WHITE PAPER

Changes in the US Repo Market Dynamics

Background

The repo market allows participants to lend or borrow cash against collateral on a short-term basis, usually overnight. Repo transactions can be settled either bilaterally, where cash and securities are transferred directly between the parties, either directly or using a tri-party platform, or via FICC who acts as a Central Counterparty (CCP) and steps in between the two parties to the repo transaction.

Both bilateral and FICC cleared repo setting will have certain advantages and limitation that will vary between broad range of market participants. In addition to available liquidity and repo rates, which may differ between the two settings, additional factors also need to be carefully considered when making the determination of optimal setting to manage repo transactions. These include the following:

- Balance sheet usage and derived from it limiting factors such as Leverage Ratio and Net Stable Funding Ratio (NSFR) – potentially will have significant impact on Banks and Broker Dealers but not on typical 'buy side' clients such as Hedge Funds (HFs) and Money Market Funds (MMFs)
- Initial Margin (IM) - Typically, bilateral repos require zero or very low haircuts while cleared repo require higher IM and resulting funding costs.
- Cost of capital - Default Fund contribution for cleared repo, eighter paid directly to the CCP or via sponsored model and paid as fee to the Sponsor.
- Additional direct costs and resources associated with Repo Clearing

This paper attempts to explain the cost/benefit relationship between bilateral repos such as tri-party and its FICC cleared counterpart and put it in the context of UST repo clearing mandate that will come into force in mid-2026.

Liquidity and Repo Rates

Recent data on the US Repo market made available by the Office of Financial Research[1], showed significant decline in tri-party repo volumes, specifically after mid-2023. While the tri-party volumes declined, Fixed Income Clearing Corporation (FICC) cleared repo transactions steadily increased in volume and by February 2024 are broadly like those of tri-party, see Figure 1.

Money Market Funds (MMF) are traditionally main players in the repo markets, acting as a cash provider. Their significance further increased following large cash inflows into MMFs following Silicon Valley Bank collapse in March 2023.

MMFs are also the largest investors in the Federal Reserve's overnight Reverse Repo Program (ON RRP) facility. ON RRP is intended to set a floor under overnight rates by offering approved counterparties the option to invest with the Federal Reserve at a fixed rate through overnight tri-party repo collateralized by Treasuries. This option gives ON RRP counterparties leverage to demand similar or higher rates from private borrowers in the repo market, thereby supporting the Federal

[1] www.financialresearch.gov

Reserve's target range for the federal funds rate. ON RRP volumes rose dramatically from $10 billion at year-end 2020 to $2.5 trillion at year-end 2022[2].

In addition to ON RRP, also tri-party repo has made up the lion's share of MMFs investments because it provides collateral management services – including valuation, delivery, and management of collateral – that are operationally complex and time-consuming. In recent years, however, MMFs become more active also in FICC centrally cleared sponsored service. The FICC cleared offering provides both 'bilateral type' DVP and 'tri-party type' GC options. Of the two, FICC GC volumes appear to be static at about $200 billion, which is an order of magnitude lower than volumes observed recently in FICC DVP and in traditional tri-party repo.

