rising...

Interest (% GDP)



- Debt servicing costs have increased sharply as debt outstanding has grown to 94% of GDP
 - And the Fed's tightening has increased the interest rate on public debt
- The CBO is projecting a 20y average primary deficit of 2.1% of GDP^{1/}
 - And net interest costs averaging 3.9% of GDP over the period

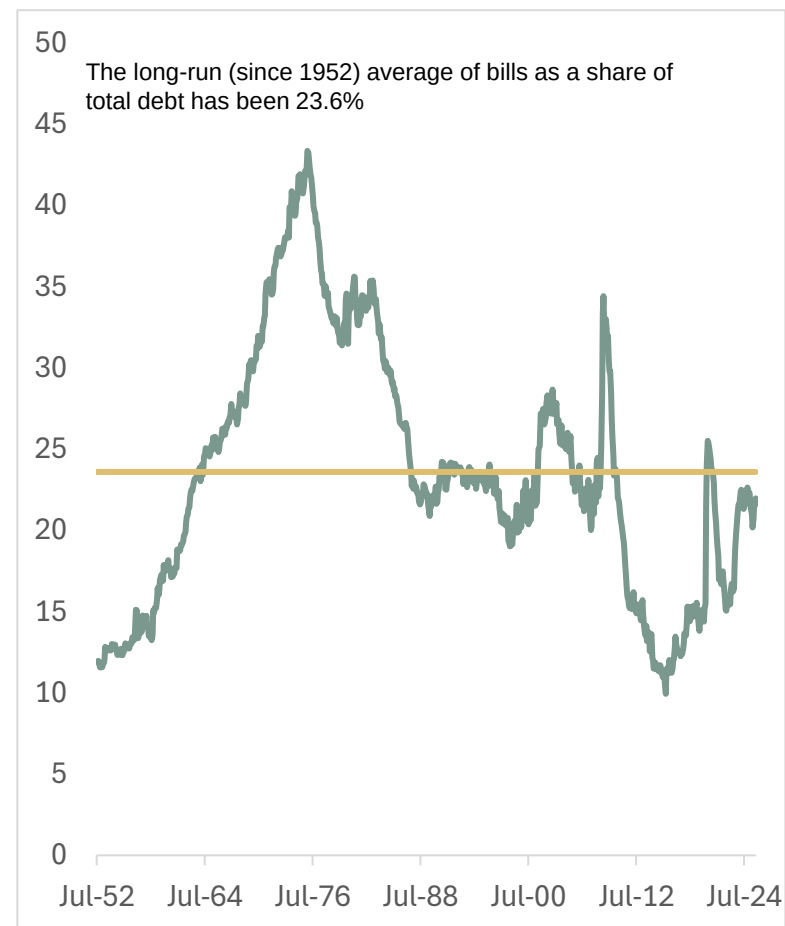
Sources: BEA, SMBC Nikko

1/ As of its March 2025 report.

Bill share

- The Treasury has increased bill issuance since 2023
 - To accommodate stronger money fund demand as interest rates rose
- Money funds shifted balances from the RRP into bills
 - So, the Treasury was able to increase bill supply by 78% with little increase in rates^{1/}
- But, the bill market is close to its long-run average share of outstanding debt.

Bill share (% debt outstanding)

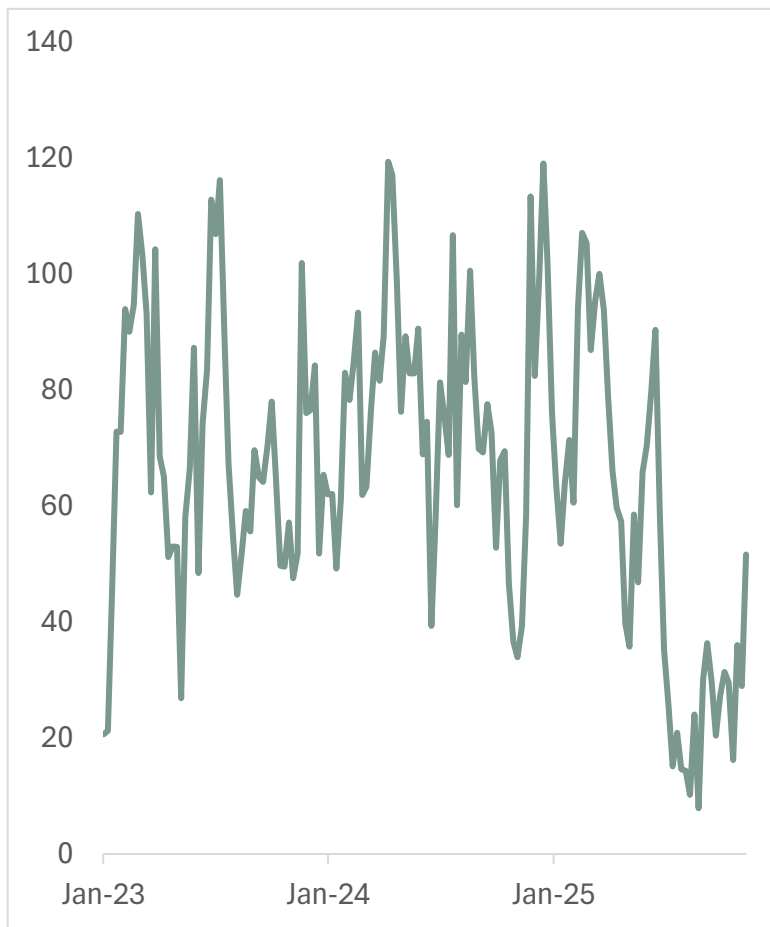


^{1/} Since December 2022. As of October 31, 2025, total bills outstanding was near \$6.6trn.

