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Interest Rate Control during the Transition to a Long-Run Operating Regime¹

I - Introduction

The methods needed to maintain control of the policy rate during the transition to a long-run operating framework will depend on how money markets evolve. As the accompanying memo “Detecting and Approaching the Long-Run Level of Reserves” describes, the nature of this evolution is uncertain, because of ongoing learning about money market dynamics and uncertain effects of policy choices on behavior. If money markets adjust smoothly to lower reserve levels, with interest rates slowly increasing relative to the interest on excess reserves (IOER) rate, then it will likely be possible to maintain control of the policy rate by the same means that has worked over the past year – through technical adjustments of IOER within the target range. On the other hand, if the pace of decrease in reserves exceeds the capacity of financial markets to adjust smoothly, money market rates could temporarily become elevated relative to IOER and exhibit more volatility. In addition, if the Committee chooses to continue to decrease the supply of reserves to test the point of scarcity, more permanent pressures could emerge. If temporary or permanent pressures materialize, policymakers may want to adjust some parameters of the existing policy framework or employ new approaches to support firmer control of the policy rate. This memo reviews the challenges for interest rate control that might arise during the transition period depending on how money markets evolve. It then presents options for maintaining control, first presenting tools as they have recently been used, and then suggesting new approaches that provide the Committee with additional options, depending on how markets evolve.

II – Existing options to maintain interest rate control

As the FOMC reduces the securities holdings of the System Open Market Account (SOMA) in accordance with the Policy Normalization Principles and Plans, banks and the money markets that they participate in will need to adjust to an environment of declining reserve balances. The adjustment in markets may proceed smoothly and banks may quickly become more adept at managing payment flows, accessing liquidity via private markets, and managing to regulatory guidance.

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Alternatively, it is possible that the pace of reserve balance runoff, particularly in combination with shocks in autonomous factors that temporarily lower reserves, may at times exceed the banking sector's ability to adjust without inducing temporary upward pressure on money market rates.² This could occur even in situations where the aggregate quantity of reserves is abundant. Over a longer horizon, rate pressure stemming from transitory frictions may abate as the banking system implements structural changes to allow for more efficient distribution of reserves.³ However, during the transition to the long run, the Committee may see it as prudent to respond to such distributional reserve scarcity if it results in excessive short-term market volatility.

Existing approaches to support rate control

Existing approaches to maintain rate control could be effective in responding to modest pressures.

IOER technical adjustments: IOER could continue to be moved lower in the target range through technical adjustments. The technical adjustment in June 2018 passed through strongly to the federal funds rate and other money market rates; if money markets continue to evolve smoothly, the setting of IOER would likely continue to have a strong influence on the policy rate. Moreover, placing IOER farther below the top of the target range would leave more room for the policy rate to rise above IOER while remaining within the range. A spread of money market rates above IOER would incentivize banks to reduce their reserve holdings and may prompt them to make structural changes to adjust to shocks to reserves.⁴

Primary credit: Transitory frictions in the market for reserves could also be handled through the primary credit program, which has historically provided backstop liquidity for banks. Smaller depository institutions have demonstrated a willingness to access this liquidity as needed to meet transitory funding needs. However, the rate, currently set 50 basis points above the top of the target range, may be too high to provide sufficient interest rate control. (Below, we discuss the possibility of making temporary adjustments to the discount window to provide better control is discussed below). Further, the discount window is stigmatized for many banks, particularly larger banks, so market rates might need to be well above the primary credit rate before some banks become willing to borrow from the discount window.

Pace of asset redemptions: In addition, as described in the accompanying memo "Detecting and Approaching the Long-Run Level of Reserves," the Committee could

² Other exogenous effects include, inter alia, an increase in real term premium driven by net Treasury security issuance, pushing the constellation of market rates higher.

³ Please see December 2018 FOMC memo, "Detecting and Approaching the Long-Run Level of Reserves."

