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Standing Lending Facilities[1]

This memo describes the tradeoffs and issues associated with the design of standing lending facilities. Stigma limiting the use of standing lending facilities is a particularly challenging problem, one discussed at the July 2016 FOMC meeting. This memo discusses the potential for the design of such facilities to mitigate stigma. The main takeaways are the following:

- Stigma seems linked, in part, to providing backstop liquidity for idiosyncratic shocks to individual institutions. Combining that role with the role of supporting interest rate control, or the provision of liquidity more broadly within a single standing lending facility, runs the risk of having all liquidity provision, regardless of objective, suffer from stigma.
- By establishing separate liquidity facilities to address specific goals, it may be possible to enhance interest rate control and reduce stigma.
- The effectiveness with which a standing lending facility achieves the rate-control or liquidity backstop role depends importantly on its range of eligible counterparties and collateral. Facilities that focus on supporting interest rate control may be able to reduce stigma by accepting only open market operation-eligible collateral, while liquidity backstops, whether for idiosyncratic firm needs or to address broader market strains, will necessarily have broad collateral eligibility.
- It may be possible to better support interest rate control – in a variety of implementation frameworks and reserve environments – by using additional liquidity tools. Two examples focused on supporting interest rate control that would only accept open market-eligible collateral are outlined in the memo:

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    - A Depository Institution Repo Facility (DIRF), which could be most useful in an environment with scarce reserves and an unsecured policy rate target;[2]
    - A conceptually similar, but less developed idea, for a facility with a broader set of counterparties, the Financial Institution Repo Facility (FIRF), which could work in a range of frameworks and with various potential policy targets.
- Such interest rate control-focused facilities could be complemented by a version of the term auction facility (TAF), which was employed during the financial crisis to help address broad liquidity pressures. The design features of the TAF help distinguish it from facilities that address idiosyncratic individual institutional needs for liquidity.

The rest of the memo is organized as follows. Section I describes various objectives for central banks' standing lending facilities. Section II outlines issues associated with assigning multiple objectives to a single facility, focusing particularly on how a single facility that is meant to address both interest rate control and liquidity can lead to stigma and erode the effectiveness of such a facility. This section also describes how the objectives assigned to a facility influence appropriate collateral and counterparty policies. Section III considers these issues under times of acute market stress. Section IV describes three potential facilities that could reduce stigma and deliver interest rate control in a variety of implementation frameworks and reserve environments. Section V discusses the costs and benefits of potential alternative levels of integration for liquidity backstop facilities within the monetary policy framework.

I. Rationale for central bank standing lending facilities

A central bank standing lending facility can play multiple distinct but related roles, all of which are closely tied to long-run framework objectives. A standing lending facility can be a tool for supporting control of short-term market interest rates or for providing a backstop source of liquidity. The provision of a liquidity backstop role can be further distinguished by whether the

[2] A conceptual example, developed by System staff as part of an earlier working group, would leverage the existing discount window infrastructure and make on-demand overnight bilateral repos available to healthy banks.

backstop addresses a firm's idiosyncratic funding shortfall or responds to a broad need for liquidity in times of market stress, although these two cases are not always completely distinct.

Interest rate control

In principle, a standing lending facility can place a ceiling on the rate that eligible participants would be willing to pay for funds from a private counterparty. This ceiling should in turn help truncate upward pressure in any market rate targeted by policymakers and short-term market rates more broadly, in response to shocks to the supply of or demand for funds.

The importance of placing a ceiling on rates, or of limiting the variation of short-term market rates more generally, may depend on the policy rate or the operating regime. For instance, policymakers may be willing to tolerate a modest degree of variability in short-term money market rates if the stance of policy is communicated through an administered rate, such as the interest on excess reserves rate. In contrast, as was the case in the pre-crisis period, policymakers may prefer more precise control when operating in a regime in which they have announced a specific target or target range for a market rate. Establishing a ceiling rate may be less important in a floor system with abundant reserves, but even in this environment a lending facility could still damp potential variability of market rates in response to unusual market disruptions. The potential for rate volatility might be more pronounced in a regime with scarce reserves, and a lending facility may be needed more routinely in this environment to achieve appropriate interest rate control.

In the United States, the interest rate on discount window loans was intended to play the role of a ceiling with the creation of the primary credit facility in 2003, but it has not been fully effective at performing this role. Even before the financial crisis, it was not unusual to observe federal funds trades above the primary credit rate as a result of stigma and other factors associated with discount window borrowing. During this period this "leaky" ceiling did not seem to interfere with the transmission of monetary policy, but with the onset of the crisis in August 2007 an effective ceiling became more important for effective policy transmission. The "Lessons from the Crisis" memo details the ineffectiveness of the primary credit rate as a ceiling during the crisis. This same stigma, discussed in the next section, limited the effectiveness of primary

credit in serving its other role as a liquidity backstop for depository institutions facing liquidity pressure.

Liquidity support

A standing lending facility provides eligible participants with a source of liquidity in circumstances in which their access to the market or market functioning itself is compromised. This provision of liquidity can address concerns for a single firm due to its own unique circumstances or can have broad applicability during periods of widespread market stress. This function of a standing lending facility is not entirely separate from interest rate control, as market stresses that increase the demand for central bank credit may also increase market interest rates, reflecting a combination of risk and liquidity premiums.[3]

The role of central bank lending as a liquidity backstop creates the potential for moral hazard, or the risk of encouraging an adverse behavior -- in this particular case over-investment in illiquid assets.[4] Moral hazard is managed in part by regulation as well as by supervisory oversight of eligible institutions. Despite the insights gained from supervision, a challenge involved in providing a liquidity backstop is that it may be necessary for the central bank to make difficult judgments about the solvency of institutions seeking loans. These concerns have led some to argue for minimal use of central bank lending in the implementation of monetary policy (Goodfriend and King, 1988). However, this argument crucially relies on the ability of the market to efficiently allocate liquidity among firms, and the financial crisis demonstrated that financial markets cannot always allocate liquidity efficiently.

[3] An additional challenge was raised in the "Lessons from the Crisis" memo, which discusses the tension caused by lending intended to support markets needing to be sterilized to maintain interest rate control. New tools have been developed that would make sterilization easier, and policymakers' views on the need to sterilize may have also changed given the ability to pay interest on reserves and the experience with interest rate control at the zero lower bound.

[4] Of note, in some circumstances of market stress, there may be a policy interest in encouraging some degree of risk taking to support market functioning.