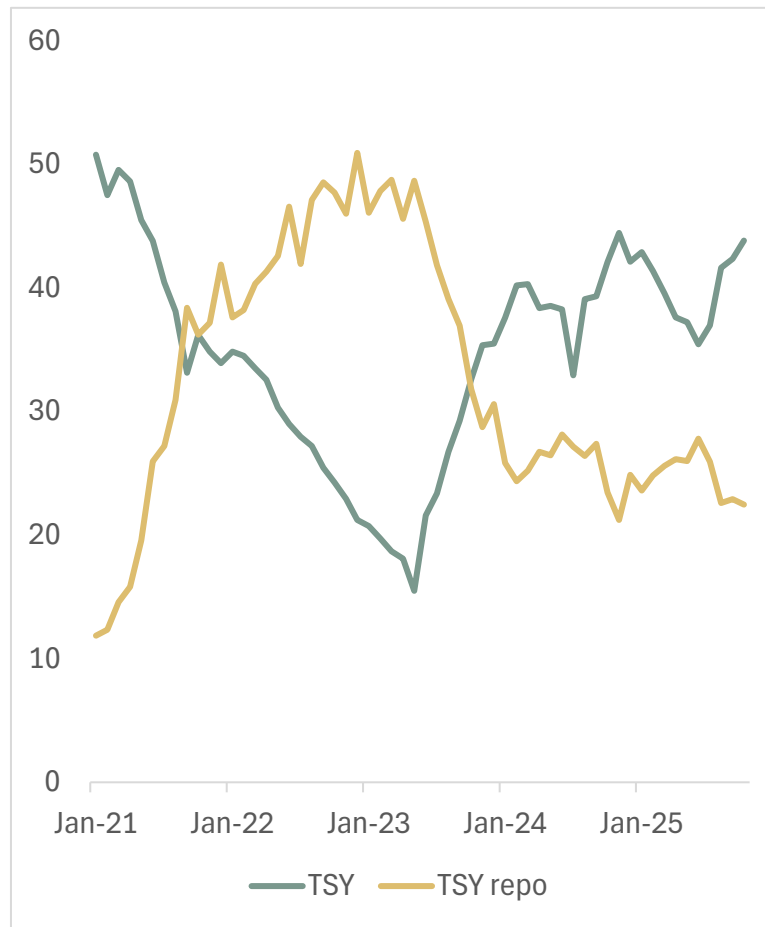
Sources: US Treasury, SMBC Nikko

Recent heavy bill issuance has been readily absorbed

Dealer bill inventories (\$bn)



Money fund holdings (%)



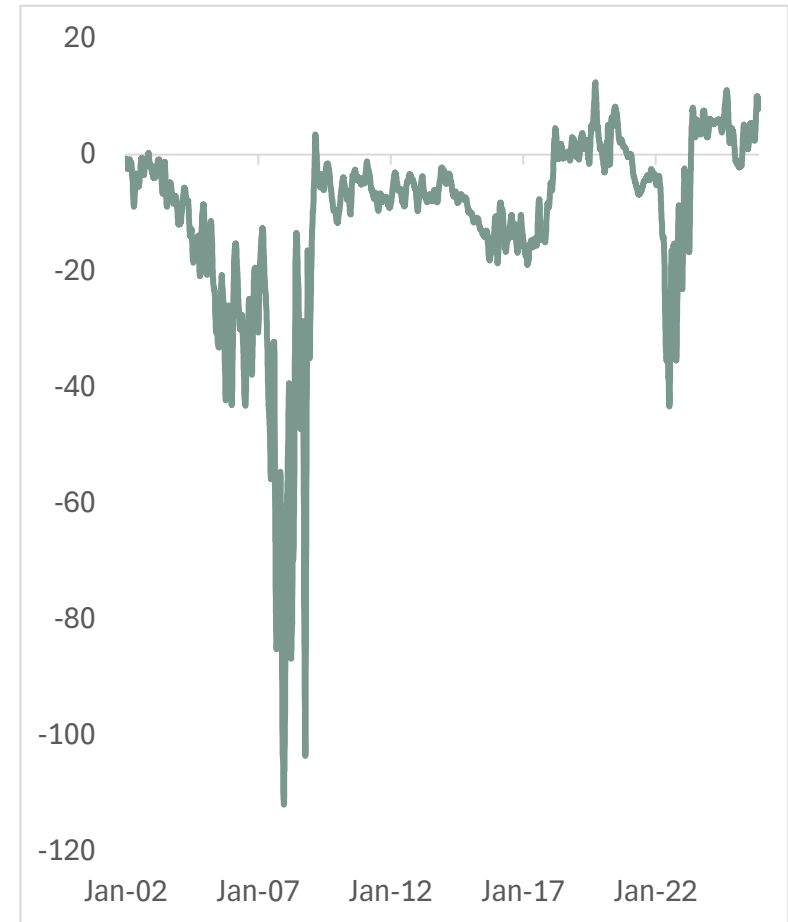
Sources: Federal Reserve, SMBC Nikko

Note: TSY repo holdings include RRP balances. Sources: Federal Reserve, SMBC Nikko

Bill yields

- Bill yields relative to OIS are close to the upper end of their historical range
 - Bills richened significantly during the financial crisis and during COVID
- But they also traded rich (OIS-20bp) between 2014-18 when issuance was sparse
 - And bills were less than 15% of debt outstanding^{1/}

3m bill less OIS (bp)