⁴ A structure where federal funds are trading above IOER also provides some incentive for banks that have surplus reserves to sell funds to other banks.

choose to slow asset redemptions to a pace where markets could more smoothly adjust, reducing the amount of volatility. Policymakers would need to weigh the costs of slowing balance sheet normalization against those of using other approaches to control the policy rate.

FHLB advances: While not a Federal Reserve tool, advances from Federal Home Loan Banks (FHLBs) may also help depository institutions that are members of the FHLB system to smooth out liquidity needs. This should limit the extent to which distributional frictions in the interbank market create temporary upward pressure on rates. However, the rates at which the FHLBs offer advances to their members are determined by market conditions, and the same pressures affecting other funding markets could affect them as well.⁵

Incremental measures to enhance rate control

While adjustments of IOER within the policy target range, the primary credit facility, changes in the pace of SOMA redemptions, and FHLB advances may provide adequate interest rate control if rates rise in a smooth and predictable fashion, there may be states of the world where upward pressures in funding markets exceed levels that these approaches can mitigate. In this case, the Committee might choose to enhance rate control with incremental measures involving tools that already exist but are not currently in use, including adjusting the width of the target range or conducting fixed-quantity open market operations (OMOs).

Width of target range: The width of the target range can help communicate the Committee's view of what constitutes sufficient control. Widening the target range communicates that overnight rates may become more variable as reserves decline, and that tolerating temporarily elevated rates does not indicate a change in the stance of policy. However, a range that is overly wide may make it challenging for the Committee to clearly articulate its policy stance, and any departures of the rate outside a wider range could be viewed as a more significant failure to maintain control.

The target range could be widened by increasing the top of the range, lowering the bottom of the range, or both. The parameters to adjust would depend on the Committee's preferences regarding the configuration of the IOER and ON RRP. For instance, the width of the target range could be increased to 35 basis points with IOER set 20 or more basis points below the top of the range. This strategy would leave room for the policy rate to rise well above IOER while allowing for sufficient distance between

⁵ FHLBs compete for funding from institutional investors to create advances via discount note issuance. As such, they both compete up money market rates and are susceptible to the same pressures that push up the broader constellation of money market rates (e.g., net Treasury bill supply), both of which could result in higher rates charged on advances to member banks. FHLBs cannot create additional reserves so they are susceptible to many of the same pressures other market participants are and would not be able to address issues related to aggregate shortfalls in reserves.

IOER and the ON RRP rate. If IOER is set too close to the ON RRP rate, market repo rates could also be pulled close to the ON RRP rate, which might create a modest risk of volatile flows between Federal Reserve liabilities, specifically between reserves and reverse repurchases, during times of market stress.⁶

Fixed-quantity OMOs: Temporary open market repurchase operations, as conducted pre-crisis, could help alleviate pressures by adding reserves to the banking system. These operations would allow primary dealers to compete for overnight or term funding against Treasury securities, agency debt, and agency mortgage-backed securities (MBS).

Directives issued by the FOMC at each meeting have for some time “direct[ed] the Desk to undertake open market operations as necessary to maintain the federal funds rate” in a specified target range.⁷ If the Committee does not intend the Desk to operate in this fashion during the transition, or if it has some tolerance for the policy rate to trade temporarily outside the target range, the Committee would need to adjust its directives to reflect these preferences.

While open market repo operations could be used to meet temporary needs for reserves in the aggregate, they have some limitations. First, while staff have not yet conducted systematic outreach to the dealers to assess capacity for overnight and term repo operations, these operations are likely to be constrained in size because dealers have become less willing to rapidly expand and contract their balance sheets as a result of post-crisis regulatory changes and reforms in the tri-party repo market.⁸ These constraints are particularly likely to be important if operations are conducted only periodically.⁹ However, capacity could be increased by combining temporary operations with permanent open market purchases of Treasury bills or other eligible short-term securities as needed.

Second, the quantity of repos offered may be difficult to calibrate. The Desk would seek to offer repos in sufficient quantity to quell volatility, but not so large as to significantly disrupt private market functioning. Given the size and frequency of changes

⁶ Setting the ON RRP rate below the target range could also mitigate this risk. However, given that the ON RRP facility has set a firm floor on overnight rates, a setting below the bottom of the range could present risks of losing interest rate control from below.

