

October 7, 2016

Alternative Policy Rates¹

1. Introduction

The policy rate performs two critical and interrelated functions in the Federal Reserve's monetary policy framework. The first function is setting and communicating the stance of policy: Typically, the Committee conveys the stance of monetary policy to the public mainly by describing its setting of the policy rate. The second function is transmission: In altering the policy rate, policymakers guide a constellation of money market rates and broader financial conditions to affect the real economy. We review a set of alternative overnight interest rates that would seem able to serve these roles, including those drawn from unsecured and secured money markets, a composite rate drawn from both, and administered rates. We next describe several considerations regarding the alternative rates in the context of their potential to meet key long-run framework (LRF) project objectives.²

Overall, it is difficult to make sharp distinctions among the alternative rates in relation to dimensions like controllability, transmission, and longevity, and so we conclude that any of the potential policy rates considered here could likely be effective. In particular, for each rate, a range of possible operating regimes and tools would be available for policymakers' consideration, and so it appears likely that an adequate level of interest rate control could be achieved in any case. If the Committee were to switch from the current federal funds rate target, FOMC communications would be a very important consideration, although the staff believes that communications challenges would be manageable.³

¹ James Egelhof, Ron Feldman, Jane Ihrig, Antoine Martin, Paula Tkac, and Suraj Prasanna, with input from Troy Davig, Julie Remache, and Gretchen Weinbach.

² We do not consider the following two LRF project objectives: 1) supporting the System's ability to address liquidity strains in money markets and support overall financial stability, which is beyond the scope of this memo; and 2) reducing burdens and deadweight losses associated with reserve requirements, which seems similarly possible under any choice of policy rate.

³ See the "Preparing the Public for a New Monetary Policy Framework" memo by Meade et al. for a description of strategies that might be used to communicate changes in the implementation framework to the public, including specific issues relating to communicating a new policy rate.

2. Description of alternative policy rates

Here we provide an overview of types of interest rates that might be considered viable policy rates. We focus on overnight rates, begin by discussing a sample of unsecured rates, move to a description of some secured rates, and conclude with a review of administered rates.

Federal funds rate (FFR). In the pre-crisis period, the Committee’s federal funds rate (FFR) point target was achieved by using open market operations (OMOs) to adjust the supply of reserves so that the market FFR stayed, on average, near the target. Currently, with an abundant quantity of reserves in the banking system, the FOMC announces a target range for the FFR and implements that policy stance by setting two administered rates—the interest on reserves (IOER) rate and the ON RRP offering rate—to keep a representative measure of the FFR in its target range. That representative measure—known as the effective federal funds rate (EFFR)—is currently calculated as a volume-weighted median rate based on all federal funds transactions reported on Form FR 2420.⁴ A “federal funds transaction” has a specific regulatory definition, but in practice it refers to borrowings by depository institutions from either another depository institution or from certain types of federal agencies that hold reserve accounts at the Federal Reserve. Pre-crisis, when reserves were relatively scarce and not remunerated, activity in the federal funds market predominantly consisted of bank-to-bank borrowing and lending reflecting banks’ efforts to adjust their reserve positions to meet their reserve requirements and payments and clearing needs. Absent remuneration on reserves, banks typically avoided holding too many reserves in excess of those needs. In contrast, the vast majority of current federal funds transactions predominantly reflect arbitrage activity in the form of lending by the Federal Home Loan Banks (FHLBs), who do not earn interest on balances placed with the Federal Reserve, to U.S. branches and agencies of foreign banks who do earn IOER.⁵ In the first half of 2016, for example, such activity accounted for over 95 percent of federal funds transactions.

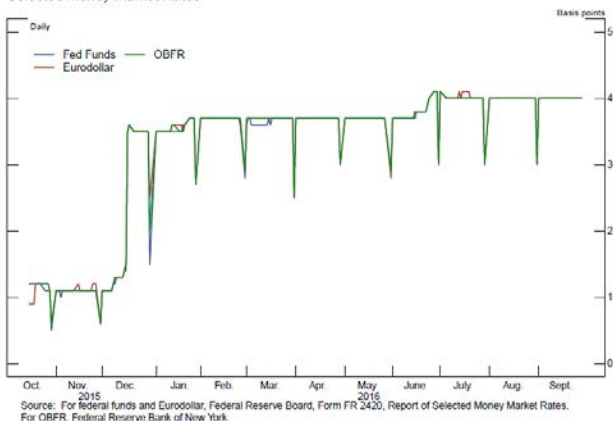
Overnight bank funding rate (OBFR). The Federal Reserve began publishing the overnight bank funding rate (OBFR) in March 2016. The OBFR is also based on data from the FR 2420

⁴ The FR 2420 is used to collect borrowings data from U.S. commercial banks, thrifts, and branches and agencies of foreign banks.