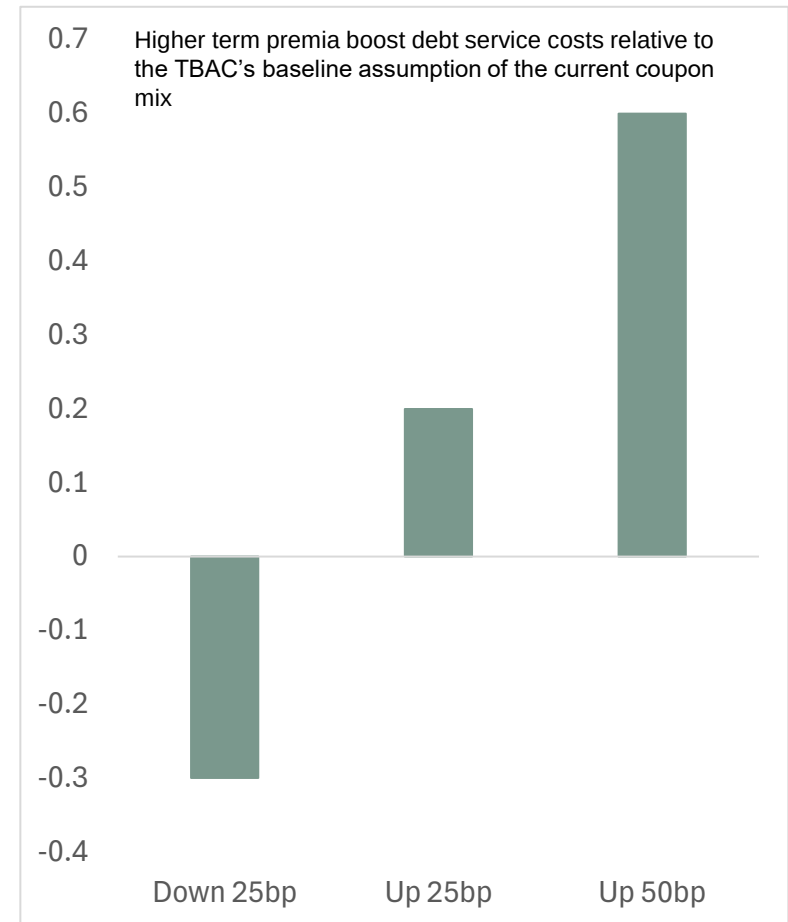


^{1/} See slide 86.

Higher term premia boost debt service costs...

- Higher term premia boost debt servicing costs
 - Particularly for issuance mixes with more term issuance

Estimated change in costs (%GDP)



Sources: US Treasury TBAC November 2025 presentation, SMBC Nikko

...but heavier bill issuance may not reduce costs much

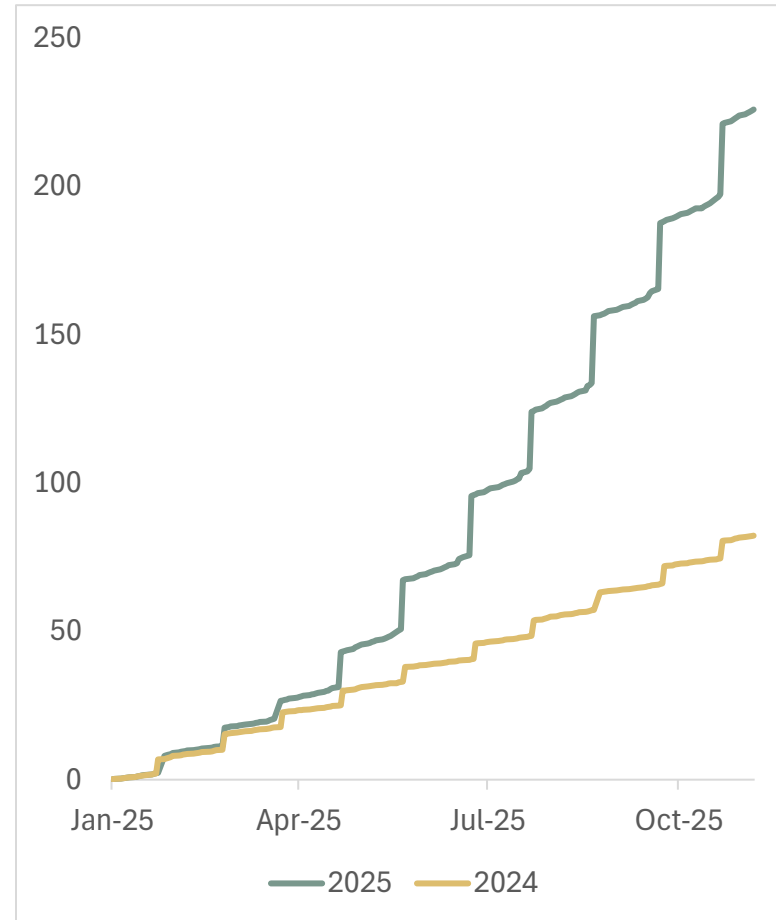
- TBAC estimated the cost (and volatility) of sharply increasing bill supply
 - It assumed that coupon issuance grew in line with GDP and the balance of the deficit was financed with bills^{1/}
- Relative to the current mix the bill heavy issuance mix saves only a tenth or so
 - But with more volatility

^{1/} This pushes the bill debt share toward 50% over the 20y forecast horizon.

Tariff revenues

- Higher tariffs have increased Treasury revenue
 - And are running at an annual rate of about \$300bn
- The CBO estimates that tariffs might raise \$3.3trn in revenue through 2035^{1/}
 - Or approximately 0.2-0.8% of GDP in new revenue
- But higher prices will shift more production onshore
 - And over time, revenues may decline

Tariffs revenues (\$bn)



1/ Assuming current tariffs (including IEEPA) remain in effect over the period.

Note: Cumulative change since January 1. Sources: US Treasury, SMBC Nikko

Tariff uncertainty

- The IEEPA tariffs face legal challenges
 - And it is unclear if the Supreme Court will limit the Administration's ability to impose these emergency tariffs
 - Moreover, if it rules against the Administration will the revenues collected be returned
 - And, how?
- The Administration has other channels for imposing tariffs:
 - **Sec 301:** Allows the US Trade Representative to impose tariffs or trade restrictions against trade practices deemed “unjustifiable”
 - But requires an investigation of these practices
 - **Sec 232:** Allows the President to impose tariffs if foreign trade practices are found to be a threat to national security.
 - Has been applied to metals, vehicles and parts^{1/}
 - **Sec 122:** Allows the President to impose temporary tariffs and import restrictions without an investigation of trade practices.
 - Tariffs are limited to 15% and can only be set for a maximum of 150d
 - **Sec 338:** Allows the President to declare that a foreign country imposes “unreasonable charges...regulations or restrictions” on US trade
 - Enabling the President to impose tariffs of up to 50% on that country's imports
 - Has rarely been used and faces Congressional challenge

^{1/} In June 2025, Sec 232 authority increased tariffs on imported steel and aluminum from 25% to 50%.