⁷ The November 2018 domestic policy directive states: “The [FOMC] directs the Desk to undertake open market operations as necessary to maintain the federal funds rate in a target range of 2 to 2 1/4 percent...” The directive specifically refers to reverse repurchase operations as a floor tool, but does not preclude the use of repos as a ceiling tool.

⁸ See [CGFS Paper 59: Repo Market Functioning](https://www.bis.org/publ/cgfs59.pdf) (<https://www.bis.org/publ/cgfs59.pdf>), for a discussion of drivers of repo market changes post crisis.

⁹ Pre-crisis operations were also relatively small in size, and modern discretionary OMO operations may need to be much larger than the capacity of dealers to absorb them without disrupting markets. For example, in 2005/2006, the average daily amounts bid and awarded were \$46 billion and \$7 billion, respectively.

in market conditions, and the potential for large swings in autonomous factors, determining the optimum amount of repos on any given day could be challenging.

Third, liquidity provision through OMOs depends on a liquid market for reserves. Traditionally, policy implementation worked by providing funds to dealers. These funds settled as reserves at the dealers' banks, which then lent reserves onward to other banks that needed them. If there are frictions in money markets, such as if banks demand significant spreads to lend to each other overnight or if banks need time to rebuild interbank lending relationships that have been dormant in recent years, then this mechanism will no longer work as efficiently and OMOs will not be well suited to fully resolving funding market pressures that arise from issues associated with the distribution of reserves. In particular, there might be no assurance that funds provided through OMOs with primary dealers would settle as reserves at banks willing to make active markets and facilitate the redistribution of reserves.

III – New approaches for strengthening control

In light of the limitations of incremental measures, the Committee may be concerned that they may not provide sufficient interest rate control to address persistent pressures in funding markets or periodic spikes in the policy rate above the target range. In that case, there are reasons to consider strengthening available ceiling tools, whether or not they would be regularly used. During the transition to the longer run, the Committee may consider new approaches to employing its tools that could provide stronger support for maintaining the policy rate within the target range. The Committee may also choose to test where the steep part of the reserve demand curve begins, and better understand its steepness, by pushing reserves temporarily to levels that are scarce in aggregate. Given that new implementation approaches for ceiling tools may take several months to put into place, the Committee may want to take some steps now toward designing them even if it seems unlikely that such a tool would be needed in the near term.

The new approaches discussed here differ from traditional pre-crisis OMOs in that they could offer the amount of liquidity demanded—such as through a large-scale repo operation or a standing lending facility—at an administered rate. The setting of this rate relative to the top of the target range and to IOER will affect both the usage of the tool and the control it provides. A rate at the top of the target range, all else equal, would provide stronger assurance that the policy rate will stay within the target range. However, if the ceiling rate is close to IOER, it increases the likelihood that the Federal Reserve will have a larger footprint in money markets.¹⁰ By contrast, a ceiling rate significantly above IOER would entail a smaller Federal Reserve footprint, and may provide greater incentives for private sector adjustment to declining reserves, but increases the possibility

¹⁰ It also increases the possibility that the Federal Reserve would compete with the FHLBs when providing short-term funds.

of volatility in funding markets. Of course, the appropriate rate setting interacts with the width of the target range and the position of IOER within the range. Setting IOER lower in the range would make it possible to maintain a larger spread between IOER and the ceiling tool rate while still having a ceiling rate near the top of the range.

Any new approaches to the use of ceiling tools will also need to establish the appropriate collateral and set of counterparties. We highlight the role of these features in the context of illustrative examples of how these new approaches could operate.