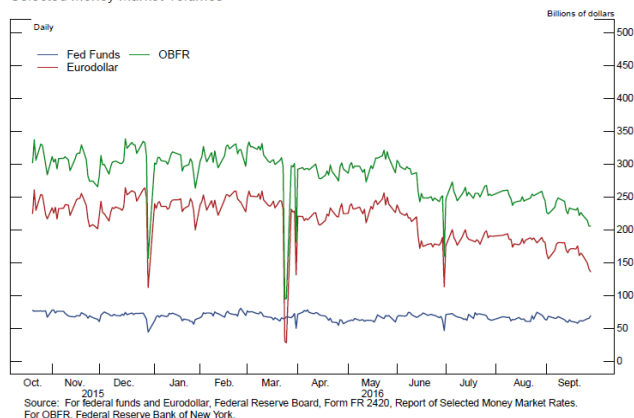
⁵ For a discussion of the evolution of the federal funds market, see the April 2014 memo “The Target for the Federal Funds Rate and Alternatives” by Ammer et al.

collection, and is calculated as a volume-weighted median of transactions in the federal funds and Eurodollar markets pooled together. A Eurodollar transaction may be loosely defined as borrowing by depository institutions that occurs through “offshore” affiliates; that is, the transaction is booked by a financial entity located outside of the United States. A wide range of institutions lend in the Eurodollar market, including money market mutual funds, nonfinancial corporate businesses, and sovereign wealth funds. Since both the federal funds and Eurodollar markets involve overnight unsecured transactions and include some of the same borrowers, the FFR and the Eurodollar rate closely track one another, and, as illustrated in the figure to the left below, the OBFR, a blend of the two rates, is, not surprisingly, also quite close to those rates. But, as can be seen by the green line in the figure below to the right, the volume of transactions that make up the OBFR, by construction, is currently much larger than that for the FFR, the blue line.

Selected Money Market Rates



Selected Money Market Volumes



Several factors that have affected the Eurodollar market in recent years have resulted in some reduced incentives to transact in Eurodollars. While the current volume of Eurodollar transactions remains large, that might not always be the case. In particular, bank borrowing booked off shore has declined some in the current environment, for four reasons.⁶ First, banks’ booking of offshore borrowings originated as a way to attract wholesale deposits without increasing reserve requirements, but in the current environment, reserve requirement avoidance

⁶ According to the FR 2420 collection, aside from quarter-ends, the daily volume of Eurodollars typically averaged about \$225 billion in the months prior to early June, and have since averaged about \$180 billion.

may be less important to some large, internationally-active banks. That said, because the balances that banks hold to meet reserve requirements do not count as high-quality liquid assets for the purposes of calculating regulatory liquidity metrics (such as the liquidity coverage ratio or LCR), continuing to reduce such balance requirements by booking liabilities off shore could remain attractive for a number of very large banks. Second, with the repeal of Regulation Q in 2011, banks are no longer prohibited from paying interest on U.S. demand deposits, so the incentive to book such deposits overseas to avoid this regulation has been eliminated. Third, the FDIC's expansion of its deposit insurance base may have led some banks to economize on these offshore deposits. Finally, more recently, the mid-October money fund reforms appear to have led to a decline in Eurodollar volumes as the assets under the management of prime money funds have declined.⁷ In the interest of developing a more comprehensive measure of banks' marginal funding cost, the staff is exploring the possibility of expanding the OBFR to include onshore wholesale deposits.

Overnight Treasury general collateral repo rates. Unlike the federal funds and Eurodollar transactions considered above, repurchase agreements are collateralized borrowing transactions. Such agreements are used primarily by market participants to fund their securities positions and by lenders who seek short-term, low-risk investments. The primary borrowers in the repo market are dealers and other nonbank financial firms seeking to finance Treasury positions and, at present, the Federal Reserve is also in the market; the primary lenders are money market mutual funds, asset managers, and custodial banks.