Debt ceiling

- Congress imposes a limit on the amount of marketable debt outstanding
 - The Treasury cannot issue new debt above this limit^{1/}
- Congress can suspend the debt ceiling temporarily or increase the (dollar) limit
 - Debt ceiling suspensions cannot be passed through budget reconciliation
 - That is, a suspension requires a super-majority in the Senate
- Efforts to remove or redefine the debt ceiling (perhaps as a percent of GDP) have made little progress in the last 30y

^{1/} In practice it can exceed this limit through its use of extraordinary measures.

Treasury's cash balance

- The Treasury can maintain a “business as usual” cash balance during the debt ceiling period
 - That is, a cash cushion equal to 5-7d of expected outflows
- It is not required to reduce its cash balance ahead of the expiration of the debt ceiling suspension period
- But its ability to maintain a 5-7d cash buffer *after* the debt ceiling suspension has expired is limited by its tax receipts and its remaining extraordinary measure capacity

Extraordinary measures

- Extraordinary measures are accounting rules that allow the Treasury to issue debt above its ceiling by converting non-marketable debt into public debt that can be sold to the public
 - Non-marketable debt represents inter-government liabilities
- But the extraordinary measures only provide a limited amount of borrowing capacity
 - In 2025, this was about \$350bn
- The two largest sources are the Treasury's Exchange Stabilization Fund and the Federal Retirement Thrift Savings Plan
 - The Treasury creates room under the debt limit by redeeming the non-marketable securities held in these funds as they mature and as they pay out retiree benefits
- During the Debt Issuance Suspension Period (DISP), the Treasury provides weekly updates of its remaining extraordinary measure capacity

X-date

- The x-date is the point at which the Treasury has little remaining extraordinary measure capacity and cash
- As the x-date approaches, the Treasury warns Congress
 - And investors begin to worry about payment delays on Treasury securities
 - In turn, they begin to sort CUSIPs that are the most vulnerable to payment delay
 - And avoid holding or financing them^{1/}

1/ Although this behavior may begin a few months in advance of the anticipated x-date, it does not peak until within 2 weeks of the date.

Debt prioritization

- The Treasury appears to have the ability to prioritize its debt payments^{1/}
 - It could hold back non-interest outlays ahead of the coupon settlement dates to ensure it has enough resources to make its upcoming interest payments
 - Maturing debt creates room under the debt ceiling for issuing replacement debt
 - So, the Treasury can readily roll its maturing debt
 - But debt prioritization assumes the Treasury has enough time and forecasting ability to hold back sufficient non-debt outlays to plan for an upcoming interest payment
- Delaying non-interest payments however is not a long-run strategy as the Treasury is running a deficit
 - So, these outlays will pile up, unpaid

^{1/} This has never been confirmed by the US Treasury although it was mentioned in the [August 2011 FOMC Meeting Minutes](#). The Treasury normally makes no distinction between debt and non-debt payment processing.

Stablecoins

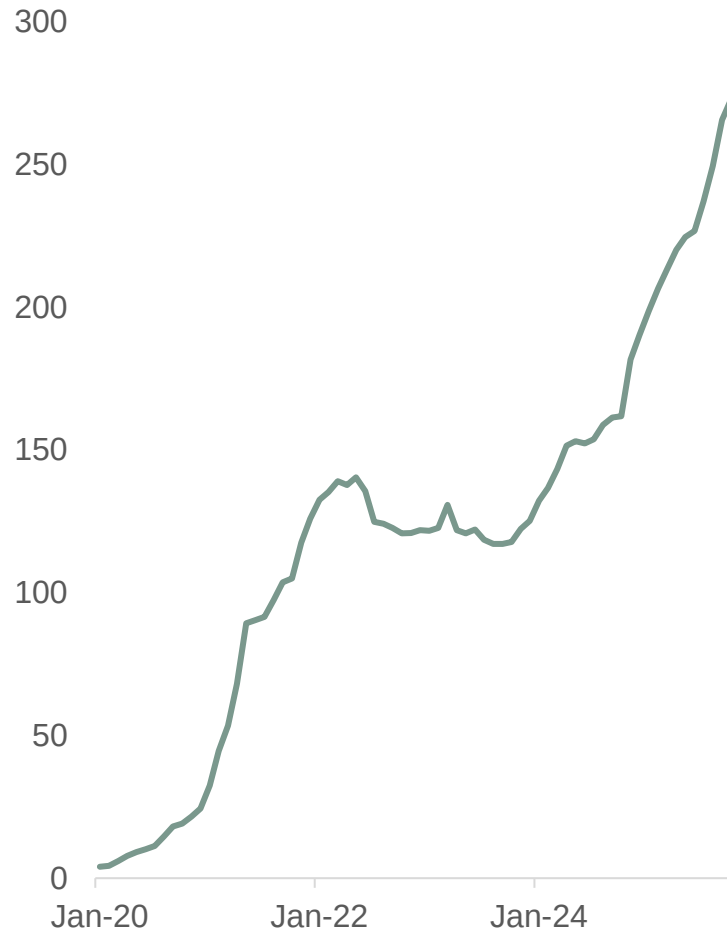
Unbundling money^{1/}

- Payment tokens allow for the unbundling of money
 - The ability to separate its function as a medium of exchange from its use as a store of value
 - Imagine holding money as an interest yielding store of value and only ever converting it into a medium of exchange at the millisecond it is spent
 - “Resting” money might always be earning interest (or be fully invested)
 - While “spending” money might exist only briefly as it changes ownership
- At the same time, the standard functions of money can be re-bundled with new, non-monetary functions
 - For example, tying payments or rewards to social media
- *Money can now compete on features outside the payment of interest*

