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The Federal Reserve's Target Interest Rate[1]

The policy target rate performs two critical functions: it communicates and transmits the stance of monetary policy. By setting the target rate, policymakers guide a constellation of money market rates and broader financial conditions. Though the Committee's current target is the federal funds rate, as measured by the effective rate (EFFR), other possible target rates might serve these two functions. We review a set of alternative target rates, including a broader unsecured rate, the Overnight Bank Funding Rate (OBFR); a secured Treasury repo rate; and a target based on the general level of short-term rates.[2]

Although the decision to move over time to a new target rate could be made in concert with the Committee's choice of operating regime, the transition to a new rate would require careful development of the associated framework and consultation with market participants to ensure a smooth transition. Internal work on this could commence soon after a decision was reached, and staff would return to the Committee with a high-level plan for consideration.

The Committee's choice of an operating regime with limited or abundant excess reserves has implications for the choice of the policy rate. This memo evaluates, for each operating regime, the candidate target rates' ability to communicate and transmit the stance of policy under a variety of market conditions. This memo also evaluates the size and complexities of the operations that would be required to control each possible target rate, and identifies any undesirable effects of those operations.[3]

Based on the assessments in this memo:

- Under a limited excess reserves regime, the OBFR is a more robust target rate than the EFFR, with nearly the same communication and rate control mechanics. The primary advantage of the EFFR is that it maintains communications continuity with

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[2] Another option for a target rate could be created by administratively redefining the EFFR to include some or all of the underlying transactional data that now make up the OBFR. There could be various legal, operational, macroeconomic, and communications issues associated with such a change, and additional investigation would be required to assess these risks.
[3] For further background, see the memos *Interest Rate Targets and Operating Regimes* and *Alternative Policy Rates* distributed to the Committee in October 2016.

current practice. It is not practical to target rates other than the EFFR or OBFR in this regime.

- Under an abundant excess reserves regime, targeting the general level of short-term rates would allow the Committee some discretion in responding to idiosyncratic volatility in any individual rate, but a transition to this target may raise communications challenges. Of the individual target rate options, the OBFR is most closely aligned with bank funding costs and provides the most operational and communications continuity with current practice, but the rate is susceptible to declines in unsecured activity. Alternatively, targeting a Treasury repo rate would be consistent with the migration of overnight activity to the secured market, which is large and robust. However, controlling a repo target may require large lending operations that coincide with Treasury issuance, where the Federal Reserve could be perceived as more directly financing government debt.

Rate options under a regime of limited excess reserves

In this regime, the Federal Reserve limits the supply of excess reserves so that its price incorporates a scarcity premium. By operating on the steep portion of the demand curve for reserves, supply adjustments influence the rate at which banks are able to borrow reserves in the federal funds and wholesale deposit markets. The Desk executes open market operations (OMOs) that offset idiosyncratic changes in reserve demand, or in the autonomous factors absorbing reserves, in order to maintain the policy rate at its target. Transmission to other money market rates occurs via arbitrage to the policy rate, and so depends on liquidity and active participation in the markets for reserves.

This approach to policy implementation is centered on the reserves market as the key indicator of banks' funding costs, which in turn influence banks' provision of credit to the real economy. The natural target rates to consider are therefore the EFFR and the OBFR, which measure marginal rates at which banks obtain unsecured overnight funding. While it is possible to control a repo rate when reserves are limited, the size of OMOs necessary to do so would cause large and undesirable swings in unsecured rates.

The federal funds rate under limited excess reserves

A federal funds transaction in practice refers to borrowings by depository institutions from other depository institutions or from government-sponsored enterprises that hold accounts with the Federal Reserve.[4] Maintaining the federal funds rate as the

[4] Federal Reserve Regulation D identifies federal funds borrowings as unsecured liabilities of a depository institution (such as a bank, credit union, or U.S. branch of a foreign banking organization) to other

policy target would provide communications continuity with the Federal Reserve's practice over the past 25 years.[5] In the pre-crisis era, activity in the federal funds market was largely interbank borrowing and lending associated with the simultaneous need for banks to meet reserve requirements and to minimize excess reserve positions during a period when reserves were not remunerated. The Desk executed repo and reverse repo operations to keep the federal funds rate close to its point target by adjusting the supply of reserves to meet demand at the target level.

