US Rates Strategy

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Tokenizing repo: just-in-time funding?

Shifting repo transactions onto distributed ledger (DLT) blockchains promises significant efficiencies. But much of the current focus is on using blockchains to increase intraday repo trading.

- **Replacing the exchange of cash and collateral with a blockchained token would allow for real time (atomic) settlement, 24/7 markets along with a potential expansion of collateral eligibility**. Smart contracts would make collateral substitution and optimization simpler and faster.

- Broadridge reports average daily volume of tokenized assets on its distributed ledger repo platform reached $368bn/day in April – up 268% from a year earlier.[1] DTCC is developing a tokenized asset repo platform (AppChain).

- Tokenization might accelerate the development of an intraday repo market where tokens are exchanged for a few minutes. **Repo could be tailored to match the time the funding is needed with smart contracts**.

- **The development of a liquid and deep intraday market might allow banks to fund themselves on a "just-in-time" basis, theoretically reducing the size of their surplus liquidity buffers.** This might also reduce their demand for reserves and allow the Fed's balance sheet to shrink.

- Similarly, intraday repo could reduce bank counterparty risk by shortening the exposure period in their capital calculations. And, it might also reduce investors' need for surplus initial margin buffers.

- **Most of the analysis on tokenizing repo focuses on the development of intraday markets rather than the gains from managing collateral more efficiently.** But we are uncertain how much potential demand there is for intraday borrowing and lending.

Blockchaining repo

Intuitively, it makes sense to replace the physical movement of cash and collateral in a repo transaction with a token whose ownership is updated on a blockchain at the start and end of a trade. Indeed, this is just an update of old technology. Rather than moving gold from one counterparty to another, banks and depositors would exchange paper notes collateralized by the gold held in vaults. Gold

[1] See, "Repo Achieves 268% Year Over Year Growth in April", Broadridge, May 4, 2026, press release.

might only move if the note holder wished to redeem paper for gold. And even this might only involve changing the ownership record in a ledger maintained by a trusted central counterparty.

A blockchained collateral token is updated similarly.[2] This is easiest when the cash and collateral each sit in a “box” at the tri-party clearing bank. In this case, the clearing bank has complete visibility into both sides of the transaction. But the general principle is the same for assets that are not located in the same place. Instead, they (or their wrapped tokens) can be transferred over linked blockchains. Moreover, these blockchains can be updated automatically based on the parameters of a smart contract – to, for example, unwind at exactly 9am the next morning or to send a margin call if the collateral value falls below the haircut.

There are significant potential efficiencies to tokenizing repo. The simple tri-party transaction requires coordination across three different ledgers: the cash borrower, the lender, and the tri-party clearing bank. Each needs to confirm its side of the trade matches what the tri-party clearing bank knows. Blockchaining replaces this with a single ledger visible to all three parties to the repo. As a result, settlement is faster and more transparent.

Building on this it is possible for an investor to maintain a pool of assets that could be tokenized (in whole or in part) to pledge as collateral. And because multiple ledgers can be linked to each other, the movement of cash and collateral no longer needs to be constrained by trading hours or borders. **As a result, tokenization allows collateral to be mobilized more quickly**. **Together with smart contracts this allows for instantaneous collateral substitution and enhanced collateral optimization**. It can also allow real time margining. As a result, borrowers can pledge a wider mix of collateral and more easily monetize their asset pools.

Interest in tokenizing assets and using them in repo has picked up. **In April, Broadridge reported that its distributed ledger repo service was processing an average daily volume of $368bn/day against all tokenized real assets**. The DTCC recently released a report on its Collateral AppChain.[3] AppChain allows investors to view and tokenize the assets in their asset pool across different agreements, centrally cleared platforms and tri-party banks. As it points out, the AppChain is designed to “move any value in any jurisdiction on a 24/7 basis, through unified rails”.