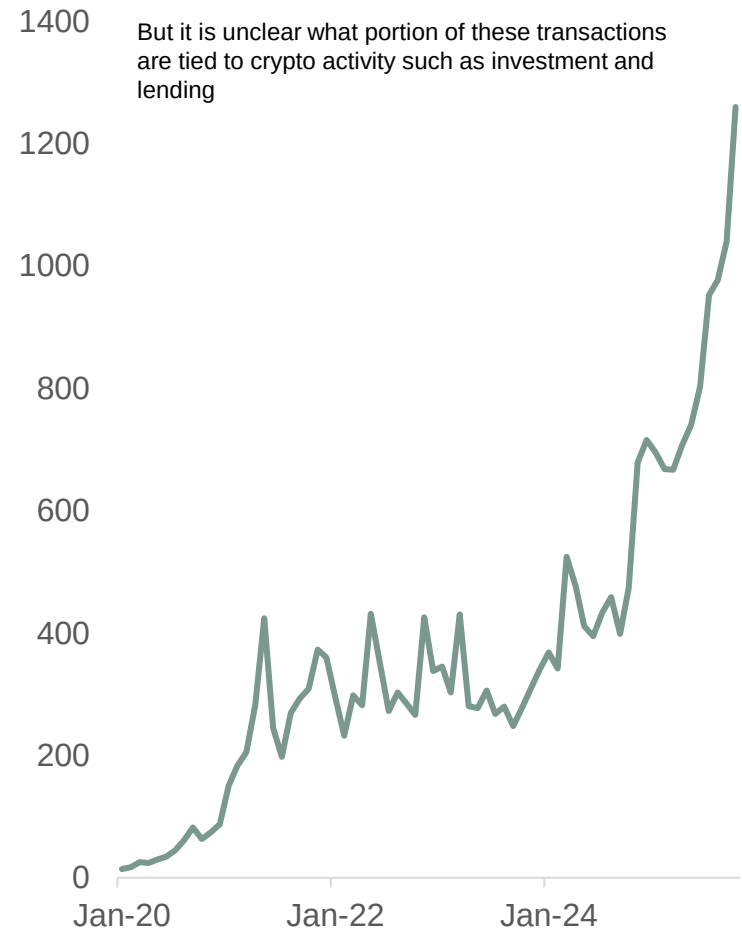
^{1/} See, [“The Digitalization of Money”](#), M. Brunnermeier, H. James, and JP Landau, Bank of International Settlements, May 2021.

Stablecoin activity

Outstanding (\$bn)



Monthly transactions (\$bn)



Note: Transactions are adjusted for high-frequency trading and bots.
Sources: Visa, visaonchainanalytics.com, SMBC Nikko

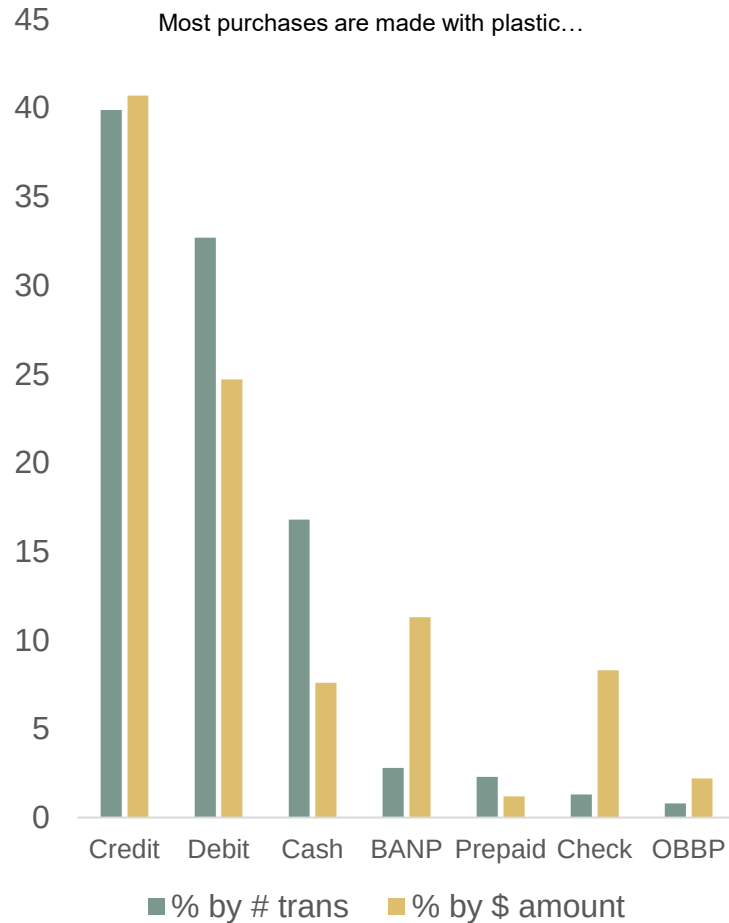
Sources: Visa, visaonchainanalytics.com, SMBC Nikko

