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Reverse Repos & MBS Dollar Rolls

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Treasury, Agency and MBS Reverse Repo

One important tool for draining reserves is the ability to conduct reverse repos (RRPs), an operation type currently covered in the Authorization. The Desk has recently conducted these operations against Treasury collateral using the Delivery vs. Payment (DVP) settlement method, but only for moderate amounts [2] with overnight maturities only, and only with primary dealers. The Desk is currently working to establish the ability to conduct RRPs using tri-party settlement. When established, tri-party RRP will increase the Desk's ability to execute large, term RRPs of all three collateral types held in the SOMA portfolio – Treasury, agency and agency MBS collateral –versus the current delivery vs. payment (DVP) settlement method. Tri-party RRPs will also make more efficient use of the portfolio compared to DVP repo[3]. The Desk expects be able to conduct tri-party RRPs versus Treasury and agency collateral by July of this year, and versus agency MBS by year-end, 2009. Although operational efficiency should be increased, questions remain as to whether or not the secured financing markets can provide the large levels of funding that the Desk may require. This will probably require the Desk to expand its list of eligible counterparties for RRP transactions which may have a significant impact on the primary dealer community who have been the traditional borrowers in the secured funding markets. Further, should the Desk seek to borrow significant amounts via RRP operations, it is likely that other market disruptions (discussed below) will occur.

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[1] Gregg Powell and Julie Remache contributed to the discussion MBS dollar rolls. Helpful comments were received by Staff of the Board of Governors of the Federal Reserve System and of the Federal Reserve Bank of New York.

[2] In the fourth quarter of 2008, the Desk routinely drained $25 billion of reserves via overnight RRPs which were done to both remove reserves as the fed funds effective rate was consistently trading below the target rate prior to the December FOMC meeting, and to add collateral given that GC repo was trading near zero percent. The $25 billion amount represented a maximum amount that the Desk could safely do without substantially increasing operational risk as a large percentage of the portfolio was already pledged to the TSLF program.

[3] In rolling a maturing DVP reverse repo, the collateral for the new RRP must be delivered before the unwinding collateral has been received. As a consequence, the scale of DVP RRP is half the available collateral pool. When the Desk was regularly conducting $25 billion overnight DVP RRP, it needed $50 billion of available collateral. Tri-party repo does not have this constraint.

Capacity

The entire market value of SOMA portfolio's holdings of Treasury, agency and MBS securities are available to potentially use in future RRP draining operations. This provides significant draining capacity as SOMA's holdings of Treasuries and agencies totaled $689 billion (book value) as of June 3, 2009 while MBS holdings (book value) totaled $428 billion.[4] Recent daily levels of excess reserves have been about $780 billion; hence a full utilization of the SOMA portfolio would completely drain excess reserves.[5]

Although the Desk could technically drain away all excess reserves with full utilization of its RRP capacity, it is uncertain whether or not the short term secured funding markets can accommodate such a large demand for funds. Further, and perhaps of secondary importance, the Desk has traditionally allocated use of the SOMA portfolio to other programs, including supporting TSLF, TOP, and the classic securities lending program, hence guidelines need to be developed to clarify the priorities of the potential competing interests on the portfolio.

Operations, Structure and Issues

Conducting RRP's with SOMA securities could work much the same way as the Desk's typical tri-party RPs, although there are several important differences discussed in the following section. The Desk would still use its FedTrade auction platform and transactions would settle at either of the two tri-party clearing banks, either BNYM or JPMC. The Desk would likely "layer in" a series of RRPs across different terms that would both reduce roll-over risk and provide flexibility in draining reserves over a suitable horizon, perhaps out to three months. To drain a substantial amount of reserves (several hundred billion), a portfolio of multiple term operations would need to be established. For example, one could imagine a portfolio comprised of daily 1-week operations, weekly 2-week operations, bi-weekly 4-week operations, and monthly 3-month operations. This dispersion of RRP operations will reduce the Desk's exposure to the potential for under-subscribed operations.
Defining which Treasury collateral is eligible to pledge for RRP transactions will require effective communication between Desk staffs and would benefit from enhanced tools to optimize portfolio utilization (e.g. the Desk will need to coordinate RRP activity with outright sales and with potential allocations towards our daily securities lending operations and TSLF and TOP programs).