Intraday repo

We think there are significant efficiencies from consolidating ledger checking and improvements in collateral substitution from tokenizing repo. **But the industry seems more focused on potential gains from intraday trading**. While intraday trading does not require tokenization, blockchaining assets makes it easier to tailor transactions to the borrower’s specific financing needs. Smart contracts might mean the borrower only raises cash when necessary, for example automatically when its cash balance falls to a pre-set threshold. And because intraday tokenization makes it easier to mobilize collateral, borrowers no longer need to lock themselves into a 24h trade tied to the day’s projected peak cash outflow. Instead, they can briefly borrow the peak cash outflow without maintaining surplus cash through the remainder of the day. **Borrowers only pay for the repo they need when they need it.**

Tokenizing collateral and shortening repo maturities allows investors to use their liquidity and capital more efficiently. **Indeed, because tokenization improves collateral mobility, borrowers may be able to**

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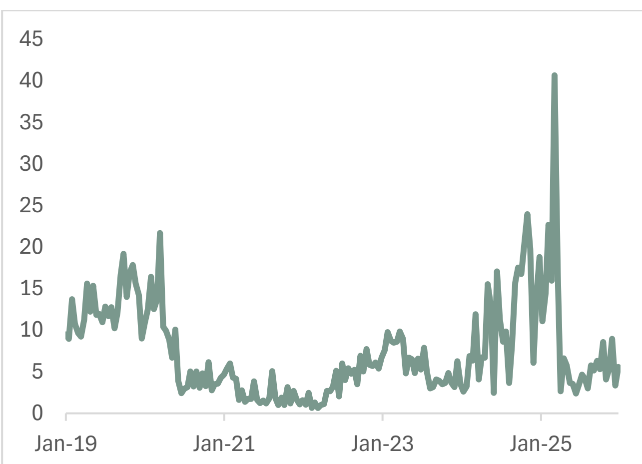
[2] As we detail below, there are different ways of tokenizing assets each with different custody relationships and legal governance.

[3] See, “Collateral Infrastructure for Tokenized Capital Markets”, DTCC and Finadium, May 13, 2026.

reduce the size of their precautionary liquidity and margin buffers. "As needed repo" means banks can smooth out any gaps between their intraday cash inflows and outflows without overborrowing in the repo market or relying on their reserve balances at the Fed.

It is also an alternative to collateralized intraday discount window borrowing. The Fed allows banks to borrow intraday from the discount window using pre-placed collateral. This collateralized borrowing is free. Even so, and despite $5trn in daily payment flows, peak intraday borrowings are less than $10bn/day (Figure 1). That said, proponents of a smaller Fed balance sheet argue that if banks were better able to monetize their Treasury HQLA they might hold fewer reserves as part of their liquidity requirements. **While a liquid and deep intraday market might not overcome banks' discount window reluctance, it could reduce their demand for reserves and shift the composition of bank HQLA toward Treasuries**. This might allow the Fed to shrink its balance sheet. Broadridge examined three banks to estimate the liquidity savings achievable through intraday repo.[4] They estimated that if these banks shifted 15% of their traditional overnight repo to intraday distributed ledger repo they might be able to reduce their HQLA demand by between 8-17%. If we assume that, in aggregate across all banks, their LCLoR (least comfortable level of reserves) is $2.9trn, such an intraday repo shift *might* reduce this amount by between $230-490bn.[5]

Figure 1: Peak intraday borrowing ($bn)



Source: Federal Reserve, SMBC Nikko

Figure 2: Global IM overcollateralization ($bn)

Source: CCP12.org, SMBC Nikko

Liquidity savings isn't limited to only banks. Investors typically maintain excess buffers to protect against an unexpected increase in their initial margin requirements. Globally, overcollateralization (adjusting for collateral haircuts) of initial margin is about 17.6% or about $150bn (Figure 2). Just-in-time repo might allow investors to raise the extra cash needed to meet an unexpected market call. Moreover, they could pledge the repo tokens directly to the exchange in place of cash. This is also an argument for the tokenization of money funds and deposits. During the 2020 "dash for cash" investors faced with margin calls liquidated their money fund holdings to raise the cash needed to pledge to the exchanges. This, in turn, forced the money funds to sell their holdings to meet the redemption requests and amplified the

[4] See, "Bank Balance Sheet Benefits from Intraday Distributed Ledger Repo", J. Galper, Broadridge and Finadium, 2026.