The economic literature has maintained that a central bank's lender of last resort function can serve a critical role.[5] For example, Diamond and Rajan (2005) as well as Holmstrom and Tirole (1998) show that a lender of last resort increases efficiency and is therefore socially beneficial.[6] At the same time, Bindseil (2016) notes that putting some restrictions on the lender of last resort role is also beneficial for society.[7] Economic literature has also provided a number of examples of frictions that interfere with the market's allocation of liquidity in response to shocks, further increasing the likelihood that a central bank lending facility would be efficiency-enhancing. These frictions often involve some degree of market segmentation that limits arbitrage and results in the possibility of fire sales (Freeman, 1996; Allen and Gale, 2004). Another friction that has been highlighted in discussions of wholesale funding markets is adverse selection, which could make interest rates unattractively high for potential borrowers with good credit quality (Phillipon and Skreta, 2012). In all of these examples, lending by the public sector might support the efficient flow of credit to households and businesses. It is worth noting that, partly because of credit risk, public sector lending has potential fiscal implications, but the models typically do not distinguish between lending by the central bank and the fiscal authority.

II. Multiple objectives and the tools to address them

The Federal Reserve has tools to control rates and to provide a liquidity backstop either in response to a broad liquidity shortage or as the result of idiosyncratic shocks to individual firms. However, these objectives may overlap, particularly in times of stress when a liquidity backstop may be important to address broad pressures on money market interest rates. Temporary open market operations (OMOs)—overnight repurchase agreements (RPs) and overnight reverse

[5] Allen, Carletti and Gale (2009) note that the optimal form of intervention depends on the reason why the liquidation markets do not allocate liquidity efficiently.
[6] Holmstrom and Tirole (1998) demonstrate that, in the end, it can be economically inefficient for firms to enter into all the transactions required to insure themselves against all possible shocks. Diamond and Rajan (2005) analyze the socially optimal amount of liquidity provision by a central bank when interbank markets are subject to broad liquidity shocks.
[7] Bindseil (2016) points out that it is still important "to have some protection against information asymmetries and moral hazard, to avoid relying excessively on the abilities of supervisors and auditors, and generally to preserve stronger incentives to maintain funding market access and thereby market discipline."

repurchase agreements (RRPs)—are an example of a tool that is focused on rate control, whereas central bank liquidity swaps are an example of a tool that has historically focused primarily on providing a liquidity backstop for the broader market.[8] In contrast to these tools (some of which are discussed in more detail in section IV), the discount window has been relied upon to support several goals at once: rate control as well as addressing firm-specific and marketwide liquidity stresses. This section discusses the potential benefits of targeting distinct objectives with separate facilities as well as other considerations related to the effective design of liquidity tools, namely the range of eligible counterparties and collateral. As noted below, the eligible counterparties for a facility and the collateral it accepts play an important role in both denoting its function (rate control or one of the two liquidity backstop roles) and determining the effectiveness of the facility in achieving its goal, particularly for a liquidity backstop facility.

Multiple objectives in one facility and a reluctance to borrow

Historically, the Federal Reserve has attempted to use the discount window in pursuit of its rate control and liquidity backstop objectives. The discount window's primary credit program is intended to serve as the principal liquidity backstop to the banking system by providing a backup source of short-term funds for depository institutions in generally sound financial condition against a broad range of collateral. Primary credit was also expected to provide a ceiling on the federal funds rate, as depository institutions have no incentive to pay higher rates in the interbank market than the primary credit rate.

The ability of the discount window to play these roles has been hampered to the extent that institutions are reluctant to utilize it even when it is economically advantageous to do so. This reluctance to borrow can stem from multiple sources. The primary driver appears to be an institution's fear of appearing weak as a result of borrowing from the lender of last resort, should such borrowing become public knowledge. This "stigma" discourages the institution from

[8] The liquidity swaps may support broader policy objectives, such as limiting upward pressure on the foreign exchange basis and preventing spillovers to domestic funding rates. However, "rate control" is used in this memo to refer to control of a market interest rate targeted by policymakers. For further detail on the swap lines, please see the supplemental memo "The Role of the Federal Reserve's Swap Arrangements."

coming to the facility out of a fear that counterparties and possibly even depositors may reduce or even eliminate their business with the bank.

Reluctance to borrow can also stem from a desire by banks' funding operations to avoid the scrutiny that could come with such borrowing, even if that borrowing were not public knowledge. Beyond any potential scrutiny from discount window staff, a bank's funding-desk employees could be concerned with potential internal queries from bank management about why they needed to use the lender of last resort, or even similar questions from supervisors. Indeed, responses to a survey of depository institutions and bank supervisors conducted by the Discount Window Working Group (DWWG) in 2014 indicated that some banking supervisors (especially of very large institutions) view any borrowing from the central bank as cause for follow-up with the institution that borrowed.[9] All such questions are likely avoided by paying more for the same funds in the private market.

Reluctance to borrow as a result of any of these concerns has plagued the discount window for many years, limiting its effectiveness regarding interest rate control and as a liquidity backstop. The failure of the discount window to address widespread liquidity pressures limited the ability of the Federal Reserve to respond effectively to the financial crisis, as discussed in the "Lessons from the Crisis" memo, but it is not a new phenomenon. Prior to the introduction of primary credit, and particularly in the 1980s and early 1990s, the discount window became associated with lending to institutions that were experiencing financial difficulties.[10] As a result, institutions became increasingly reluctant to borrow from the discount window (even in circumstances of extremely tight money markets in which such borrowing would have been appropriate), particularly during periods of financial stress.

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[9] The Discount Window Working Group was a temporary group active in 2014 and 2015 with staff participation from across the System. It was tasked with assessing the state of stigma with current discount window facilities and exploring ways to modify or supplement those facilities within a scarce reserves regime with an unsecured policy rate target to better achieve the two objectives of standing lending facilities.

[10] During the 1980s the Federal Reserve acted in coordination with the FDIC to facilitate the orderly closure of numerous banks by providing discount window loans. This lending to banks as they approached failure resulted in significantly stigmatizing discount window borrowing. Importantly, Congressional disapproval of this practice led to the FDICIA legislation, which included limitations on lending to troubled institutions.