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[4] If the maximum "up to" amounts of Treasury, agency and MBS collateral are purchased, the SOMA portfolio will contain $1.75 trillion in securities by year-end 2009.
5 Depending on the relative asset composition of the FRB balance sheet at the time of implementation, it may not be technically possible for RRPs to fully drain excess reserve levels. For example, FRB assets drawn from liquidity facilities, as well as TALF loans, probably cannot be pledged as RRP collateral.

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To drain reserves via RRPs on a large scale, the Desk needs first and foremost, reliable counterparties who have the investment appetite to provide funding for RRP borrowings that could potentially exceed $1 trillion. The existing primary dealer community is not large enough, nor structured appropriately, to support this borrowing need. To put things in perspective, a recent FR2004 filing shows primary dealers reporting aggregate daily repo activity of $2.6 trillion, of which $1.2 trillion was in the overnight and continuing maturity classification. These numbers suggest that primary dealers may be able to effectively perform an intermediary function in serving as counterparties to the FRB in sizable RRP operations. However, the Desk has heard from several dealers that the entire dealer community faces considerable balance sheet pressures and they expressed doubt that dealers will be able to participate in the size necessary for the Desk to conduct these large draining operations. [6] As such, the FRB system clearly needs to consider expansion of its counterparty list for RRP transactions to include large "real money investors". Money market mutual funds are a likely target as this investor segment held $600 billion of reverse repo in late May, 2009. In potentially expanding the list of eligible counterparties, the following issues should be considered in more detail:

- How likely is it that the primary dealers will be able to take down RRP amounts that in aggregate may exceed $1 trillion? This is particularly the case because dealers are natural repo borrowers (to finance their own inventories), not natural repo investors.

- A cost benefit analysis needs to be performed before potentially increasing the number of RRP counterparties. Alternatives to consider include allowing dealers to submit bids as agents for their customers, significantly expanding the primary dealer list, or creating a tiered approach for the Desk's counterparties. If the counterparty list is not expanded, it is possible that the large RRPs may only be executed via significant price concessions to the primary dealers which will not necessarily be passed on to the ultimate repo investor. This potential inefficiency could jeopardize the effectiveness of the FRB's ability to execute its exit strategy.

- Controlling the reputational risk to the FRB in expanding RRP counterparties? How can this be done openly and with fairness?

- How can counterparties be added to the FedTrade system without unduly increasing operational risk? The Desk will need to consider how many counterparties to add, appropriate lead times, and should re-evaluate the relevancy of RRP auction dynamics if the platform is expanded significantly.

[6] Primary dealer balance sheet concerns would be mitigated if the RRP operations could be included in a netting arrangement, such as the service provided by the FICC, but the FRB historically not participated in private loss sharing arrangements.

Settlement, accounting, reporting issues

There are no very large hurdles with settling Treasury and agency RRPs as these transactions are generally a “mirror image” of existing tri-party RP arrangements. However, there are several notable operational / settlement differences. Unlike tri-party RP, the size of any potential RRP operation will be constrained by the market value of the securities to be pledged (which can differ significantly from the book value), and the FRB will have to send the collateral (via “free delivery”) to the clearing banks before an RRP transaction can be completed. [7] Another significant difference is that the funds will need to move back-and-forth between the clearing bank and the FRB each day to allow the collateral in a term RRP to move from the customer’s account at the clearing bank back to the FRB’s account at the clearing bank (funds will flow from the clearing bank to the FRB in late afternoon and will flow from the FRB to the clearing banks each morning) which will increase the level of operational risk to the FRB relative to tri-party RP, where the collateral stays in the FRB’s account at the clearing bank on an overnight basis. Of note, the RRP transactions would settle at either of the two major clearing banks (BNYM or JPMC) and our counterparties could rehypothecate the collateral that we pledge to others as long as the collateral does not leave the tri-party platform.