Targeting the federal funds rate in the context of limited excess reserves would follow a conceptually similar framework to that pre-crisis. However, there is a risk that control will be more challenging in the current environment, as new regulations and changes in banks' risk appetite have made reserve demand more complex while reducing inter-bank borrowing. Moreover, autonomous factors affecting the supply of reserve balances have become larger and more variable since the crisis. These developments may lead to larger and less predictable fluctuations in reserve markets, resulting in larger operations or greater rate volatility. Consequently, the Committee's tolerance for deviations of the policy rate from its target will be an important consideration in selecting a target level or range in this framework.

Overnight Bank Funding Rate under limited excess reserves

The OBFR measures the cost of unsecured overnight bank funding based on a wider pool of transactions than the EFFR. The OBFR is calculated from federal funds trades pooled together with Eurodollar transactions, which are generally wholesale overnight deposits at foreign branches of U.S.-based banking offices.[6] Eurodollar lenders are mostly non-depository financial institutions, such as money market funds. The Federal Reserve Bank of New York plans to widen the OBFR transaction base by incorporating certain onshore wholesale deposits in 2019.

The framework for controlling the OBFR is the same as for the EFFR, as banks borrow both federal funds and Eurodollars in order to obtain reserves, and largely see the two instruments as substitutes.[7] The OBFR was first published in 2016, so we have not

depository institutions, Federal Home Loan Banks, and several other types of entities that hold reserve accounts. Federal funds borrowings of selected banks are collected on form FR 2420.

[5] The FOMC Statement first specified a desired numerical change in the interest rates in reserves markets on March 17, 1994.

[6] Eurodollars include overnight unsecured liabilities of U.S.-based banking offices that are booked at an International Banking Facility, or at a foreign office located in the Bahamas or the Cayman Islands. One consideration in selecting the OBFR is that the public may perceive the policy target as unduly tied to offshore activity. Eurodollar borrowings of selected banks are collected on form FR 2420.

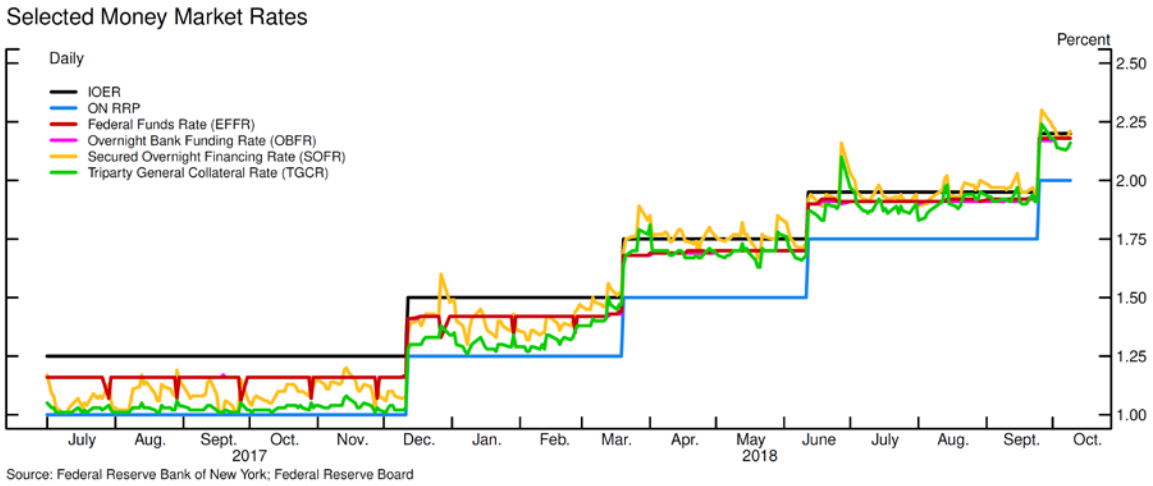
[7] For both federal funds and Eurodollars, banks may differentiate by the type of lender because borrowings from government-sponsored enterprises, such as Federal Home Loan Banks (FHLBs), and non-financial

observed its behavior in a system of limited excess reserves, but in the pre-crisis period Eurodollar and federal funds rates were typically very close.

To the extent that the OBFR and EFFR diverge, an OBFR target would likely provide better transmission to other money market rates through the portfolio allocation decisions of Eurodollar investors. However, the OBFR is still susceptible to overall volume declines in an environment where regulations—such as money market fund reform—discourage overnight unsecured activity. Communicating about the stance of policy with the OBFR would largely follow current practice, given the similarities between the OBFR and EFFR.