As noted in Madigan and Nelson (2002), the primary credit program (which debuted in 2003) incorporated an above-market interest rate as well as low or no administrative burden, both of which were intended to reduce discount window stigma. This design was in contrast to the previous *adjustment credit* program which was heavily administered and carried a below-market interest rate, both of which likely contributed to discount window stigma.[11]

Despite these reforms, the policy effectiveness of primary credit remains impaired by stigma and by a desire to avoid the other types of scrutiny discussed above. As noted earlier, supervisory scrutiny still exists and internal scrutiny is likely heightened by recent developments such as Freedom of Information Act court rulings and the Dodd-Frank Act, which require the Federal Reserve to disclose the identities of discount window borrowers with a lag.[12] Since the creation of the primary credit program, federal funds trading has at times occurred at rates well above the primary credit rate, indicating that the program does not serve as a solid ceiling on transacted rates.[13] Prior to the financial crisis, these incidents were generally infrequent, but during the financial crisis, federal funds trading above the primary credit rate was routine.[14]

The DWWG concluded that it may be very difficult to reduce the stigma associated with primary credit in its current form. One reason for this difficulty is that the discount window's availability only as a temporary backstop supports perceptions that borrowers turn to the facility only under duress, furthered by the fact that it is often difficult to know a firm's true present condition. Fundamentally, stigma may be associated with any tool that plays a lender-of-last-resort

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[11] From Madigan and Nelson (2002): "Eliminating the existing incentive for depository institutions to borrow from the window to exploit the typically positive spread should substantially reduce the administration necessary for each discount window loan. In particular, borrowers of short-term primary credit would no longer be required to have exhausted other sources of funds before turning to the window nor be prohibited from borrowing to fund sales of federal funds. The reduction in administrative burden should help encourage depository institutions to turn to the discount window when money markets tighten significantly and should thereby improve the ability of the window to serve as a marginal source of reserves for the overall banking system and a backup source of liquidity for individual depository institutions."

[12] Although not addressed in this memo, perhaps there could be modifications to the primary credit program, as well as to the Federal Reserve's Payment Systems Risk policy on provision of intraday credit, which could reduce stigma. For example, loan requests could be fully automated to indicate that there truly are "no questions asked," and permitted intraday overdrafts that are unresolved by the end of the day could automatically convert to overnight loans.

[13] The effective federal funds rate, as opposed to individual trades in the federal funds market, was itself above the primary credit rate a small number of times in 2008.

[14] There have also been infrequent, spikes in overnight general collateral repo rates, such as on quarter-end dates.

function, particularly if the tool is used by firms that cannot access market funding. Combining such a lender-of-last-resort tool with other objectives such as interest rate control may render the tool stigmatized and less effective for that purpose. Additionally, it is worth noting that in real time it may be difficult to make a sharp distinction between firm-specific and broader-market liquidity backstops; broad market stress may start with a smaller number of firms having trouble accessing funding at typical rates.

Separation of the objectives

The discount window experience suggests that the Federal Reserve may want to consider a framework that explicitly employs separate tools for these multiple objectives. An instructive example is the case of the Bank of England, which has developed an operating regime where the interest rate control and liquidity backstop roles are addressed with distinct facilities, as noted by the "Foreign Experience" memo. Interest rate control is accomplished through the Operational Standing Facilities (OSF) at which market participants may borrow (the lending facility) or lend (the deposit facility). The lending facility provides credit on an overnight basis against only high-quality collateral and at a rate above the Bank Rate.[15]

The Bank of England has three different facilities that provide a liquidity backstop at varying terms against a broader range of less-liquid collateral than is accepted at the OSF lending facility.[16] The first two tools are aimed at marketwide stresses, and the last tool is focused on countering idiosyncratic shocks at specific firms. The marketwide Indexed Long-Term Repo facility offers routine operations each month and is aimed at institutions with a predictable need for funding. Under the marketwide Contingent Term Repo Facility, the Bank may provide liquidity at any term and price it chooses, in response to actual or prospective marketwide stress

[15] Currently, the Bank of England maintains a Bank Rate of 0.25 percent, and the rates at the OSF are: 0.5 percent for borrowing from the facility and 0 percent interest on deposits at the facility.
[16] The collateral categories are the same for each of the three liquidity backstop operations. Collateral is divided into three buckets in the Bank of England framework (levels A, B, and C); while only the most liquid (level A) collateral is eligible at the operational standing facilities, collateral from any category is eligible at liquidity insurance programs.

of an exceptional nature.[17] The bilateral Discount Window Facility offers variable-term loans of U.K. gilt securities.[18] Whether this separation of tools meaningfully reduces the stigma problem is difficult to assess given the lack of take-up at the lending facility to date.

Counterparties and collateral

The effectiveness with which a facility contributes to rate control or plays one of the liquidity backstop roles depends on its range of eligible counterparties and collateral. The Federal Reserve's existing authorities for direct lending and open market operations differ in the counterparties and collateral they allow. Although the nature of these authorities will be discussed later, this section considers the general implications of various counterparty and collateral regimes.

Counterparty eligibility

Counterparty policy for a facility should be importantly influenced by the role the facility is meant to play and the objectives it aims to achieve, although central banks are of course constrained by relevant legislation.[19] For a facility aimed at addressing liquidity pressures, a broad range of counterparties would provide the central bank with an ability to address broad-based liquidity strains from the outset. For a facility aimed solely at interest rate control, a broad set of counterparties may not be necessary, although it is important that any liquidity provided can be distributed efficiently through markets. That said, policymakers may have a preference for a wider range of counterparties at all facilities. For example, the "Foreign Experience" memo notes that central bank facilities tend to try to involve a broad set of counterparties to ensure effective policy implementation and specifically points out that the European Central Bank (ECB) has a preference for such a broad set as a matter of fairness through its principle of

[17] This facility does not operate unless deployed specifically by the Bank, and its terms are set by the Bank each time it is used, in light of prevailing market conditions.
[18] In certain circumstances, the Bank of England may lend other securities or cash.
[19] For example, counterparty and collateral policy is limited by the authorities established in the Federal Reserve Act.

equal treatment of financial institutions. However, broadening the range of counterparties may increase the potential for moral hazard.

It may be difficult to avoid a degree of moral hazard in providing a liquidity backstop where there is a policy imperative to be the lender of last resort.[20] The availability of any backstop may encourage excessive investment in less-liquid assets. In addition, from a counterparty perspective, access to a central bank facility could be seen as a "stamp of approval" that might crowd out stakeholder monitoring. Additionally, broad market interaction with the central bank could reduce incentives for private market activity, although operational frequency, size, and parameters for a lending facility can be set to encourage continued market activity. Finally, depending on the type of transactions being executed, the range of available counterparties for the central bank may be limited.