Although MBS RRPs may closely resemble Treasury and agency tri-party RRPs, the MBS portfolio is held and administered by an outside custodian and utilizes outside investment managers who will need to be involved in the collateral management process. These investment managers will need to monitor the collateral through the repo term, including the transfer of collateral (via “free delivery”) into, and out of, the FRB’s account at the tri-party clearing banks. As such we would need to establish processes and controls for transmitting trade details and managing cash and collateral throughout the term of the repo. Additionally, new processes and reports will need to be established with the custodian to accurately track the collateral and administer the portfolio. These new procedures would require revising the current Investment Management and Custodian agreements currently in place with respect to the services they provide. The extent to which the FRB uses third parties (Investment Managers) to provide collateral management services may be reduced in the future if the Desk can rely on internal resources for MBS purchases. Even without this development, we estimate this process should be up and running by year-end 2009.

Impact on Relative Rates

If the FRB conducts routine sizeable RRP operations, rates determined in these auctions would clearly impact both secured and unsecured short-term funding markets. This will impact the relative borrowing costs across segments of the money market and may have an impact on the transmission

[7] Since the FRB will be borrowing funds against the market value of collateral pledged, our initial expectation is that we will not require our counterparties to deposit extra margin (a “haircut”) as this goes against current market convention, wherein the collateral provider typically posts margin (the FRB will not). The FRB does require margin on RP transactions (when dealers borrow funds from the FRB) in line with the current market practices.

mechanism for monetary policy. The following is a list of potential implications that may occur as a result of large, routine RRPs:

- The FRB's large RRP operations may "crowd out" primary dealers to such an extent that they will be unable to fund their own positions economically in the secured funding markets.
- An expanded "tri-party RRP counterparty list" that includes a limited number of money market funds may adversely impact money market funds that do not make the list. The Desk needs to develop consistent, transparent criteria in this regard.
- If the Desk continues to rely exclusively on primary dealers, there could be two distinct negative outcomes. Dealers may prove insufficient in providing the funding levels that the FRB desires and/or the Desk may need to provide significant yield inducements to the dealers to bid sufficiently in the RRP operations. In turn, these high yields may not be passed along to the broader funding community and may only succeed in providing out-sized profits to the primary dealers.
- If the RRPs can be effectively intermediated (or are conducted directly with real money investors), this may establish "floor borrowing rates" that may raise the borrowing cost for all private sector entities. In this regard, the RRP funding rates may be an effective complement to the IOER rate in implementing monetary policy.

MBS Dollar Rolls

The sale of dollar rolls, which consists of selling agency MBS securities held in the SOMA portfolio for near-month delivery and agreeing to buy similar agency MBS securities for future delivery, could be a tool used to drain reserves. In selling dollar rolls, reserves are drained when the FRB delivers the MBS securities to be purchased by our counterparties[8]. These transactions are authorized under the existing Federal Reserve Act and are covered by the existing SOMA authorization. Dollar roll transactions are typically arranged with a 1-month tenor. To maintain the reserve impact, the outstanding book of dollar rolls would have to continually "roll" at each maturity date otherwise the dollar roll sale transaction will supply reserves when the transaction matures.

Capacity

Similar to MBS RRP, MBS dollar roll transactions are also subject to counterparty balance sheet constraints. Dollar rolls also present additional constraints as settlement of the underlying MBS securities occurs only on scheduled MBS settlement days (Class A, B and C) which means that rolls conducted throughout the month would not take effect until the prescribed regular settlement day, which occurs once a month for each Class of MBS securities. Dollar rolls with terms of up to 3 months could

[8] Dollar roll sales are currently used occasionally as part of the current MBS purchase program, but are used to address temporary imbalances in supply in an effort to support market functioning, which is part of the current FOMC directive. Currently the MBS purchase program only transacts with the primary dealers.

be arranged to mitigate roll-over risk. Operationally, there is a maximum of 600,000 transactions that can settle in any given month, which limits the amount of settlements we might arrange for any one settlement date. This constraint should not be binding.[9]

Demand for dollar rolls has traditionally come from MBS market participants who seek to hedge their pipeline of MBS issuance and typically there is significantly greater demand for MBS securities that have current coupons compared with securities whose coupons that do not reflect current conditions in the mortgage origination market. As a result, if the coupons in the FRB's MBS portfolio are substantially different than the coupons of new issuance MBS securities (a likely scenario in an interest rate tightening environment) this could restrict the FRB's ability to utilize dollar rolls to drain large volumes of reserves.