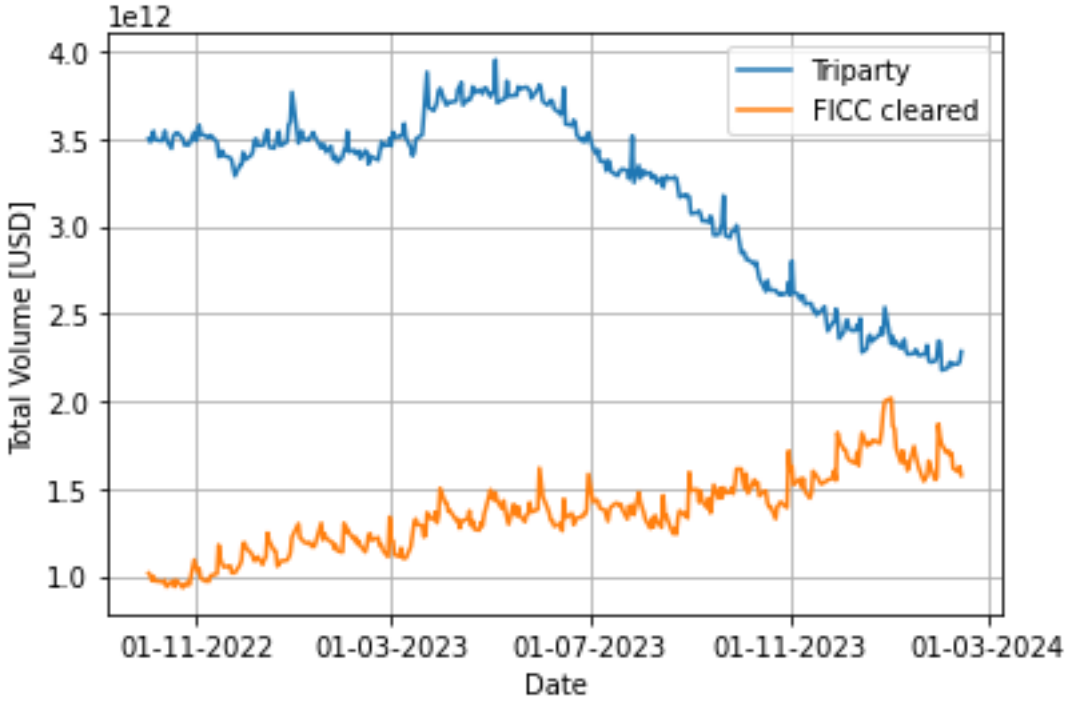

Figure 1: Repo Volumes at Tri-Party vs. FICC Cleared

In terms of repo rates, we can see that the basis between the two services is steadily decreasing, see Figure 2. In particular, after mid-2023, FICC cleared repo is offering broadly similar or even slightly better rates than what can be achieved through conventional Tri-Party. Both volumes and rates dynamic are irrevocably linked. Better rates are essential for cash providers (mainly sponsored clients such as MMFs) to offset costs associated with clearing such as Initial Margin and fees paid to the Sponsor. Conversely, the opposite is true for another large buy-side segment who acts as a cash taker, Hedge Funds. On the other hand, for Banks and Broker Dealers, the main benefits are associated with balance sheet derived regulatory metrics such as Net Stable Funding Ratio (NSFR) and Leverage Ratio and this essentially favours central clearing, primarily due to enhanced netting available at the CCP.

[2] The Fed - Money Market Fund Repo and the ON RRP Facility (federalreserve.gov)