Two potential options for enhancing ceiling tools

Ceiling tools may be structured under the existing authority provided by section 14 of the Federal Reserve Act for open market operations or section 10B for discount window lending. These authorities could be used simultaneously to establish two tools. In that case, it might be preferable to have the terms of the tools be similar to ensure equitable access and highlight their narrow monetary policy purpose. The examples below leverage existing operational frameworks and thus could be made operational within several months, in time to be available throughout the transition.¹¹

Standing open market repo operation: The Committee could direct the Desk under section 14 authority to conduct daily overnight repurchase operations with its traditional primary dealer counterparties at a fixed rate and with a very large total capacity (effectively mirroring the existing ON RRP operation). The fixed rate would need to be set at a rate low enough to maintain market rates within the target range but not so low as to significantly disintermediate private sector activity.¹² The operation could include all OMO-eligible securities – Treasuries as well as agency debt and agency mortgage-backed securities – or could be limited to only Treasury securities if necessary to align the parameters of multiple ceiling tools.

Such an operation is likely to have a strong announcement effect, immediately adjusting market expectations and the bargaining power of borrowing counterparties even if actual participation is limited. In doing so, it could support a soft ceiling on the broader constellation of short-term rates, particularly where pressures are stemming from shifts in Treasury supply that might be driving Treasury bill and repo rates higher. The downward pressure exerted on repo rates should transmit to other markets, including unsecured

¹¹ Staff continues to investigate other options and enhancements to tools, though the lead times on substantially new offerings may be well over a year. The tools highlighted here are those that are thought to be feasible in a relatively short time frame, with the exception of a discount window facility with more limited collateral eligibility, which would require significant enhancements to automated systems.

¹² The appropriate fixed rate for a repo operation is sensitive to the location of IOER within the range. With IOER currently set 5 basis points below the top of the range, market rates for dealer-to-customer trades in tri-party repo are generally near the top of the target range. Dealer-to-dealer and dealer-to-leveraged account rates in bilateral repo are generally somewhat above the top of the target range as highly-rated dealers demand a premium for such trades.

rates, for example by weakening the alternative to federal funds lending available to FHLBs.

However, it is not certain that operations with only primary dealer counterparties would be sufficient to put a ceiling on unsecured rates, as transmission to interbank rates would be indirect; operations with primary dealers cannot directly address distributional pressures stemming from reserves landing at banks unwilling to lend them onwards. Further, if neutralizing the impact of large shifts in autonomous factors requires the addition of substantial quantities of reserves, primary dealers may not find that level of borrowing desirable at the administered rate.

To account for these issues, the efficacy of the operation could be bolstered by onboarding depository institutions of reasonable size as counterparties (again similar to the expanded counterparty policy for ON RRP).¹³ While staff need to study the extent to which banks would seek funding in tri-party repo, the ability to participate in this Desk operation may be seen as worth the initial startup costs to do so for banks that have not previously made the necessary arrangements. The Committee may also see significant benefits to taking this step for policy implementation in the longer run.¹⁴ Nonetheless, the inclusion of depository institutions in Desk repo transactions may have unintended consequences. For example, staff should explore whether the repo operation itself could be stigmatized, given Dodd-Frank Act disclosure requirements, or whether it would increase stigma in the primary credit facility. Additionally, operational constraints would likely limit participation to the approximately 100 largest depository institutions, which are those currently eligible for the ON RRP operation, raising potential concerns, as with the ON RRP, that the repo operation is not equitable to smaller banks. Such concerns could be allayed by allowing smaller institutions to participate in a discount window facility with broadly similar features.

Discount window facility: The Federal Reserve could also consider adjusting its approach to the discount window so that the discount window would operate as a ceiling facility under section 10B authority.¹⁵ Under this new approach, discount window loans would be offered at a rate significantly lower than currently offered through primary credit, likely either at the top of the target range or somewhat above it, depending on policymakers' preferences regarding the tradeoff between rate control and the risk of

¹³ Depository institutions refer to those eligible for primary credit. Note that the Desk may impose additional criteria, including size and market activity, for operational management purposes. Even with these tighter constraints, onboarding depository institutions in earnest is likely to require significant lead time.

¹⁴ Expanding the Desk's counterparties to include banks would increase the capacity for discretionary open market operations in the future given the changes in the financial structure post-crisis.