Operations, Structure and Issues

Dollar rolls could be executed immediately through the investment managers without adding any additional systems, with the investment managers transacting with primary dealers upon receiving direction from the Desk. Dollar rolls could be transacted throughout the day over a system like TradeWeb[10]. These transactions would be settled and accounted for within the channels currently in place for the MBS purchase program.

Dollar roll transactions are most typically arranged with a 1-month tenor. If all dollar rolls were arranged with this tenor, roll-over risk would be a great concern as the potential transaction sizes of these dollar rolls may represent a large portion of the dollar roll market. This risk could be mitigated by executing dollar rolls with tenors up to 3 months, which would spread outstanding dollar rolls over a number of consecutive months. Forward markets are active in these tenors although liquidity could be more limited. Furthermore, dollar rolls typically require the buyer to hold the underlying MBS on the balance sheet for the roll period. An extension of the dollar roll period may further reduce liquidity as this would increase the strain on balance sheet capacity that is necessary to purchase the dollar roll.

Settlement, accounting, reporting issues

Similar to an RRP draining operation, the amount of any potential dollar roll drain is limited to the market value of securities pledged. Unlike RRP transactions, however, dollar rolls are considered actual sales and purchases; hence execution of these transactions results in realized profits or losses on those holdings. Given that dollar rolls sales would most likely be used in a rising rate environment, it is reasonable to expect that the market value of MBS holdings may have significant unrealized losses, which would be realized upon execution of the draining operation.

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[9] It is difficult to estimate the potential dollar amount limitation relating to settlement issues since the par amount of securities is variable and changes over time. If one assumes that the smallest size of a transaction is $1 million, this transaction limit would amount to a $600 billion transfer of market values of securities. Since our holdings are generally larger than $1 million pieces, we would expect to be able to transfer well in excess of this amount on any one settlement date.

[10] TradeWeb is an electronic transaction system, which allows a customer to solicit bids in competition from multiple dealers. Our investment managers currently transact dollar rolls over TradeWeb on a regular basis.

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Just like with RRP of agency MBS, dollar roll transactions will require the MBS Investment Managers to provide collateral management services. Additionally, there are other measures that warrant consideration in contemplating the execution of dollar rolls on a large-scale. First, we may want to consider using a netting facility like FICC to maximize operational efficiency. This would be desirable but not crucial as we are ready to conduct the maximum amount of rolls now. We would further need to modify current accounting and settlement reports to better capture dollar roll activity. Presently, dollar rolls are reported as the separate legs of the purchases and sales. However, if we are planning on embarking on a large, systematic program of dollar rolls, we would need to develop more robust reporting and monitoring systems.

Impact on Relative Rates

Dollar roll sales would affect dollar roll implied financing rates which should affect the repo rates of MBS repo and other related financing markets. Dollar roll financing markets have historically maintained high correlations to similar collateralized funding markets like MBS repo since primary dealers have typically acted as intermediaries to arbitrage away any differences between the market participants active on either side of the financing trade. Large-scale dollar roll selling would be expected to raise the implied financing rate for dollar rolls which may translate into higher financing rates for MBS more generally.

As primary dealers intermediate between dollar roll financing and other funding markets, we would expect other short-term money market rates, including fed funds, to be impacted as well. Demand for dollar rolls is impacted by market's need to finance current mortgage originations, as well as the willingness of market participants to commit balance sheet capacity. The elasticity of dollar roll demand is unknown, but could be determined by arranging operations systematically to determine demand functions. It is not clear the extent to which dollar roll participants will require delivery of MBS securities with coupons that are close to current origination rates nor how balance sheet limitations on the part of our counterparties will impact how rate levels will be transmitted to other market participants.

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Contrasting Treasury, Agency, and MBS Reverse Repo with MBS Dollar Rolls

	MBS RRP	**MBS Dollar Roll**
Nearest expected Implementation date	December, 2009	Immediately
Potential to create Mark-to-market losses on FRB balance sheet	Low	High
Roll-over risk	Medium	High
Exposure to out-of-favor MBS coupon risk	Low	High
Market Liquidity	High	Medium
Reliance on Third-Party Collateral Administration?	Yes	Yes