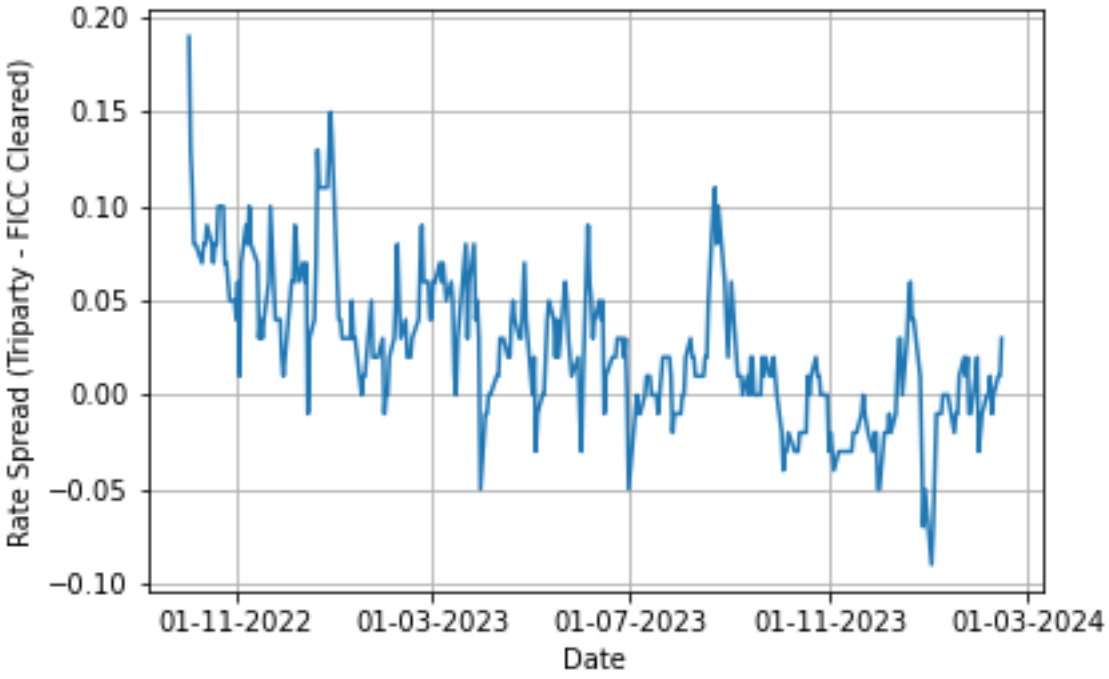

Figure 2: Spread between Tri-Party and FICC cleared average repo rate

To better understand the relationship between various factors of influence on decision making applicable to various market participants, these will be briefly reviewed in the following sections.

Effect of Repo on Banks' Balance Sheet

A repo transaction is a short-term loan agreement where one party sells an asset to another party and agrees to repurchase it at a later date. The asset acts as collateral for the loan and remains on the seller's balance sheet. The seller also records the cash received from the buyer as an asset and the obligation to repay the cash as a liability. In such case, the balance sheet increases.

In a reverse repo transaction, the opposite happens. The asset purchased is recorded as a loan and the cash paid as a liability. This leaves the balance sheet unchanged (ignoring the interest income and counterparty risk of the buyer). The schematic representation of impact of two types of repo transactions on bank's balance sheet is shown in Figure 3.

Repo is a low margin and balance sheet intensive product owing to typically large volumes being traded with a wide variety of counterparties and asset classes. Over the past years banks and broker-dealers balance sheet sizes have decreased to contain the demands on regulatory capital. This often comes at the cost of curtailing repo facilities due to rapid effect they can make to entity' balance sheet size (these are typically very short-term transactions), followed by a quick rump-up once balance sheet room becomes available again.

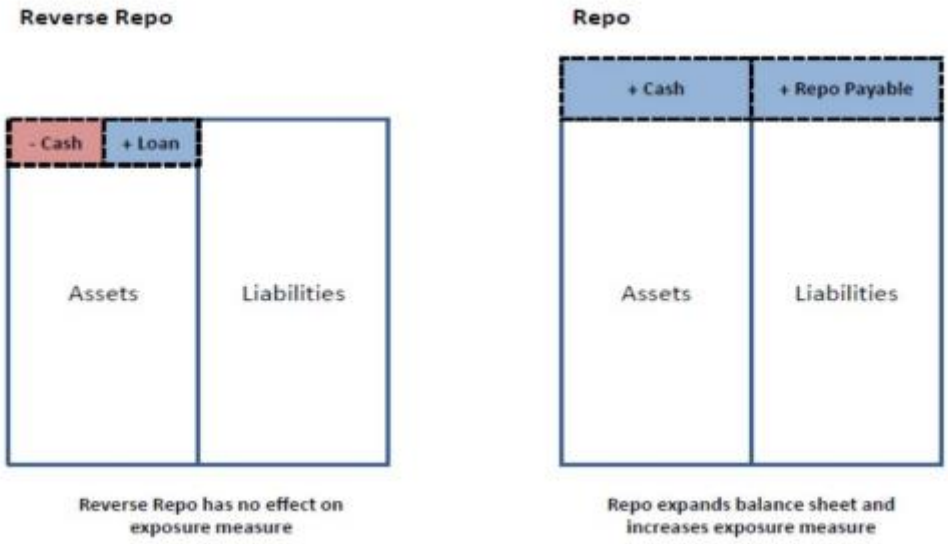

Figure 3: The impact of reverse repo and repo on a bank's balance sheet and the exposure measure used to calculate the leverage ratio[3]

Bank Capital and Regulatory Ratios

Banks and Broker Dealers will typically have the number of economic constraints when undertaking their day-to-day business. Among those most relevant to Repos are:

- Leverage Ratio and
- Net Stable Funding Ratio (NSFR)
- Central Clearing and the effect of netting

Risk Weighted Assets (RWA) utilised by repo business is typically small and do not provide any significant contribution to the economic analysis, with the exception of edge cases where repo maturity is very long, and credit quality of the counterparty is low.