Collateral policy

The collateral accepted at a facility plays a large role in determining its publicly understood purpose: The degree of liquidity transformation provided by a facility—via the collateral it accepts in return for funding—helps determine whether the facility functions as a liquidity backstop or whether it is only aimed at interest rate control.[21] The less liquid is the collateral accepted at the facility, the more liquidity transformation occurs. Higher levels of liquidity transformation yield a more effective liquidity backstop by converting increasingly more illiquid collateral into a smaller quantity of highly liquid assets. This issue of liquidity transformation suggests that narrower collateral eligibility (for example, requirements that collateral be highly liquid assets such as Treasury or GSE-issued instruments) may be helpful in publicly differentiating a facility whose sole objective is monetary policy implementation from one meant to provide a liquidity backstop.[22] While limiting collateral eligibility could in some cases constrain a facility's effectiveness, providing very little liquidity transformation may reduce and

[20] Of note, counterparties for open market operations (including a Financial Institutions Repo Facility, described below) may have some expectation of being given access to backstop liquidity facilities in times of market stress (such as a Primary Dealer Credit Facility).
[21] Of course all pledged assets are valued at market prices and haircuts are applied that adjust for the liquidity risk of different types of assets. However, the valuation of collateral serves a credit-risk management purpose for the lending Reserve Bank and is not meant to offset the liquidity transformation inherent in a liquidity backstop loan.
[22] There could be cases where an institution loses access to market funding even against high-quality collateral and utilizes this type of facility as a backstop.

even eliminate stigma at the monetary policy facility—but it may do so by transferring additional stigma to facilities that are seen as liquidity backstops, whether those facilities are designed to address broader market stress or to backstop an idiosyncratic need.

Accepting broader collateral at liquidity backstop facilities allows for a more effective response to broad liquidity shocks, as doing so provides a greater ability to mitigate fire sales and rapid deleveraging. However, collateral policy at liquidity backstop facilities plays an important role in limiting the risks these facilities pose to the Federal Reserve. Broader collateral eligibility potentially poses greater credit risk—less-liquid collateral is more difficult and costly to accurately value or haircut ex ante and is more difficult and costly to liquidate ex post, should that become necessary. Broader eligibility can also increase the scope for moral hazard and increased risk-taking by eligible counterparties. By providing a way to mitigate the costs of holding illiquid assets when the market turns against them, the existence of liquidity backstops can lower the level of urgency felt by firms to plan for such downturns. Other aspects of the facility design, counterparty supervision, or both can mitigate these concerns.

The ECB's use of a broad set of counterparties and collateral in both its open market operations and standing lending facility differs from the practice (and authority) of the Federal Reserve. Pre-crisis, the ECB met reserve demand by being the primary counterparty for most banks through its main refinancing operations (the equivalent to OMOs), and banks made use of the marginal lending facility (the equivalent of the DW), though this represented a relatively small fraction of total lending by the ECB. Both main operations and standing facilities accepted identical collateral. The significantly higher volume of interaction each institution had with the ECB via the ECB's main refinancing operation may have had the effect of reducing the stigma of interacting with the marginal lending facility. Indeed, market rates, as represented by EONIA, rarely exceeded the marginal lending rate, suggesting that banks may have been more open to using the facility. That said, the evidence does not suggest that the marginal lending facility was used relatively "more freely" during times of liquidity shortages.[23]

[23] However, it is difficult to know whether this is for reasons of stigma, or simply because the ECB adjusted main refinancing operations to sizes that negated much of the need to approach the marginal lending facility.

III. Considerations regarding liquidity strains

Although the previous considerations apply at all times, a central bank must have liquidity tools to deliver rate control and provide a liquidity backstop during times of acute market stress. Markets will cease to distribute liquidity efficiently in a stress event as institutions hoard cash and highly liquid assets because of uncertainties about the credit condition of counterparties as well as concerns with their own continued access to funding. In such circumstances, the lack of an effective ceiling tool could make it more difficult for the Federal Reserve to keep market rates close to the target level. Additionally, in these circumstances a broader-market liquidity backstop is critical to limit spillover effects from a liquidity crisis and to protect otherwise healthy institutions from liquidity-driven insolvency.

During a stress event, any existing stigma associated with borrowing from a liquidity facility may be heightened, mainly because of greater sensitivities to any indication of financial weakness but possibly also because of elevated political concerns about benefiting from public support during a crisis. However, borrowers are likely to be less deterred by stigma as market funding becomes extraordinarily costly for a very broad range of firms, and stigma may be irrelevant to an institution that faces a true last-resort situation. Nevertheless, as it is difficult to address stigma after it is attached to existing tools, particularly during market stress, any desire to avoid stigma should be considered in the design of tools. During the financial crisis, the TAF seemed to be largely successful in making discount window loans available without significant stigma perhaps in part because it was perceived to be separated from the discount window's use for individual institutions' acute last-resort needs. This perception of separation was facilitated, in part, by structuring the facility as a regularly occurring competitive auction (as opposed to the on-demand, bilateral nature of primary credit), as well as by the multi-day delay between bidding for funds and settlement of those funds.

Moral hazard considerations may be particularly consequential during a market stress event, but in many cases financial stability imperatives may predominate. Particularly liberal liquidity provision in a market stress event could discourage difficult actions by troubled borrowers to improve their condition or allow supervisory authorities to avoid taking actions to resolve fundamentally insolvent institutions. However, it is generally important that central bank

lending policies and risk tolerance be consistent in normal and stress times, and as such may generally be best to not to attempt to address moral hazard during a stress event.

IV. Federal Reserve authorities and facilities

The Federal Reserve's capacity to establish tools to ensure interest rate control and to provide backstop liquidity is limited by the authorities established in the Federal Reserve Act (FRA). The relevant authorities discussed in this memo are defined in sections 10B and 14 of the FRA. Core distinctions between these two authorities are the counterparties with which the Federal Reserve may interact and the collateral those counterparties may provide. Section 10B creates authority for discount window loans to depository institutions, and does not limit the range of eligible collateral. Section 14 creates authority for open market transactions with any party in the open market to buy and sell securities that are direct obligations of, or fully guaranteed by, the United States or any agency of the United States.[24]

Operating under section 14 authority and the direction of the FOMC, temporary OMOs are a tool used primarily for interest rate control. Historically, repurchase agreements (RPs) have been used to supply incremental liquidity to keep the federal funds rate close to the FOMC's target; currently, reverse repurchase agreements (RRPs) are used to help achieve the same policy outcome by creating an interest rate floor.