Payment media: Faster

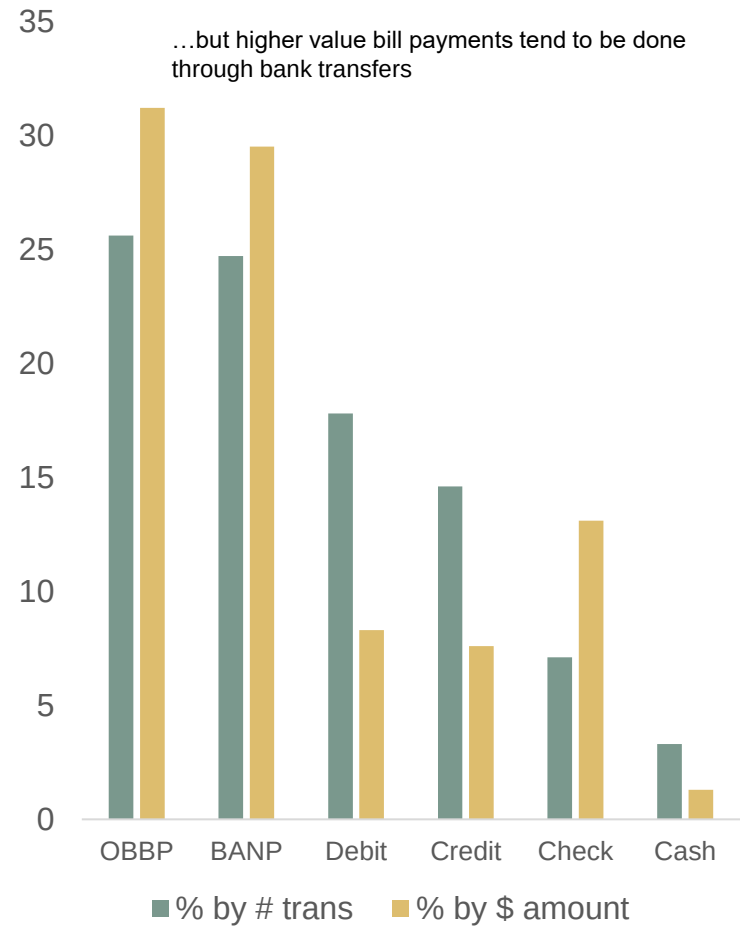
- Payment tokens promise faster payments:
 - Cheaper to reconcile transactions on a single (distributed) ledger
 - Require fewer intermediaries
 - Especially for cross-border transactions which are frequently processed through correspondent banks
- Payment tokens also allow for programmable transactions
 - Self-reversing upon the satisfaction of some pre-set trigger
 - Like an automatically unwinding repo transaction or margin payment

Household payments^{1/}

Purchases (%)



Bills (%)



Sources: Foster et al, SMBC Nikko

Sources: Foster et al., SMBC Nikko

1/ See, "[Payment Choice](#)", K. Foster, C. Greene, and J. Stavins, Federal Reserve Bank of Atlanta, May 2025. BANP and OBPP include ACH bank transfers and online bill payments.

Household crypto^{1/}

- According to the Payment Choice survey only 8% of households reported owning any crypto in October 2024^{2/}
- Overwhelmingly, crypto holders see their holdings are investments rather than payment media
 - *Just 1.5% of surveyed households saw crypto as a way to “buy goods and services”*
 - Although this share has doubled since 2021 (0.7%)^{3/}

1/ See, “[Payment Choice](#)”, K. Foster, C. Greene, and J. Stavins, Federal Reserve Bank of Atlanta, May 2025.

2/ We suspect that this is now higher given the rally in crypto prices this year.

3/ There may be some confusion about the definition of “crypto”; households may view this to mean assets *other* than stablecoins.

Where do payment tokens fit in?

- Given the array of payment media available, where do payment tokens fit in?
 - Our sense is that these tokens are more likely to be used in purchases than bill payments
 - Which suggests they may compete more closely with debit cards and currency
 - As payment token issuers themselves will not provide credit it is hard to see the tokens competing with credit cards
 - However, credit card companies and banks may use tokens to speed up payments over their existing networks

Cash equivalence

- Full collateralization with liquid, safe assets should reduce the risk of holders rushing to redeem their tokens
 - As each dollar withdrawn could be satisfied by the sale (or unwind) of a dollar the token's *stable value* collateral^{1/}
- In theory, if holders believe they will always be able to monetize their token, there should be little need to convert them to cash. The token becomes as “good as cash”
- Accounting recognition for cash equivalence requires “guaranteed” redemption mechanisms
 - Not subject to minimum balances or other transfer and redemption requirements
- *But while the token may trade in a 24h/7d market, the assets collateralizing the token may not*
 - So, full convertibility cannot be guaranteed immediately or at par
 - And this could mean that investors seeking immediate monetization might accept less than the value of the collateral backing the token

1/ Importantly, this is supported by full, frequent and transparent reporting of the token's collateral.

2/ See, [“The Financial Stability Implications of Tokenized Investment Funds”](#), P. Azar, F. Carapella, JP Perez-Sangimino, N. Swem, and A. Vardoulakis, Federal Reserve Bank of New York, September 24, 2025.

Interoperability

- Network effects require individual stablecoin issuers to have tokens that can be used interchangeably with others
 - To seamlessly transfer value across tokens and traditional assets
- A fragmented market with limited interoperability would confine tokens to “walled gardens” or silos where they risk becoming single function tokens
 - Like corporate reward or loyalty programs
- *But with interoperability and cross-use, what differentiates one token issuer from another?*
 - And how can issuers differentiate their offerings without paying interest or explicitly tying their token to specific goods and services?^{1/}

^{1/} Under the GENIUS Act, token issuers are prohibited from paying interest on their tokens or tying them to specific goods and services.

Tokenization

- Payment tokens may face competition from the tokenization of bank deposits and money funds
- We see three potential uses from tokenizing these assets:^{1/}
 - The creation of a secondary market for liquidity pools
 - Allowing money fund shares and deposits to trade as a medium of exchange
 - Like gold certificates
 - As a store of value for DeFi transactions
 - The tokens can be used as lending or borrowing proceeds
 - Margin collateral
 - Accepted in the place of cash, i.e., “on chain collateral”
 - In March 2020, as margin calls jumped, investors could have pledged tokenized money fund shares instead of selling them
 - Which forced the funds to liquidate their underlying holdings
 - Causing the CP market to seize up

^{1/} See [“The Emergence of Tokenized Investment Funds and Their Use Cases”](#), P. Azar, F. Carapella, JP. Perez-Sangimino, N. Swem and A. Vardoulakis, Federal Reserve Bank of New York, September 24, 2025.