Leverage Ratio

As opposed to some market and credit risk capital ratios, the leverage ratio is a non-risk weighted measure that requires banks to hold capital in proportion to the overall size of their balance sheet. As repos expand the balance sheet, the impact on the leverage ratio is immediate. As a result, the leverage ratio makes it effectively more costly for banks to assign balance sheet to low-margin and high-volume repo business. Further, systemically important financial institutions ('SIFI') are subject to a supplementary leverage ratio, on top of Basel mandated 3% floor.

Net Stable Funding Ratio (NSFR)

The NSFR requires banks to maintain a stable funding profile in relation to the composition and the maturity of their assets and off-balance sheet activities. NSFR includes asymmetries in the treatment of repos versus reverse repos and ability to net trades will contribute to this ratio reduction[4].

[3] Bank of England Staff Working Paper No. 746
[4] Repo market functioning (bis.org)

The NSFR is defined as the amount of available stable funding (ASF) relative to the amount of required stable funding (RSF). ASF is defined as the amount of capital and liabilities expected to be reliable over one year horizon. The amount of RSF is a function of the liquidity characteristics, the counterparty type, and residual maturities of assets held, as well as off-balance sheet exposures.

The NSFR imposes a stable funding requirement for receivables stemming from short-term reverse repo transactions. This requirement is set to 15% of reverse repo amounts and is lowered to 10% when the collateral is Level 1 assets (HQLA). Consequently, the spread between repo rates of transactions secured with Level 1 or Level 2 (non-HQLA) securities is likely to be higher due to the NSFR.

As an example, consider the impact of a repo transaction between two banks subject to the NSFR with a residual maturity of less than six months. The lending bank lends cash and obtains collateral in return (reverse repo transaction). The bank thereby converts cash into a receivable which requires stable funding (RSF = 10% in case of UST). At the same time the bank receives collateral which is kept off-balance sheet and has no impact on ASF and RSF. In total, the bank's NSFR decreases. The borrowing bank (cash taker) borrows cash and provides collateral in return (repo transaction). Given that the residual maturity is less than six months, the borrowed cash provides no stable funding (ASF = 0%) and the additional cash requires no additional RSF. Such asymmetry imposes a cost on repo intermediation (matched book repo trading) that affect both banks and broker-dealers.

Central Clearing and Netting

Over the past several years, the share of repo market trading via central clearing counterparties (CCP) significantly increased and now accounting for 50-60% of the euro area repo volumes, owing to their attractiveness for the balance sheet management[5]. The picture in the US is broadly similar as can be seen in the repo volumes data shown in Figure 1 above. The use of CCPs has been strongly supported by authorities and brings benefits in terms of smooth market functioning, as well as for individual institutions.

Since FICC is the nominal counterparty for all repo transactions conducted at the CCP, dealers can net their borrowing from one sponsored entity (say, an MMF) against their lending to another sponsored entity (say a Hedge Fund) for repos with the same end date, which allows the dealer to avoid expanding its balance sheet. It should be noted that such netting is available only when a bank is active on both side (i.e. as lender and borrower of cash). Provided certain conditions for such netting are satisfied, the impact of repo on balance sheet and derived Liquidity and Net Stable Funding Ratios can be significantly reduced.

As an illustration, consider a repo market with three participants, A, B and C, see top row of Figure 4 below. Each participant lends $1 and borrows $1 from another market participant. If conducted bilaterally, these transactions would increase the size of the balance sheet of all participants. But if conducted via a CCP, repo transactions would have no impact on the market participants' balance sheet and, thus, would not be expected to affect market activity in any significant way.

The bottom row of Figure 4 provides another example of a 'matched-book' intermediation. The intermediary B is lending cash to C and reusing the collateral received to borrow cash from A. In such a case, if each leg of this transaction is cleared at the CCP, the intermediary B can net both legs of transaction against the CCP and thus avoid costs associated with balance sheet utilisation such as LR and NSFR. It is also important to note that B in this example is typically a broker-dealer affiliated with a bank holding company and, thus, subject to regulations. A and C are typically not subject to regulation (e.g. A could be a MMF and C could be a HF).

[5] Repo market functioning (bis.org)

As demonstrated above, the incentive to clear repo transactions at the CCP and potential benefits associated with netting are obvious for entities exposed to costs derived from balance sheet utilisation, such as Banks and Broker Dealers. The netting benefit is less relevant for typical buy-side market participants such as Money Market and Hedge Funds who are more likely to be incentivised primarily by repo rates.