Section 14 also provides the underlying authority for the central bank liquidity swap lines which primarily serve as a liquidity backstop. The current liquidity swap lines were established during the financial crisis to address U.S. dollar pressures abroad that could spill over to the United

[24] Section 14(b) provides that every Reserve bank has the power to purchase and sell, among other things, U.S. government and government-guaranteed securities, agency debt, and agency mortgage-backed securities in the open market. Purchases directly from, and sales directly to, the issuer of the security are not considered to be purchases and sales "in the open market," but there is otherwise no statutory limitation on the counterparty to such purchases or sales.

States as well as to meet potential foreign currency needs by institutions in the United States. [25] Conditions that arose during the crisis highlighted the potential for tight dollar liquidity conditions abroad to lead to significant increases in funding rates in the United States. Thus, dollar liquidity swap lines—through which the Federal Reserve supplies foreign central banks with dollar funding that is on-lent to foreign private institutions—can materially lessen the liquidity concerns abroad, limit the spread of these tensions to U.S. markets, and thereby support the availability of credit to U.S. households and businesses.

The current discount window programs, namely the primary, secondary, and seasonal credit facilities, exist under the authority created by section 10B. Section 10B also provided the authority for the TAF (which was operated within the existing discount window framework), described below.

Potential dedicated-objective facilities

Given the limitations of the Federal Reserve's current set of tools in being fully effective toward rate control and providing a liquidity backstop, alternative liquidity provisioning tools could be considered. As noted previously, these tools may be more effective if they are designed and perceived to serve singular objectives. When multiple objectives are commingled in a single facility, any borrowing from the facility risks being perceived as last-resort borrowing, creating an aversion to usage which makes the facility ineffective in creating a ceiling on rates or for making liquidity broadly available during market stress. With separate facilities, the authority under which they exist and the range of assets they accept as collateral are key parameters which can help determine and communicate their roles.

Depository Institution Repo Facility

One possible example of a new application of existing authorities that could move toward a more effective ceiling tool with lower stigma than primary credit, solely aimed at supporting control of

[25] Note that all discussion of swap lines in this memo refers to the liquidity swap lines that were made into standing facilities in 2013. Historically, the Federal Reserve had operated swap lines with multiple central banks, but – except for the still-existing swap lines established in the North American Framework Agreement (NAFA) with Mexico and Canada in 1994 – those lines had been phased out by 1999. For more details on swap lines see "Addressing Spillovers from Dollar Liquidity Strains Abroad: The Role of the Federal Reserve's Swap Arrangements" by Brett Berger.

interest rates, is a "Depository Institution Repo Facility" (DIRF). The DIRF concept originated from prior work aimed specifically at developing a new ceiling within a scarce reserves regime with an unsecured policy rate target. The features of a DIRF designed for this environment are described below, but it is important to emphasize that the DIRF concept, should policymakers deem it to be a potentially effective method of providing a rate ceiling with minimal stigma, could be adapted for different counterparties and would work with alternative policy frameworks such as the current one.

The DIRF would be available on-demand at an administered rate to all sound depository institutions and could leverage the existing discount window operational infrastructure. Essentially, DIRF usage would in most respects be economically equivalent to discount window usage, just against more limited collateral and legally booked as a repurchase agreement. In order to provide a ceiling not linked to the stigma of the primary credit facility, the DIRF would be established under section 14 authority for open market operations and would therefore limit collateral to OMO-eligible securities, which could present it as a monetary policy facility.[26] The DIRF's administered rate would be set above the target rate and the spread would likely be an important factor that could affect the level of stigma associated with using the facility.[27] A rate set to encourage some amount of regular usage may limit such stigma. However, it may be the case that in order to induce regular usage the spread from the target rate would have to be low, which would have to be weighed against other policymaker concerns, such as moral hazard considerations. Should policymakers choose to pursue a DIRF or similar facility, additional analysis would need to be conducted in order to determine the appropriate rate in the context of the overall monetary policy framework. Additional detail on illustrative parameters and considerations are in the appendix.

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[26] There is precedent for the establishment of different lending programs for depository institutions based on type of collateral. For example, between 1932 and 1980 the Federal Reserve established a lower discount rate on advances to member banks secured by government obligations or discount-eligible paper under Sections 13 and 13a than for advances secured by other collateral under Section 10B.

[27] Activities under section 14 authority are governed by the FOMC, so the DIRF lending rate would be set by the FOMC. The current discount window facilities could remain in place alongside a DIRF and the Board of Governors would continue to approve discount window rate changes proposed by Reserve Bank Boards of Directors.

As discussed previously, use of a facility that only accepts high-quality collateral would likely be less indicative of the institution being under stress than use of a facility that accepts broader collateral, as the borrower should generally be able to readily liquefy such collateral privately.[28] There may be a concern that the limitation to OMO-eligible collateral could constrain the effectiveness of the DIRF, given that these assets may not be broadly held, particularly by smaller institutions. Historically, OMO-eligible securities have represented a small portion of collateral pledged to the discount window, but these pledges have grown measurably since the crisis, albeit mostly from larger institutions. However, usage capacity from larger institutions is seen to be most meaningful toward control of unsecured rates.

The DIRF model could be modified to support interest rate control in various policy implementation structures. For example, with a secured rate target or an administered rate, or should policymakers be concerned with the control of a broad range of money market rates, there could be a similar tool aimed at supporting rate control objectives, perhaps labeled as a Financial Institution Repo Facility (FIRF). A FIRF could be a standing repo facility with collateral limited to OMO-eligible securities but with a broader set of eligible counterparties, including primary dealers or a broader set of broker-dealers.[29] In principle, a FIRF that is available to a broad set of counterparties could operate with reduced stigma and more effectively limit upward movements across (overnight) money market rates. It should be noted that either a DIRF or a FIRF would be subject to public disclosure of individual usage details with a two-year lag, per requirements under the Dodd-Frank Act, though the facilities as conceived by the DWWG would be categorized as open market operations.