[5] Allowing the Fed's balance sheet to shrink by between 3 and 7%.

liquidity shock to other asset classes. If instead, investors facing margin called could have pledged tokenized money fund shares, there would have been no liquidity spillover effects.

Minimizing bank liquidity buffers may require more than just-in-time intraday repo access. Banks need to feel confident that tokenized repo is just as liquid – or the cash equivalent of – balances held at the Fed. We suspect that this will be true on most days. But lenders may turn off their smart contracts in a liquidity crisis and it may become more difficult to monetize the underlying assets. **Just because tokenization makes collateral more “pledge-able” does not mean that cash lenders are any more ready to accept tokens in a 2020-style dash for cash**. Moreover, banks may still prefer reserves to tokenized representations of assets – or, in our historical example, gold to paper.

Second, because borrowing maturities can be scaled to more closely match the length of time the cash is needed, lenders face shorter counterparty exposures and thus need to hold less capital than currently with overnight trades. DTCC notes that part of this savings comes from the fact that relative to overnight trades, intraday repo transactions are not captured in the adjusted notional exposure amount included in the SA-CCR calculation.[6] But this is only because the exposure amount is an end-of-day snapshot. That said, while counterparty exposure risk is low it may not be zero simply because it rolls off the banks’ books before 5pm. After all, a counterparty may fail within the short-period of the trade. DTCC also notes that the maturity factor used to calculate the projected future exposure (PFE) amount is lower because the term is less than a day. That said, PFE on an overnight repo is already low as the exposure horizon is very short, collateral is exchanged, and the effects of mark-to-market moves over a one-day period are small.

Tokenizing complexity

Most of the analysis on tokenizing repo and the development of intraday markets seems to gloss over how and by whom repo is tokenized. There are different ways to tokenize assets – some of which create tokens that themselves are securities and are subject to SEC regulation.[7] Custodians and potential issuers also face regulation.

Native tokenized securities are issued directly on a blockchain without an intermediary. The token-holder has the same rights as an investor recorded on the issuers’ books and records. Wrapped tokenized securities are like ADRs – the token represents an interest in a custodied position of the underlying asset. The wrapped token allows the holder to receive the underlying asset upon delivering the token to the issuer. Legally, the wrapped tokens are separate securities and transferring the tokens moves the right to receive the underlying asset. Finally, security entitlement tokens are accounting identities on the books and records of the custody agent that record the customer’s entitlement to the security. These tokens are not securities but simply digital bookkeeping mechanisms used by the custodian to keep track of security entitlements. Nonetheless, transferring the entitlement tokens on the books and records of the custodian constitutes the transfer of the underlying security.

Separately, we are uncertain how much potential demand there is for intraday repo. After all, demand for untokenized intraday tri-party is not very robust. Lenders, like money funds, prefer to have

[6] SA-CCR is the standardized approach to counterparty credit risk. Exposure at default, ED is equal to 1.4*(RC+PFE) where 1.4 is regulatory factor, RC is the replacement cost of the trade at default and PFE is the projected future exposure. Without going too deeply into the calculation, longer (counterparty) exposures increase PFE.

[7] See, “Hearing on Tokenization and the Future of Securities: Modernizing our Capital Markets”, SIFMA President Bentsen, House Financial Service Committee, March 25, 2026.

their overnight cash placed early in the morning. They use the rest of the morning to place their other, term cash. Similarly, borrowers need to raise their funding in the early morning. It is not clear how this might change once repo is tokenized.

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