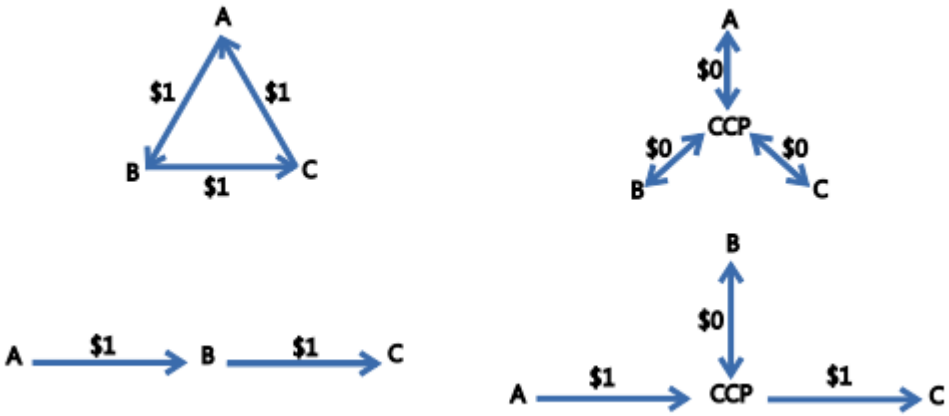

Figure 4: Bilateral vs CCP Cleared Repo[6]

Initial Margin and Cost of Capital

One of the main differentiators between bilateral and centrally cleared repos is that IM (or Haircut) is typical not required (or minimal) in bilateral setting. This is not the case, however, when repos are cleared at the CCP. The latter also requires a contribution to the CCP Default Fund (DF) that is paid either directly by the clearing member or through Sponsor's fees in the sponsored model. The exact calculation of DF contribution is complex but typically this represents a single digit number of percentage points of the required Initial Margin.

FICC currently offers margin offsets between repos and CME Exchange Trades Derivatives (ETD). The detailed quantification of this offset is beyond the scope of this paper but, in some cases, the margin reduction can be as high as 80% of combined ETD and repo Initial Margin[7]. This margin offset can, at least in some cases, reduce the funding cost impact associated with Initial Margin for entities who are active simultaneously at FICC and CME ETD.

Summary

Increase in FICC cleared volumes and reduction of basis between bilateral tri-party and cleared repo rates demonstrate the shift in market dynamics since about mid-2023. This shift suggests that banks and broker-dealers are already pricing in the benefits they derive from significantly enhanced netting obtained at FICC into their repo rates. This also shows that substantial number of non-bank market participants, led primarily by MMFs, are happy, at least in part, to transition to central clearing to benefit from improved pricing and liquidity. For typical cash takers, such as Hedge Funds, repo clearing also provides the benefit of certainty due to their ability to access cash providers directly and thus not to be exposed to variations of bank and Broker Dealers appetite to engage in repo

[6] Repo market functioning (bis.org)
[7] www.cmegroup.com/trading/interest-rates/files/ficc-cme-cross-margining-deck-sept-2023.pdf)

business, particularly at times when they are facing pressure to temporarily reduce their balance sheet utilisation. As noted above, even if a Bank or a Broker dealer intermediate between two sponsored repo clients, such intermediation will, subject to netting conditions being satisfied, remain balance sheet neutral and therefore not affect their ability to engage in intermediation.

Coupled with pending regulatory changes that will require all UST repo transactions to be cleared from mid-2026 onwards, current trends shows that the early shift to clearing is likely to accelerate and to include large HFs active in UST repo market as cash takers in search of stable liquidity, less likely to be affected by cyclic variations in bank and broker-dealers balance sheet derived repo restrictions. Also, Hedge Funds engaged in UST vs Futures arbitrage are expected to benefit from FICC-CME Cross Margining Arrangements resulting in significantly reduced Initial Margin requirements thus facilitating early transition to repo clearing. Recent ruling by SEC requiring larger Hedge Funds active in UST repo market to register as broker-dealers will undoubtedly provide added incentive for these firms to optimise their utilisation of financial resources.

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To discuss how Sernova Financial can assist with UST repo setup to optimise available resources, including the post-trade infrastructure and operations, please get in touch.

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