

December 5, 2008

18. Liquidity Facilities as Policy Tools at the Zero Bound

Bill Nelson and Roberto Perli¹

Executive Summary

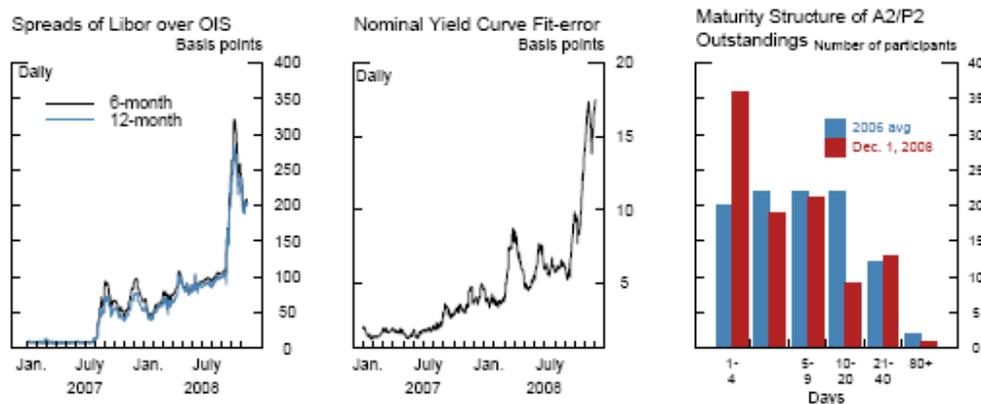
The targeted provision of Federal Reserve liquidity to counter strains on financial institutions and in financial markets may provide an effective means by which the Federal Reserve can foster increased output and employment when conventional monetary policy actions are constrained by the zero bound on nominal interest rates. Thus far, such interventions appear to have been effective to a certain extent, but markets and institutions remain under considerable pressure, suggesting significant scope for additional action. In particular, further expansion of the Federal Reserve's balance sheet aimed at increasing institutions' liquidity, reviving or substituting for moribund markets, or even providing credit directly to economic agents in selected sectors may have the potential for bringing about substantial improvements in market functioning and reductions in borrowing costs. Importantly, such policies may be coordinated with the Treasury and amplify the impact on the financial system of scarce congressionally appropriated funds (such as TARP funds). A rough estimate of the potential impact of such actions suggests that it could be substantial. Possible disadvantages of broadening the System's liquidity provision may be increasing moral hazard and complicating the management of the System's balance sheet.

Effects of Existing Liquidity Facilities

As shown in figure 1, by many measures, financial markets remain severely disrupted. As illustrated by longer-term Libor-OIS spreads, a wide range of risk and liquidity premiums remain very elevated. While it may be unrealistic to expect that these spreads will eventually settle to the same low levels that prevailed prior to August 2007, it also seems likely that the new equilibrium will be well below current values. The arbitrage forces that normally equilibrate pricing across assets are exceptionally weak at present, reflecting impaired liquidity and balance sheet pressures. Even the arbitrage between Treasury securities of similar maturities—one of the safest to exploit—has broken down, as exemplified by the mean absolute error in the Board staff's Treasury yield curve model, which is nearly fifteen times its normal level. Moreover, many borrowers are being forced to fund themselves at much shorter maturities than previously. As an illustration, more than 35 percent of A2/P2 commercial paper currently matures in one to four days (up from 20 percent on average in 2006); term lending in many other markets is also minimal.

¹ Division of Monetary Affairs.