[28] However, at times of particularly poor market functioning or when there is high uncertainty regarding the true condition of individual firms, there is a risk that usage of any Federal Reserve facility may risk being interpreted as a sign of weakness. Similarly, for a single institution facing a significant but idiosyncratic liquidity shock, situations likely exist in which they feel they are under such public scrutiny that borrowing from the lender of last resort in any capacity is stigmatized.

[29] Specific design features and the method for operating a FIRF have not yet been explored. As noted, a DIRF could largely leverage the existing discount window operational framework, and general parameters of the concept are listed in the appendix.

Term auction facility

The TAF is an example of a tool that is focused on providing liquidity to address broad-based funding pressures among depository institutions and the resulting effects of those pressures in broader financial markets. While the DIRF separates interest rate control from the provision of general backstop liquidity, the TAF provides another form of separation that may make a liquidity backstop more effective.[30] The TAF helps to separate the provision of idiosyncratic liquidity to an individual institution from the provision of backstop liquidity to address broad-based funding pressures, drawing a distinction with tools that provide solutions to idiosyncratic shocks faced by individual firms that may be viewed as tools for last-resort funding.

The TAF was active from late 2007 to early 2010 and was established as a supplement to primary credit and a tool to address pressures in term funding market with features that effectively mitigated stigma. The TAF was a method of providing discount window loans with many of the traits of primary credit: the same authority (section 10B), the same counterparties (sound depository institutions), and the same collateral (a broad range of bankable assets). But importantly, the TAF's auction format allowed the facility to be perceived as a means of addressing broad-based funding pressures, similar to OMOs, rather than an administered lending program. Compared to OMOs, the TAF was available to a larger number of counterparties against a broader set of collateral. Another key stigma-mitigating feature was the fact that TAF loans settled three days after the auction, reducing any appearance that borrowers were facing an urgent funding need. Finally, TAF loans were made at an auction clearing rate, not an administered penalty rate like the PCF, furthering the resemblance to market funding.

The TAF is an example of a facility that operated on a regular basis in the past but that has been "on the shelf" since it was discontinued in 2010. This example raises the question of how integrated liquidity backstop tools should be with the rest of the monetary policy framework, the subject of the final section of the memo.

[30] The DIRF could also be heavily utilized in a market stress event. The TAF could supplement the DIRF and expand the Federal Reserve's capacity for liquidity provision, given the TAF's different terms, namely much broader collateral eligibility.

V. Integration of liquidity backstop tools

Given the unpredictable and sudden nature of episodes of financial stress, policymakers may want to decide how, if at all, to integrate backstop tools into their monetary policy implementation framework. This section reviews salient decision factors and tradeoffs that policymakers could consider when determining the level of liquidity backstop integration. Next, it discusses these factors and tradeoffs retrospectively with regard to the swap lines where the decision to have these programs relatively integrated has already been made. Finally, these factors are considered with regard to the TAF and policymakers could consider altering its current inactive status. As discussed below, the shift of the TAF to more integrated status may offer some advantages but these would come with costs that could offset benefits. That said, policymakers could apply the decision factors and tradeoff discussion below to any new liquidity backstops they may consider in the future.

Integrated, conditional, and inactive facilities

Three categories of liquidity backstop integration are discussed below: *integrated, conditional,* or *inactive*.

Integrated facilities are those used as part of regular monetary policy implementation and liquidity backstop operations, available either continuously (for example, the discount window) or at some regular frequency. The public and market participants understand these programs as active for the foreseeable future and know when and how they operate. Additionally, market participants view the programs as operating at a scale and frequency that makes them effective in practice and in real time. That is, a program that exists with just occasional but regular (say quarterly or semi-annually) small-value testing is not integrated but rather would be closer to being classified as conditional.

Conditional facilities are those available under certain circumstances where policymakers have preannounced the broad characteristics of the program and the general conditions for its use. These programs are operationally ready and may employ small value testing to help ensure their readiness. Critically, a conditional facility comes with a public understanding that the program is ready to be utilized in certain situations, but requires an additional determination that appropriate conditions exist to become active. The Bank of England's Contingent Term Repo Facility

(CTRF) exemplifies a conditional facility. According to the Bank of England, the CTRF can be activated "as necessary, given current or prospective conditions" in order to provide liquidity support against a range of collateral in response to "market-wide stress of an exceptional nature." Central banks use conditional facilities to prepare market participants for potential options should the need arise.

Inactive facilities are those in planning or used in the past, but are neither integrated nor conditional. Importantly there is no public communication or explicit understanding about how or when such facilities could be used. Their status as inactive could also reflect a decision not to maintain operational readiness in these operations, but this does not necessarily need to be the case. For example, one could think of the TAF as currently falling into this category; although its operational readiness has been maintained, there is public ambiguity as to the conditions required for its return as well as a lack of details about any future implementation.[31]

Key attributes and tradeoffs of integrated, conditional, and inactive facilities

The following table outlines some key attributes and tradeoffs associated with the three levels of integration, followed by a discussion of them. It is important to note that some of the degree of variation across the three forms of integration may be quite small.

[31] Though some programs had already begun to be wound down prior to this point, a formal announcement in the January 2010 FOMC statement outlined the closure of several crisis-era facilities, including the TAF. After announcing specific details regarding these closures that statement noted: "The Federal Reserve is prepared to modify these plans if necessary to support financial stability and economic growth."

	Integrated	Conditional	Inactive
	Highest ——— Lowest		
Readiness	Avoid operational readiness uncertainties		
Confidence effect	Support financial functioning, provide calm amid stress, potentially reduce liquidity hoarding and fire sales		
Moral hazard	Potential to encourage undesirable behavior		
Financial institution and market impact	Potential undesirable impact on business models or markets		
Decision-making	Avoid uncertainties with advance decision making		
Communications	Avoid sudden public communications challenges		

Readiness refers to operational readiness with integrated facilities having the highest readiness condition. Conditional facilities have a level of readiness near integrated ones; by definition, a conditional facility stands ready for activation.[32] The state of readiness for inactive facilities could vary widely from facility to facility, depending on need.

The confidence effect in the second row of the table refers to any calming effect that the existence of a given liquidity backstop may have in the face of market strains. The more operationally ready a tool is, the more likely the tool can reduce market concerns regarding

[32] Conditional facilities may operate small-value testing operations at regular intervals in order to maintain readiness and acclimate market participants to facility usage. An example of this behavior within the current framework would be the Term Deposit Facility (TDF). The TDF could be classified as a conditional facility under the terminology of this section if policymakers were to articulate broad principles about when it may be deployed.

potential market disruptions before they occur. But, such tools also may raise the highest moral hazard concerns if firms believe they have more ready access to central bank liquidity and thus alter their behavior in ways that makes them more likely to actually need such public funding. While inactive facilities entail the least amount of potential moral hazard, the level of moral hazard is likely not zero in the case of inactive programs that have been deployed in the past during periods of stress.