Rate options under an abundant excess reserves regime

A regime with abundant excess reserves relies on arbitrage between money market rates and the administered rates on the Federal Reserve's liabilities as the primary means of monetary control. Transmission effectively occurs from the administered rates to all money market rates, which can be seen in the chart below.



In light of the transmission mechanism in this regime, most foreign central banks that maintain regimes of abundant excess reserves simply communicate the stance of policy as an interest rate on reserves.[8] However, because in the United States the FOMC

corporations receive an LCR benefit relative to borrowings from other financial institutions. Lending in the federal funds market is currently dominated by FHLBs, although this could change in a limited excess reserves regime.

[8] For details of the practices of foreign central banks, see the memo *The Foreign Experience with Monetary Policy Implementation* distributed to the Committee on July 8, 2016, as well as the forthcoming memo *Future Plans for Monetary Policy Implementation at the Bank of England and European Central Bank*.

sets the appropriate stance of policy but does not set IOER, U.S. policymakers who find an abundant excess reserves regime attractive might prefer to communicate a target for the general level of short-term market rates. Alternatively, the Committee could, as in the current practice, designate a specific market rate as the policy target, and adjust administered rates to keep the policy rate within a target range.[9] In this case, adjustments to administered rates in response to idiosyncratic or temporary developments in the target rate market would have consequences for the level of other money market rates. The choice of policy rate will also link financial institutions that participate in that market more directly to the announced target range, while other money market rates may move outside the range.

Federal funds rate under abundant excess reserves

There are significant risks in the long run associated with targeting the EFFR in this regime. Currently, an abundance of excess reserves reduces the need for interbank trading, and regulatory changes have diminished unsecured activity in general. Although daily federal funds volumes are currently about $75 billion, only $2.5 billion of that activity is between banks.[10] The vast majority of federal funds transactions reflect lending by Federal Home Loan Banks (FHLBs), which do not earn interest on their deposits with the Federal Reserve. Should FHLBs choose to allocate more of their liquidity portfolio to other instruments, such as overnight deposits or repo, federal funds volumes could decline precipitously. It could be difficult to communicate about the stance of policy by discussing conditions in a diminished and possibly idiosyncratic federal funds market. Although not a likely outcome, a decline in federal funds volumes below a threshold level might make continued publication of the target rate inconsistent with the IOSCO *Principles for Financial Benchmarks*. However, as is the case with all policy rate options in this regime, transmission occurs through the administered rates and does not depend on volumes in the target rate market.

Overnight Bank Funding Rate under abundant excess reserves

Targeting the OBFR under abundant excess reserves would provide significant operational and communications continuity with current practice while reducing some of the risks associated with targeting the EFFR. In this regime, both EFFR and OBFR measure rates on wholesale deposits, are tied via arbitrage to IOER, and are also supported by the ON RRP rate. Not surprisingly, OBFR and EFFR have generally printed within 1 basis point of each other since the OBFR's inception in 2016. The

[9] Targeting a specific level of the policy rate would not be practical in this regime, as market rates are determined by arbitrage to the administered rates, and tools are not employed to directly control any particular rate.
[10] These figures represent average volumes since 2018:Q2.

OBFR and EFFR have been very stable under the current regime, and infrequently change outside of month-ends and policy rate moves.

OBFR volume is currently around $150 billion per day, about evenly divided between federal funds and Eurodollar transactions. Despite lower inter-bank trading in the current regime, and suppressed Eurodollar activity following money market fund reform, OBFR volume is still supported by widespread investor participation.[11] Consequently, the OBFR is more robust than the EFFR to investors' decisions about which markets to use.

A Treasury repo rate under abundant excess reserves

A Treasury repurchase agreement, or repo transaction, is the sale of a Treasury security combined with an agreement to repurchase the same security at a future date. A repo is effectively a collateralized loan, whereas federal funds and Eurodollar transactions are uncollateralized loans. The Federal Reserve Bank of New York publishes several overnight Treasury repo rates, the broadest of which covers roughly $800 billion in daily transaction volume.[12] About half of this activity represents money market funds and other investors lending cash to securities dealers, while the balance represents transactions between securities dealers. Given the significant differences between the repo and federal funds markets, substantial communications would be required to explain the move to this new approach. The stance of policy under a repo target rate would be communicated in terms of a target range for dealer secured financing rates, which are more volatile than the federal funds rate and a departure from the current focus on unsecured bank borrowing.