Figure 1



Of course, the Federal Reserve has been extremely active in trying to offset these market disruptions over the past year or so. It is difficult to know with any precision how effective Federal Reserve liquidity provisions have been, in part because a number of measures were also put in place by the Treasury, the FDIC, and the SEC, and disentangling the effects of each is impossible. Market participants, however, appear to largely agree that the Federal Reserve's interventions have been beneficial, and some of the available empirical evidence seems to support that view. For example, McAndrews, Sarkar, and Wang (2008) find that the cumulative effect of TAF auctions has been to lower the Libor-OIS spread by 50 basis points.² Unpublished work by Board staff also finds that the spread between Eurodollar and fed funds futures narrowed appreciably in the two hours surrounding TAF announcements containing positive surprises between December 2007 and May 2008. More recently, after the Commercial Paper Funding Facility (CPFF)—which purchases only highly rated ninety-day A1/P1 paper—was introduced, the spread on thirty-day A1/P1 ABCP fell from 400 to 120 basis points, while the spread on nonfinancial A2/P2 paper remained persistently above 400 basis points. Independent of their effects on market prices, those facilities have certainly provided term credit at reasonable prices to institutions that were previously facing great difficulties in borrowing beyond very short terms—mostly overnight.

To the extent that the liquidity facilities put in place by the Federal Reserve are beneficial to the financial system and the economy, more such interventions, perhaps aimed at different markets, would seem to be helpful. However, additional Federal Reserve liquidity facilities would add assets to the Federal Reserve balance sheet that most likely would be funded with increases in reserves, putting additional downward pressure on the federal funds rate. Based on experience to date, the payment of interest on excess reserve balances is not likely to be sufficient to counter that downward pressure.³

² Taylor and Williams (2008) use a different methodology and conclude that the introduction of the TAF had little effect on market rates. See McAndrews *et al.* (2008) for a critique of Taylor and Williams' methodology.

³ The fact that the payment of interest on reserves is not putting a floor on the federal funds rate can itself be viewed as a failure to arbitrage a profit opportunity—buying cheap funds in the market and holding them as excess reserves. Several reasons could be behind this failure, ranging to the fact that some participants in the fed funds market (chiefly, the GSEs) are not eligible to receive interest, to the small size of the profits that could be reaped by such an

Options for Further Intervention at the Zero Bound

If the FOMC's target for the federal funds rate were lowered to zero, however, there would be scope for large (or, in principle, unlimited) increases in the Federal Reserve's liquidity facilities, since the federal funds rate cannot fall below zero. In that case, the Federal Reserve could modify existing facilities that were designed to address systemic liquidity issues as needed to fully achieve their stated objective, for example by increasing their size, easing their terms, or expanding the lists of eligible counterparties or collateral in those programs. The Federal Reserve could also add new programs to jump-start other markets that are not currently being targeted, along the lines of the efforts announced recently to help the ABS market. If successful in unclogging existing bottlenecks in financial markets, these facilities could restart the credit flow to households and businesses and significantly lower market interest rates.

The Federal Reserve could also take a different approach and decide to provide credit directly to economic agents in specific sectors. While this may seem to take the Federal Reserve into new policy territory, the distinction between direct provisions of credit and more traditional operations aimed at improving liquidity conditions can be fuzzy. For example, the CPFF is intended to reduce rollover risk in the CP market, but it also increases credit availability to A1/P1-rated borrowers that are not able to obtain term funding in the market. An expansion of the CPFF to include A2/P2 borrowers, a possibility currently being discussed, would be closer to a provision of credit to those borrowers than to a step to help a systemic problem, given the relative small size of the A2/P2 market.

Direct provision of credit through unconventional policy may be desirable from a macroeconomic perspective given that credit is currently unavailable or very expensive to many households and businesses. More conventional forms of liquidity provision may take too long to restart the flow of credit across the economy and thus unnecessarily delay the economic recovery—for example, depository institutions may continue to be reluctant to lend funds that they obtain from the Federal Reserve until their balance sheets are repaired. Or, the purchase of large volumes of government securities, even if successful in lowering long-term Treasury and agency rates, may not propagate promptly to other interest rates of more immediate concern to households and businesses if financial markets remain disrupted. Alternatively, there is at least the possibility that some financial markets—for example, securitization markets, which have been a significant source of credit for households and businesses in recent years—may never return to their pre-crisis condition; in that case, it may be appropriate for the Federal Reserve to help the transition between the present and the new steady state that will ultimately prevail by supporting the provision of credit in the interim.⁴

arbitrage, to capital constraints that may make it difficult for banks to exploit the arbitrage, to simple ignorance on the part of some institutions about the fact that excess reserves now receive interest.