The U.S. general collateral Treasury repo market can be divided into three main segments:

1. The **triparty market** in which repo transactions are executed through a third-party institution responsible for clearing the transaction. These transactions are “general collateral” repos in which a securities provider can collateralize a loan with any Treasury security that meets a pre-determined set of criteria (for example, Treasury securities with

⁷ In advance of the effective date for money fund reforms on October 14, some prime money funds have converted to government-only funds, which cannot transact in Eurodollars, and, some investors have withdrawn from prime money funds, particularly of late. The money fund reforms may have also temporarily boosted overnight Eurodollar volumes somewhat as the prime funds positioned for potential investor withdrawals by shortening the average maturity of the funds' investments.

less than 10 years remaining maturity). BNY Mellon is anticipated to be the only significant provider of this clearing service in coming years.

2. The **General Collateral Finance (GCF) market** is a blind-brokered interdealer repo market. The primary borrowers in this market are smaller or less creditworthy dealers who are unable to obtain repo financing from traditional non-dealer triparty lenders, such as money market mutual funds. Note that GCF transactions are settled on the triparty systems.
3. The **bilateral market** is one in which borrowers and lenders interact directly. Most bilateral repo transactions involve repo transactions against general collateral, as well as against specific securities (known as “specials”), generally to facilitate short sales of that security.

We note that in conjunction with an ongoing Federal Reserve and Treasury project regarding the development of stable benchmark interest rates, the staff is actively developing some options for benchmark overnight repo rates that are based on general collateral Treasury securities, and this analysis may yield insights that are relevant in thinking about potential policy rates.

General level of interest rates (GLIR). Conceivably, a policy rate that seeks to capture a measure of the central tendency of overnight interest rates across money markets might provide a more stable relationship between the policy rate, broad financial conditions, and the real economy than any one individual money market rate. Therefore, we consider the possibility that the FOMC might base its description of the stance of policy on a composite of overnight market rates. In so doing, the Committee could point to “the general level of short-term interest rates” in its FOMC statement, or it could more directly describe the stance of policy according to some sort of blended index of overnight market rates. One possibility for such an index is to focus just on unsecured markets, such by using the OBFR; another is to use a broader measure that incorporates both unsecured and secured overnight rates, perhaps including general collateral repo rates. Such an approach might avoid the need for policymakers to account for situations in which a particular overnight market rate becomes out of sync with other similar rates for idiosyncratic reasons, or situations in which individual overnight market rates are highly correlated in general but at times less so at higher frequencies.

Administered rates. The Federal Reserve could also choose to employ an administered rate as its policy rate.

Interest on reserves rates. In October 2008, the Federal Reserve began to pay interest on reserve balances held by depository institutions. The current policy is to remunerate both required and excess reserve balances at the same rate (0.50 percent as of December 2015). Note that while GSEs also hold balances at the Federal Reserve, they are not legally able to earn interest on those balances.⁸ By adjusting the IOER rate, the Federal Reserve affects money market rates by altering the minimum rate that banks are willing to accept in providing funds overnight and by influencing the rates at which they are willing to bid for funds in wholesale funding markets.

ON RRP offering rate. As of December 2015, the Federal Reserve stands ready to engage in reverse repurchase transactions, offering U.S. Treasury securities as collateral, with approximately 150 approved counterparties at a posted offering rate of 0.25 percent. The ON RRP offering rate, below the IOER rate, establishes a minimum return on repo lending by approved counterparties to other borrowers, thereby establishing a floor under repo, and other, overnight market rates.

3. Evaluating the alternative policy rates

Here we discuss some pros and cons of using the alternative policy rates relative to several important criteria. Some important presumptions and caveats apply to our discussion and we note them along the way.

Interest rate control. Establishing and maintaining interest rate control is a primary objective of any implementation framework. Generally speaking, when the policy rate is a market rate, control amounts to keeping the market rate in its target range or near its point target on average over time. If the policy rate is an administered rate, control amounts to overnight market rates remaining in a close and predictable relationship to the administered rate. However, effective control is hard to define or quantify, in part because doing so requires a judgment by policymakers, and understanding on the part of market participants, regarding an acceptable

⁸ The Federal Reserve may have the authority to impose fees on these accounts, which could support policy implementation in a negative interest rate environment.

degree of departure of overnight market rates from the policy rate. For example, as is currently the case, effective control could allow for occasional short periods in which market rates move away from the target federal funds rate, so long as such periods are short-lived and well understood.⁹ If that were not the case and a much higher degree of precision were desired by policymakers, the associated implementation framework might include different operational tools or tool settings, and also might incorporate additional implementation actions or different types or frequency of FOMC communications.