Tokenization (2)

- Money funds have only begun experimenting with tokenizing their shares
 - Total tokenized balances are \$4bn
- Tokenized deposits
 - Like payment tokens in that they allow for peer-to-peer transactions
 - With instantaneous settlement over a blockchain
 - Can be used for payments and redemptions of other digital assets
 - While maintaining customer relationship and access to other bank services.

GENIUS Act

- The GENIUS Act establishes a regulatory framework for payment tokens
 - It outlines what activities issuers are allowed to conduct
 - And the types of assets backing the token
- Issuers are obligated to convert, redeem, or repurchase their tokens
 - We interpret this to mean that they cannot establish minimum redemption requirements that force holders into a secondary market to convert their tokens for cash
- Issuers cannot pay interest or offer yield on their tokens^{1/}
 - All issuers are subject to anti-tying requirements
- Although banks can issue these tokens they cannot be deposits or deposits on a distributed ledger
 - This removes the possibility of deposit insurance coverage for bank issued payment tokens
- Tokens must be fully backed with liquid, easy-to-monetize assets including Treasuries (<93d), repo, money fund shares and cash. They can also hold tokenized versions of these assets
- Regulation is determined by the size of the issuer – issuers with less than \$10bn in outstanding tokens are regulated by state regulators
 - Larger issuers are regulated by Federal regulators
 - Bank-issuers are regulated by the Fed, FDIC or state banking regulators
 - Non-bank issuers are regulated by the OCC

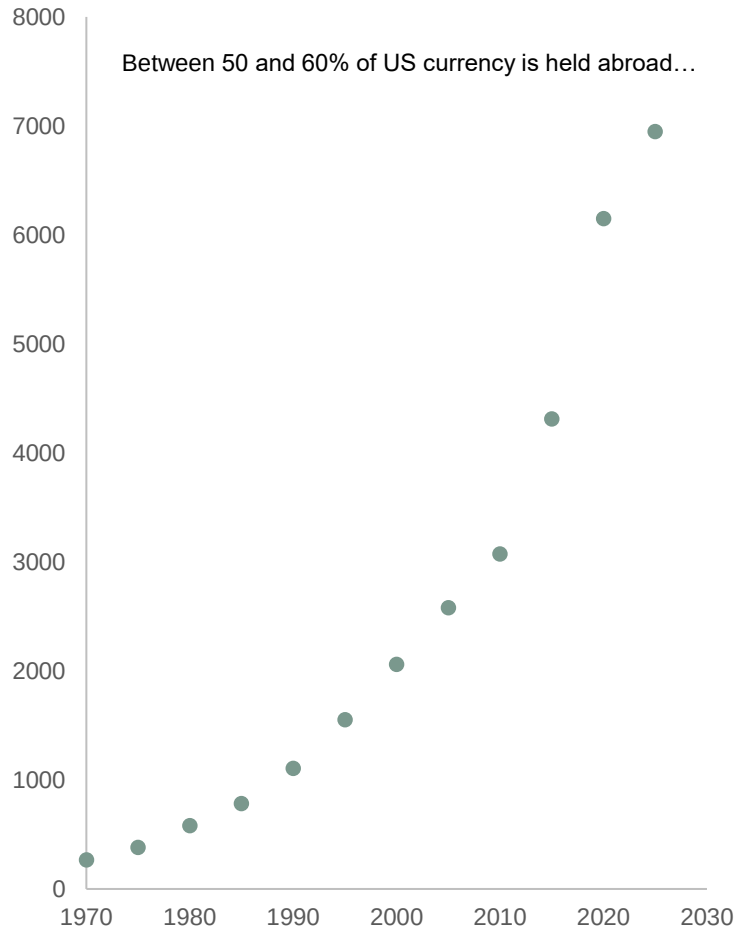
^{1/} This has not prevented exchanges on which the tokens are traded from offering yield rewards.

Non-US demand

- Dollarized stablecoins are likely to be attractive in areas with significant underbanked populations, or in regions with unstable domestic units and high remittance fees.
 - This also helps explain the significant offshore demand for physical US currency – particularly, the \$100 bill.
 - Between 50 and 60% of the \$2.2trn in outstanding paper dollars is held offshore.
- Potential offshore demand for dollar stablecoins as substitutes for large denominations and as lower-cost remittance vehicles could exceed \$1trn over the next decade.

Currency

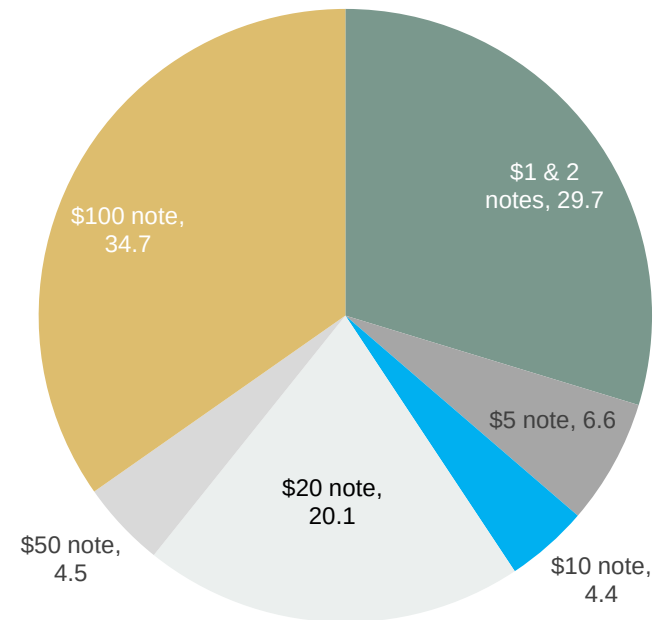
Per capita US currency (\$)



Sources: US Treasury, SMBC Nikko

Currency by denomination (% total)