¹⁵ The Board of Governors would have to amend Regulation A to allow for such a facility. The discount rates on the facility would need to be established by Reserve Banks, subject to review and determination of the Board of Governors.

disintermediating market activity. A lower rate could better support rate control and might diminish stigma, because borrowing at a closer-to-market rate would be more attractive and less likely to indicate that the borrower is facing stress.

This facility could accept the broad set of collateral currently eligible to be pledged at the discount window. Doing so would ensure that depository institutions' asset portfolios do not limit their ability to participate. One option for using the discount window as a ceiling facility would be to temporarily lower the primary credit rate; however, any persistent stigma might then prevent the facility from being fully effective. A second, slightly different, option would be to establish a new "Transitional Credit Facility" while retaining the existing primary credit facility, as the temporary nature of the new facility may serve to reduce stigma. Additionally, the Federal Reserve might limit borrowing to a certain number of days per quarter (e.g., 20 days); such a limitation would help make sure the new facility would not become a permanent source of funding and could further differentiate it from primary credit. In either case, loans extended under this facility could have an overnight maturity, and potential counterparties could include all depository institutions that are eligible to borrow at the primary credit facility.

One concern with accepting a wide range of collateral is that take-up at the facility could include borrowing by banks seeking to obtain Level I high-quality liquid assets (HQLA) rather than looking to deal with a funding shock; such borrowing would have a different purpose than interest rate control.¹⁶ Additionally, the temporary nature of the facility and lower rate may not sufficiently reduce stigma. An option to address both of these issues may be to establish a new facility in which collateral is limited to OMO-eligible or just Treasury securities. This may more clearly convey that this facility is a tool only for rate control and further distinguish it from primary credit. However, limiting the collateral could make the facility less effective, because current pledges of Treasury and other OMO-eligible securities to the discount window are concentrated among larger banks – although, over time, other banks would likely adjust their behavior in response to the announcement of a Treasury-only program. An additional concern is that, if this new facility were left in place for an extended period, it might increase the stigma associated with primary credit, because using primary credit might then be interpreted as a signal that the institution lacked both reserves and unencumbered Treasury securities.

For larger banks, stigma is likely to be a concern with any ceiling facility that uses discount window authority.¹⁷ Borrowers from a facility that accepts a wide range of collateral might be concerned that their borrowing, if observed, would be interpreted as a

¹⁶ For instance, a bank could obtain reserves (Level 1 HQLA) while pledging as collateral whole loans (which are not HQLA). Discount window loans have an outflow equal to 25 percent of the value of the loan. Consequently, banks can use discount window loans to increase their liquidity coverage ratios.

¹⁷ Stigma is largely a concern with respect to larger banks, which are generally expected to have robust liquidity management practices and to maintain a supply of liquid assets. Smaller banks generally do not face headline risk or rely on market funding so they are less sensitive to stigma concerns.

negative signal about their overall liquidity situation. Distinguishing a new facility with some combination of a lower rate, higher-quality collateral, and clear description as a temporary tool could help to indicate that a borrower from the new facility is less likely to be facing stress, which could minimize stigma. It is possible that offering a repo operation and a discount window facility on similar terms would reinforce the idea that the tools were intended for interest rate control and thereby reduce the stigma associated with the discount window facility.¹⁸ On the other hand, even differentiated from primary credit, a new discount window facility would still be reported as discount window borrowing on the H.4.1 statistical release and in the Dodd-Frank Act transaction disclosure reports, which could contribute to stigma.

IV – Conclusion

As the balance sheet of the Federal Reserve shrinks and money markets adapt to the new environment, frictions in these markets might result in the federal funds rate rising above the top of the target range. While the Committee has existing approaches that could maintain control in many situations, it is not clear that these approaches will be effective in all situations. Consequently, the Committee may wish to employ incremental options, including adjusting some operating framework parameters or conducting open market operations as they traditionally have been implemented. If the Committee desires an ability to maintain stronger control, it may adopt new approaches to strengthen available ceiling tools, which could be useful across a range of scenarios.

¹⁸ Large banks that might be able to access both facilities could be allowed to choose their preferred facility.