A Treasury repo rate would incorporate a robust volume of transactions under a wide range of market conditions, including at the effective lower bound, given the repo market's role in financing Treasury securities. Targeting a Treasury repo rate may be viewed as desirable in light of new regulations, such as money market fund reform, that have encouraged a shift from uncollateralized to collateralized activity, leading to substantial growth in the repo market over the past decade. Treasury repo rates have a large impact on money market investor returns and dealer funding costs, although their effect on broader financial conditions is not as well understood as for unsecured rates.[13]

[11] Eurodollar volumes have also declined as some banks shifted offshore borrowings to domestic wholesale branches, which are not currently reflected in the OBFR. As a result, the Federal Reserve Bank of New York plans to widen the OBFR transaction base to include domestic wholesale deposits in 2019.
[12] These rates include the Triparty General Collateral Rate (TGCR), Broad General Collateral Rate (BGCR), and Secured Overnight Financing Rate (SOFR). The rates provide progressively broader views into the segments of the Treasury repo market.
[13] Another potential transmission channel for Treasury repo rates is through the Secured Overnight Financing Rate's (SOFR) emerging adoption as a reference rate for a broad spectrum of instruments. In 2017, the Alternative Reference Rate Committee selected the SOFR as an alternative to LIBOR.

Nevertheless, monetary transmission in a framework targeting a repo rate should not be meaningfully different than for other target rates, given the principal role of administered rates in an abundant excess reserves regime.

Control of a repo policy rate would likely require IOER to be supported by ON RRP as well as an overnight repurchase agreement (ON RP) facility with a wide variety of counterparties to enforce lower and upper bounds on the target rate. Take-up of an ON RP facility in ordinary circumstances is difficult to predict. Large issuance of Treasury securities would put significant upward pressure on repo rates, which might lead to dealers financing a portion of new Treasury issuance through an ON RP facility, at least temporarily. Such activity might be perceived as the Federal Reserve more directly financing Treasury debt. In general, control of a repo target could require greater take-up of facilities used to control rates, because of the large size of the repo market and greater volatility of repo rates arising from dynamics in the market for Treasury collateral.[14]

Two candidate repo rates to be considered are the Triparty General Collateral Rate (TGCR) and Secured Overnight Financing Rate (SOFR). The TGCR reflects transactions in the triparty segment of the repo market where investors lend cash to high-quality dealers. The SOFR includes these transactions as well as inter-dealer trades undertaken for a wide variety of purposes. A TGCR policy rate may require a smaller set of counterparties and consequently lower facility usage than for SOFR, but the TGCR is less robust to changes in market structure because it is calculated from transactions executed on a repo platform operated by a single private provider.

The general level of short-term rates under abundant excess reserves

A final option is to target the general level of short-term rates (GLOSTR). In practice, this could be accomplished by communicating a target range for short-term rates and either specifying a new index composed of both secured and unsecured rates or stating an intention to keep most overnight rates within some tolerance band. This approach is focused on the common factor underlying the central tendency of these rates, which may be more relevant for broader financial conditions than the rate of any particular money market instrument. Targeting the GLOSTR would allow the Committee some discretion in responding to idiosyncratic volatility in a particular rate, or during periods of financial stress where secured and unsecured rates may move in opposite

[14] Treasury repo rates move an average of 3 basis points each day. From 2016 through mid-2018, the average volume of Treasury repo transactions occurring above IOER was $135 billion on days when the Treasury issued coupon securities, and $65 billion on other days. However, had an ON RP facility priced at IOER existed during this time, only a fraction of this activity could have been expected to migrate to a Federal Reserve ON RP facility, as money market fund repo investors would likely have adjusted their repo offering rates to below the ON RP facility rate.

directions. The GLOSTR would be robust to future changes in market structure that alter the usage of different money market instruments.

Control of the GLOSTR may require that the Desk stand ready to execute OMOs that supplement IOER and ON RRP in certain circumstances, and so would require preparation to attain operational readiness. While there is no reason that communicating with a GLOSTR target would be particularly problematic, the Committee would need to develop a framework for evaluating whether the GLOSTR was at the target level, such as by creating a summary measure or criteria to assess the relationship of the full set of rates to the target level. The Committee would also need to develop a communication strategy to provide clarity to market participants on the effectiveness of implementation, and how the tools would be utilized to control rates in different circumstances.