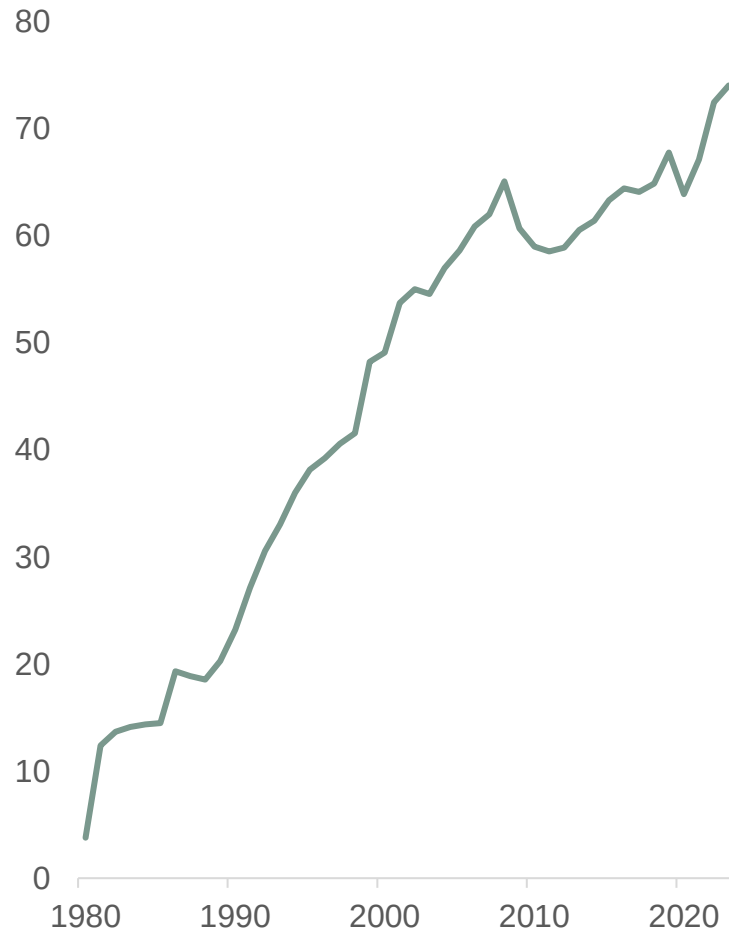
We think a significant portion of the future offshore demand for \$100 bills might be replaced by stablecoins



Sources: US Treasury, SMBC Nikko

Dollar remittances

Dollar remittances (2017 \$bn)



Remittance costs (%)

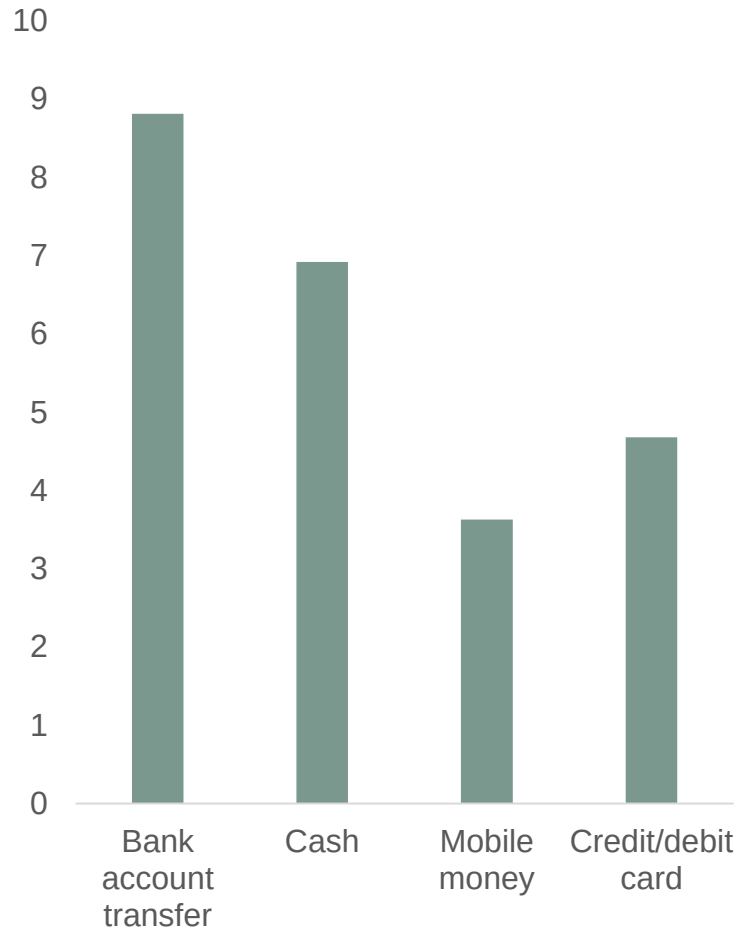


Note: US dollar outflows. Sources: Migration Policy Institute, SMBC Nikko

Note: Percentage cost to send \$200. Sources: World Bank, Remittances Prices Worldwide, SMBC Nikko

Remittance costs by type

Average cost by type (%)



- Remittances sent through bank-to-bank transfers are more expensive than other means
 - Mobile money – or an online payment sent to a non-bank transaction account is cheaper than remitting cash or using credit/debit cards

Note: Percentage cost to send \$200. Sources: World Bank, Remittances Prices Worldwide, SMBC Nikko

But does it have to be a *dollar* stablecoin?

- A dollar stablecoin would benefit from strong network effects
 - The dollar is already heavily used in:
 - Global trade
 - Invoicing
 - Sending remittances
- And most existing stablecoins are already dollar denominated
- But, if digitization makes cross border payments cheaper, faster and easier, will there be as much demand for dollars?^{1/}
 - As an intermediate, or vehicle currency used to exchange between currency_a and currency_b?
 - And instead, could digital currency areas develop that do not use dollars?
 - Within a multipolar monetary system?

^{1/} See, "[Is Tokenization a Game-changer for the International Monetary System?](#)", A. Bénassy-Quéré, Banque de France, Reinventing Bretton Woods, Durban, July 16, 2025.

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