Judging the degree of interest rate control that could be achieved with each of the alternative policy rates described above is quite difficult. Given the Federal Reserve's long reliance on the federal funds rate, we have no modern experience using an alternative policy rate. Nonetheless, the "Money Markets" memo illustrated that there has been a high degree of correlation across U.S. overnight market rates for some time. In addition, as discussed in the "The Foreign Experience with Monetary Policy Implementation" memo (hereafter the "Foreign Experience" memo), other major central banks have achieved reasonable control over short-term rates using a variety of policy rates. Moreover, the Federal Reserve has gained some experience of late using administered rates to help implement policy. Therefore, we presume that a policy rate other than the federal funds rate could be effective rate at communicating the stance of monetary policy and transmitting it to broader financial conditions in the United States.

With the caveat that we have presumed their general effectiveness, we might nonetheless offer some basic comparisons of the alternative rates in this regard. Targeting an unsecured market rate is familiar to the Federal Reserve, and because the federal funds and Eurodollar markets are tightly linked, there may not be much difference in terms of targeting the FFR and OBFR. While controlling a secured rate would be somewhat novel, as noted in the "Demand and Supply Considerations in Repo Rate Targeting Regimes" memo, repo rate targeting is a feasible option available to the Committee. In particular, the Federal Reserve's recent experience with the ON RRP program in the current framework supports the view that appropriate control of a repo rate

⁹ In her press conference following the September 2014 FOMC meeting, the Chair included the following in her description of the Committee's intended policy normalization framework: "The Committee expects that the effective federal funds rate may vary within the target range, and could even move outside of that range on occasion, but such movements should have no material effect on financial conditions or the broader economy." A full transcript of that press conference may be found at this link: <https://www.federalreserve.gov/mediacenter/files/fomcpresconf20140917.pdf>.

in a target range may be viable using a framework closely resembling the one currently in place. Achieving adequate control over a composite rate is unfamiliar. On the one hand, targeting a composite rate could be relatively more complex than targeting one particular market rate because the operating regime may need to encompass tools to enable control of a broader swath of unsecured and secured market rates, depending of course on how the composite measure is defined. On the other hand, given that a composite rate would not be primarily focused on any particular single market, targeting a composite rate might avoid the need for policymakers to account for situations in which a particular overnight market rate that is included in the composite becomes out of sync with other similar rates for idiosyncratic reasons. Finally, while an administered policy rate would simply be announced, tools of some kind would still be needed to keep adequate control over overnight interest rates. In general, as noted in the “Foreign Experience” memo, central banks that employ an administered rate as their policy rate typically link it, either implicitly or explicitly, in some way to a particular market rate or set of money market rates, so that many of the issues related to controlling market policy rates would be similar in this case.¹⁰ In addition, use of an administered policy rate would be accompanied by considerations regarding whether to tolerate any potential deviations between the policy rate and the associated market rate.¹¹

An important caveat to these broad generalizations is that we have abstracted from periods in which financial markets are under substantial stress. During periods of financial stress, the degree and nature of the connection among overnight market rates can shift. For example, during periods of heightened risk aversion, unsecured market rates tend to rise while secured

¹⁰ Four of the six foreign central banks analyzed in the “Foreign Experience” memo that use administered policy rates do so by implicitly or explicitly referencing an associated market rate. While the stance of policy is communicated in terms of an administered rate, money market conditions influence the calibration of the administered rate and so provide feedback to policymaking.

¹¹ In particular, the public and markets would need to understand the Federal Reserve’s reaction function regarding deviations between the administered policy rate and the related market rate. That is, the Federal Reserve would need to communicate clearly about their interpretation of any possible “drift,” or changing spreads, between the administered policy rate and market rates. Policymakers would have some discretion regarding how large and persistent a deviation they might choose to tolerate. However, such discretion could come with a cost. It would need to be clear that any drift allowed should not be interpreted as lack of control or transmission; without such understanding, uncertainty regarding policymakers’ response function could increase along with risk premia in money markets and hence also in longer-term interest rates. If desired, markets could come to learn that “drift” was a normal feature of the Committee’s operating regime, but that could take some time.

market rates tend to fall.¹² The Committee can likely adjust its policy stance in such times in light of other policy priorities, as it has done in the past. Conceivably, the use of a composite market rate might be less sensitive to fluctuations in the relative alignment of money market rates because it would blend readings from both unsecured and secured market rates.