The fourth row highlights the impact on financial institutions and markets, such as the effect a facility could have on institutions' asset holdings preferences or on changes in overall market structure. For example, a more integrated program could alter a depository institution's holdings of liquid assets or its demand for FHLB advances or other sources of liquidity. Note that it may be possible to mitigate some undesirable impacts through a tools' specific parameters (e.g., pricing or collateral required) and/or by actions and policies of banking supervisory and regulatory authorities.

Decision-making concerns the degree to which key policy choices and decisions have largely been made for a program (separate from the operational aspects of carrying out that decision). Decision making becomes more complicated when many important questions remain open, particularly during market unrest. Conditional facilities may allow for a less multi-dimensional decision problem at the moment of market stress, but some decisions will still have to be made and communicated to the public.

Regarding communications, the sudden activation of a conditional or inactive tool – particularly in the absence of any advance communications about the tool's existence – may have undesirable "announcement effects"; that is, the announcement of a facility could alarm market participants and exacerbate market stress.[33]

[33] This issue points to the two different communication challenges posed by conditional facilities. At inception, facilities must be clearly explained, but the rationale for each implementation of that facility must be individually understood as well.

Swap lines: Ex post evaluation against decision factors

The role of the dollar liquidity swap lines has moved from one level of integration to another over time and thus helps illustrate policymakers' options.

Policymakers initiated the recent incarnation of the swap lines in the early stages of the financial turmoil in December 2007. The number of central banks with which the Federal Reserve had swap lines grew throughout the crisis, but these lines were allowed to lapse – along with a number of other crisis facilities – following the January 2010 FOMC statement. At that point, all swap lines became inactive. In May 2010, policymakers reactivated the swap lines for five central banks following the onset of the European crisis, but the remaining swap lines were left inactive.[34] Over the next three years, the swap lines were given finite-lived reauthorizations until 2013, when the FOMC and decision makers at the participating central banks converted the swap lines into standing facilities.

The now-integrated swap lines could have a calming effect on dollar liquidity abroad, thus limiting the effects of foreign shocks on domestic money markets. This calming effect may have been in force the morning after the Brexit vote, as no draws occurred despite some considerable market volatility.[35,36] Of note, the integrated nature of the swap lines meant that the Brexit surprise did not require significant last minute meetings to iron out governance issues or complex communication problems. The FOMC announcement that morning noted simply that the swap lines were open if they were needed. Of course, this operational readiness likely comes at the cost of higher moral hazard.

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[34] At the April 2016 FOMC meeting, the Committee voted unanimously to renew the reciprocal currency arrangements with the Bank of Canada and the Bank of Mexico; these arrangements are associated with the Federal Reserve's participation in the North American Framework Agreement of 1994. In addition, the Committee voted unanimously to renew the dollar and foreign currency liquidity swap arrangements with the Bank of Canada, the Bank of England, the Bank of Japan, the European Central Bank, and the Swiss National Bank. The votes to renew the Federal Reserve's participation in these standing arrangements are taken annually at the April FOMC meeting.
[35] It is worth noting that weekly auctions are currently offered by the BoE, ECB, BOJ and SNB. Given the context of the currently offered dollar auctions and standing swap lines, these facilities may have also provided a calming effect on any emerging funding stress post Brexit.
[36] The ECB did make its largest draw on the swap lines since 2013 within a few weeks of the vote, but no draws occurred in the direct aftermath.

These outcomes may not have occurred if the swap lines had conditional integration (e.g., the FOMC allowed the swap lines to go inactive in 2013 while maintaining some of their key infrastructure). The FOMC may have had to activate the swap lines out of prudence (scheduling dollar auctions at foreign central banks) ahead of the Brexit vote in this thought experiment. In fact, the Bank of England activated additional liquidity support in the weeks leading up to the vote and encouraged their use as a buffer in the event of a "Leave" result. This provides a clear example of how a conditional facility could operate in the future.[37] However, it also highlights that activating a conditional facility may exacerbate market strains, posing a communication challenge.

Evaluating Term Auction Facility against the decision factors and tradeoffs

Policymakers terminated the TAF in early 2010 and there has been no subsequent small value testing or public communication about its potential use. The TAF is an inactive facility. However, some operational readiness has been maintained and it could be activated on short notice, should policymakers so decide. In particular, the Federal Reserve maintains automated systems and related staff expertise at the Reserve Banks needed to support the TAF.

The Federal Reserve could establish the TAF as an integrated facility with routine (for example, weekly or bi-weekly) auctions, although it could have terms that result in little or no usage in normal times. Alternatively, the Federal Reserve could set up the TAF as a conditional facility, with a publicly announced purpose and possibly some description of potential parameters, but perhaps with only occasional small-value tests. For consideration is the fact that the Federal Home Loan Bank System exists to provide routine term funding to DIs, and TAF may only be a necessary supplement in times of market stress.

The shift of the TAF to more integrated status may offer some advantages but these would come with costs that could offset benefits. Policymaker preferences across the decision factors and

[37] Of course, in this hypothetical, the known date is a key component. In the event of a true surprise that roiled offshore dollar funding, the multiplicity of time zones and the volume of policymakers across different countries that would need to agree to activate a conditional version of the swap lines is a demonstration of why there is significant value to including certain programs as integrated facilities.

tradeoffs discussed below would determine the degree to which they see a more integrated TAF as providing net benefits.

In terms of the decision factors/tradeoffs discussed:

- Moving TAF to an integrated or conditional category would not significantly increase its operational readiness given that systems and expertise are already maintained.
- It is not clear how much of a confidence effect TAF currently offers in its inactive status. The program's historical use may provide some calming but that could be minimized by its lack of integration. If it was more integrated, DIs would likely feel greater assurance about their continual access to term funding, although this may be less relevant for large DIs given their robust liquidity under new regulations.[38]
- A more integrated status would raise at least some additional moral hazard concerns. However, the features of the facility (which could vary in future implementations)—including its restriction to sound institutions—as well as recent liquidity regulations should provide some offset.
- A fully integrated TAF could potentially alter business operations of firms. For example, the integrated TAF could diminish market trading and reduce FHLB borrowing, depending on the amount of funds the facility provides. Again, offsets to these effects could come from program specifications (e.g., auction amounts and rate) designed to minimize these outcomes, at least in normal times.
- Integration would allow for advance decision making about the conditions that would justify activating the facility and about specific parameters (loan tenors, minimum bid rate, etc.).