Interest rate transmission. To be effective, changes in the stance of policy need to be sufficiently transmitted to a broad range of interest rates. Consistent with the “Money Markets” memo, we presume that the alternative policy rates considered here would be likely to facilitate an appropriate level of transmission of the stance of monetary policy into financial conditions and the real economy. We establish this presumption based on the high degree of correlation exhibited by the overnight interest rates considered here and their demonstrated links to longer-term rates. The presumption of good transmission also requires that such interconnectedness is expected to persist, a topic which we consider below.¹³ That said, the magnitude and timing of the transmitted effects of a given change in each policy rate could conceivably differ.

Policy rate longevity. Financial markets continually evolve. All else equal, a policy rate that maintains its effectiveness throughout such changes—in that the policy rate consistently enables interest rate control and policy transmission over time—would seem preferable. Similarly, policymakers may prefer a policy rate that provides long-standing effectiveness including with respect to the management of episodes of financial market stress or of conducting monetary policy at or near the zero lower bound.

The longevity of market policy rates depends in part on the evolution of various market structures, market participants’ business practices and incentives, and the actions of the Federal Reserve (such as its use of LSAPs or particular operational tools), some of which can be difficult to anticipate. For example, as noted above, activity in the federal funds market is greatly reduced at present in comparison to pre-crisis levels. A sufficient further reduction in this

¹² One exception to this pattern was around Brexit, when interdealer (GCF) repo rates rose and the EFFR did not. Separately, unrelated to financial market stress, both secured and unsecured money market rates behave atypically around quarter- and month-end regulatory reporting dates.

¹³ Duffie and Krishnamurthy (2016) suggest that the dispersion of money market rates could be greater now than in the past, and suggest that this implies lower monetary policy pass-through. However, their results depend on the explicit construction of their rate dispersion index, one that is strongly influenced by the inclusion of the Treasury bill rate.

market activity, such as if the FHLBs or the U.S. branches and agencies of foreign banks were to shift away from their current business practices of engaging in arbitrage activity in the federal funds market, might result in a situation in which the FFR was largely determined by infrequent and idiosyncratic interbank trading, and thus perhaps was less representative of overnight market rates. This risk could be reduced if the Federal Reserve returned to operating on the steep part of the reserve demand curve, so that interbank activity would increase.¹⁴

The OBFR might be considered more resilient to changes in market structure than the federal funds rate because it relies on a larger base of transactions. However, as noted above, Eurodollar volumes have recently declined noticeably in part because banks have shifted some balances on shore, and the rates at which those deposits are booked are not captured in the OBFR in its current formulation. As discussed earlier, the staff is exploring the possibility of expanding the OBFR to include onshore wholesale deposits.

A repo policy rate is also worth considering because of the large number and types of participants that engage in such activity, and because the market is tied to the U.S. Treasury market which is the deepest and most liquid in the world. That said, regulatory factors and institutional developments could affect the evolution of the repo market over time as well.

The longevity of an administered policy rate would likely be closely tied to the stability of its relationship to any associated market rate. Finally, referencing the GLIR, a concept not necessarily tied to any particular underlying market, would seem to have the advantage of being most flexible under structural changes.

Communications considerations. Moving to a new policy rate would require clear FOMC communications. In particular, the Committee would need to explain the rationale for the shift away from the fed funds rate and how the adjustment will allow it to meet its dual mandate. A change in the policy rate would be a significant development and there could be some challenges; in particular, it might be difficult for market participants and the broader public to anticipate how changes in such a policy rate, with which they might have little experience, might

¹⁴ See Simon Potter, "[Discussion of 'Evaluating Monetary Policy Operational Frameworks' By Ulrich Bindseil](#)," August 26, 2016, for a discussion of why banks may not be as eager to trade as much with each other in the new regulatory environment because they now face costs of expanding their balance sheets.

transmit to money market rates more broadly, and they might at times misjudge such relationships. Communications regarding a repo rate target may be complicated by there being multiple types of repo markets and rates. And, if the policy rate is the GLIR or an administered rate, it might take time for markets to learn how the FOMC intends to respond to volatility in any one given money market. More generally, a change to any new policy rate would require effort to educate Congress and the public about the differences between it and the FFR.¹⁵ In addition, many internal processes—such as collecting forecasts of the policy rate in conjunction with the SEP—would need to be updated. Of course, these changes could be well-staged and would be manageable. In the longer run at least, all of the potential policy rates are likely to be well understood by the public.

Effectiveness at the zero lower bound. Another relevant consideration is whether an alternative policy rate would allow for relatively seamless operations and communications in a low or negative rate environment. This is difficult to judge in its entirety, but we nonetheless offer a few assessments in this regard. First we consider whether each alternative rate could be pushed into negative territory. In order to maintain incentives for federal funds trading in a regime with a negative IOER rate, the Federal Reserve would likely need to adjust the terms and conditions for balances maintained at the Federal Reserve by GSEs since their account balances are currently unremunerated. While Eurodollar and repos may not face these same complications associated with the terms and conditions for GSEs, all of these markets are likely to face varying degrees of operational challenges. An administered policy rate may be set at any level up to the limits of statutory authority, although its relationship to an associated market rate might change in negative territory.

Aside from any operational challenges associated with pushing these alternative policy rates into negative territory, the Federal Reserve would likely have many issues to contend with in implementing a negative rate regime regardless of the policy rate in use. Such issues would likely include communications challenges, greater uncertainties regarding the extent and timing

¹⁵ For example, a consideration in basing a policy rate on OBFR is that, rightly or wrongly, the public may come to think that the Federal Reserve is tying its monetary policy communications to transactions that are motivated by regulatory arbitrage, or that represent “foreign” activity subject to the primary authority of a European or other non-U.S. regulatory body.

of interest rate transmission, and the possibility that public pressure regarding the unpopularity of such a policy rate setting could mount, such as from the banking sector.

Promotion of efficient, active, and resilient money markets. Finally, a policy rate tends to create a focal point for market attention and activity, and so policymakers may want to consider how their choice of policy rate might affect financial market behavior and structure in the long run.¹⁶ For example, as noted above, for some time, the current regime has effectively eliminated interbank trading, resulting in a federal funds market that reflects borrowing by foreign banks from the FHLBs. A repo rate targeting regime could involve permanent use of the ON RRP facility or something similar, which would likely involve ongoing transactions with a range of nonbank and nondealer counterparties. The choice of policy rate could also lead market participants to anticipate deeper and more permanent involvement by the Federal Reserve in a particular money market than is intended. For example, if the Federal Reserve were to announce that it was targeting a repo rate, market participants might expect that the Federal Reserve would step in as needed in that market to ensure adequate rate control.¹⁷ Such expectations could, in principle, affect market relationships or structures and the capacity of some money market instruments to provide useful information about financial conditions. Use of an administered policy rate could create a new market for derivatives to hedge any drift between the administered rate and the associated market rate.¹⁸

Conclusions

We reviewed a range of alternative policy rates and made some general comparisons of the rates relative to a set of criteria that policymakers may deem important. We offer the following five takeaways based on our discussion above:

¹⁶ For example, the chosen policy rate is likely to promote hedging activity in the associated derivatives market as well as additional activity in the underlying cash market.

¹⁷ For example, in times of stress in financial markets, market participants might expect the Federal Reserve to act as a repo lender to securities dealers in order to ensure adequate rate control, even if a repo lending facility was not a regular part of the operating framework. That said, such expectations might build regardless of the policy rate; indeed, the Fed has at times conducted such lending under the current implementation framework.

¹⁸ The existence of such a contract could reduce market participants' interest rate risk (or basis risk related to short term rates) but such contracts might only seem useful to the extent that the drift is concerning to policymakers.

- First, while the degree of control required by policymakers and the choice of policy rate will have implications for the overall structure of the operating regime, it appears feasible to achieve adequate control using any of the alternatives considered here in part because a range of possible operating regimes would be available to implement policy in any case.
- Second, since money market rates have historically been highly correlated and also well connected to longer-term interest rates, the choice of policy rate may not produce significant macroeconomic distinctions so long as these linkages remain.
- Third, while the evolution of various market structures, market participants' business practices, and the actions of the Federal Reserve can be difficult to foresee, the money markets that are associated with the alternative rate choices considered here are likely to persist over time in some form. That said, some of these markets are currently more robust than others, and the choice and structure of the operating framework will have an important influence on the evolution of these markets.
- Fourth, in general, in a negative rate regime there would be operational challenges associated with all of the alternative rates considered since such settings are not the norm.
- Finally, the most important issue for policymakers may regard the Committee's communications about a new policy rate; a shift away from the federal funds rate would require a careful and detailed explanation to the public. That said, the staff believes that such a communication effort would be manageable.