[38] Of note, depending on the facility parameters, institutions might be inclined to utilize a TAF routinely to meet regulations, such as to improve their Liquidity Coverage Ratio. However, providing routine term funding, even to just primary credit institutions, creates greater risk exposure to Reserve Banks and thus may require more proactive condition monitoring.

- A sudden activation of the TAF could raise some communications challenges with questions about offering more regular public support to banks, while integration would provide the opportunity to address such concerns.

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Appendix—Depository Institution Repo Facility

The Depository Institution Repo Facility (DIRF) would be a standing lending facility for depository institutions (DIs), largely leveraging the current discount window operational framework and borrowing processes. The DIRF could supplement the current discount window facilities.

The idea of a DIRF was developed by the Discount Window Working Group, a temporary group active in 2014 and 2015 with staff participation from across the System. The concept of the DIRF emerged specifically to address the ineffectiveness of the primary credit facility as a ceiling on federal funds trading ranges, given the significant stigma against borrowing, within a scarce reserves regime with an unsecured policy rate target.

The DIRF's orientation toward the single objective of supporting monetary policy implementation, rather than also serving a liquidity backstop function, may minimize stigma. Other features of the DIRF should highlight that usage is not indicative of the borrower facing any stress, namely the fact that eligible collateral would be limited to current OMO-eligible securities.

To the extent these features minimize stigma, they may only be effective in "normal" times. Stresses in funding conditions may exacerbate stigma for any Federal Reserve facility, even one that performs significantly less liquidity transformation than primary credit. In fact, it may be impossible to for any Federal Reserve facility that provides on-demand funding to be truly stigma-free. Nevertheless, it is proposed that the DIRF or similar facility may provide a better interest rate ceiling than what is provided by primary credit and may therefore be worth considering.

Key characteristics of the DIRF

- DIs would obtain funds by entering into a repurchase agreement with a Reserve Bank against OMO-eligible securities at a pre-specified rate.
- Collateral would be delivered by the same methods as currently pledged to the discount window and would generally be expected to be pre-pledged, as is currently the case with the discount window. However, most securities can be pledged same day, and Fedwire securities

can actually be delivered very late in the day.[39] In normal times, funding would generally be expected to occur toward the close of Fedwire funds due to an aggregate shortage of reserves or a non-credit-related idiosyncratic issue with an individual DI.

- Although additional analysis would be needed to determine the appropriate administered rate for the DIRF, it could be above the policy rate target but below the primary credit rate, given the limitation to high-quality collateral. A relatively low rate may encourage usage and counter any stigma, but this must be weighed against other considerations, such as moral hazard.
- To meet the facility's intended goal, eligible counterparties would need to at least include large DIs that are active in money markets. If operationally feasible, the inclusion of smaller DIs may be appropriate on fairness grounds. To mitigate stigma, as well as to avoid concerns related to FDICIA limitations, participation should be limited to financially sound DIs, perhaps all DIs eligible for the primary credit facility.[40]
- Repos would have overnight maturities. Usage could be subject to frequency limits or caps so that institutions do not rely on DIRF funding routinely, but directly discouraging usage in this way could induce stigma.
- The facility would be authorized under section 14, rather than section 10B, of the Federal Reserve Act, and would have terms and conditions set by the FOMC and not by the Board.[41] Alternatively, a new discount window facility with loans only available against OMO-eligible collateral could be created under section 10B.
- Aggregate usage and usage by district would be disclosed on the H.4.1 report as a type of open market operation.

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[39] Importantly, there is a distinction between a bank being able to *obtain* Treasury securities from another institution very late in the day and a bank being able to *pledge* such securities to the discount window very late in the day. Fedwire Securities Service closes for interbank transactions at approximately 3:30 pm, but internal account repositioning of the kind required to move Treasury securities from a trading account to a discount window account close at approximately 7pm.

[40] The Federal Deposit Insurance Corporation Improvement Act of 1991 (FDICIA) amended the Federal Reserve Act to limit the frequency of extensions of credit by the Federal Reserve to FDIC-insured depository institutions that have fallen below minimum capital standards specified in FDICIA.

[41] The FOMC would need to authorize Reserve Banks conducting transactions under section 14 authority on their own behalf, as opposed to on behalf of the System Open Market Account.

- Bank supervisors would need to be effectively educated on the facility and appropriate usage to ensure that they don't challenge DIs about usage and induce stigma.

Advantages of DIRF

- The features of the DIRF should allow it to be credibly presented as a monetary policy tool aimed at providing a better ceiling, possibly subject to significantly less stigma than is associated with primary credit.
- With DIs as counterparties, the DIRF could address pressures in unsecured funding market rates late in the day after the broker-dealer triparty and DVP repo markets are closed.
- Accepting only OMO-eligible collateral further reinforces monetary policy nature of this tool and could allow a lower rate spread (penalty rate) to limit use as a source of funding. Pricing at a smaller penalty reduces the suggestion that the borrower is desperate for funding.
- Like discount window borrowing, DIRF counterparties would be disclosed with a two-year lag, but they would be disclosed with other OMO transactions rather than with discount window loans, which further reinforces the monetary policy nature of this facility.

Disadvantages of DIRF

- Given that the experience with primary credit has indicated persistent stigma on lender-of-last-resort functions, implementing the DIRF would likely increase the stigma associated with primary credit. Formerly, primary credit could be used for either frictional needs or real last-resort funding. Creating a new facility that provides very limited liquidity transformation (DIRF) would give firms a facility to meet the "frictional needs" role that didn't risk outside observers conflating that need with true "last resort" funding. Providing a facility that meets this specific need leaves primary credit even more narrowly associated with last-resort borrowing. This increased stigma could further reduce the effectiveness of primary credit as a financial stability tool.
- The DIRF could be seen as simply a new way for the Federal Reserve to lend at low rates to large banks and foreign banks. If so, the optics could be improved by creating the facility as part of a new monetary policy framework and by allowing the participation of small DIs, if feasible.