⁴ While it is not the purpose of this memo to advocate specific sectors for support, there is certainly no shortage of potential candidates. Since the Federal Reserve began invoking section 13(3) of the Federal Reserve Act to provide liquidity to a variety of markets and counterparties, a wide range of requests for support have come in, including from student loan providers, auto rental companies, auto manufacturers, mortgage servicers, local government investment pools, municipalities, securities lenders, SBA lenders, bank commingled funds, investors in commercial real estate, and manufactured-housing retailers .

There are costs associated with additional extraordinary liquidity interventions. Additional facilities could add to moral hazard by reducing the incentive for borrowers to maintain sufficient liquidity. Interventions generally entail some credit risk and so can result in the Federal Reserve taking financial losses. The credit allocation decisions implicit in any steps by the Federal Reserve to provide credit to specific sectors is, at least in more normal times, more efficiently handled by private markets and institutions. It may be difficult to withdraw Federal Reserve credit, especially credit to specific sectors, even when the situation begins to normalize. Consequently, a clear exit strategy would be beneficial. In part, such exit strategy would be dictated by the law, since most of the existing and likely future interventions have been authorized under section 13(3) of the Federal Reserve Act, which, among other things, requires “unusual and exigent circumstances” (as described in the next section). Thus, once economic and financial conditions start to improve, these facilities would have to be unwound.

If it is determined that the benefits of further liquidity and credit interventions outweigh the costs, it would remain necessary to decide what interventions to execute. It is difficult to provide specific recommendations for further intervention at this time, in part because facilities that are most obviously valuable to address current conditions have already been put in place or are in train. Given the operational burden involved, it may be desirable, when possible, to escalate the Federal Reserve’s interventions by expanding existing facilities. Possibilities along those lines include expanding the type of AAA ABS allowable for pledging in the TALF to include CMBS, non-agency RMBS, or corporate debt securities. In addition, the Federal Reserve could establish new programs to provide credit to other entities. The specific programs chosen will presumably be influenced importantly by market developments. In particular, new liquidity facilities may become necessary to address disruptions in key markets and to support systemically critical institutions.

Legal and Policy Limits on Liquidity Intervention

Legal Limits

Many of the extraordinary liquidity operations to date and many of those contemplated for the future (including the PDCF, the TSLF, the AMLF, the CPFF, the MMIFF, and the TALF) are authorized under section 13(3) of the Federal Reserve Act (FRA), which allows Federal Reserve Banks to discount the note of individuals, partnerships, and corporations in certain circumstances.⁵ In particular,

1. the circumstances must be unusual and exigent,
2. the note must be endorsed or secured to the satisfaction of the lending Reserve Bank,
3. the borrower must be unable to secure adequate credit accommodations from other banking institutions, and
4. at least five (or, in certain circumstances, all available) Board members must approve the loan.

There are a number of lending structures that the Federal Reserve has used under section 13(3), but the options are constrained by the text and purpose of the statutory provision.

⁵ The AMLF is also authorized under section 10B of the FRA.

Consistent with the requirements in section 13(3), the Federal Reserve has authority to lend to an individual, partnership, or corporation on a collateralized or guaranteed basis; this would include, under certain circumstances, lending to a special purpose vehicle (SPV) that purchases debt instruments. However, applying the legal limits in the Federal Reserve Act to particular liquidity facility proposals often requires difficult judgments, and a careful case-by-case analysis of all the terms and conditions of a proposed facility generally is required to ensure compliance with the statute. In borderline situations, legal and policy considerations would have to be carefully balanced.

Policy Limits

In addition to limits placed by the law, Federal Reserve policymakers are also guided by their conception of the role of the central bank within the financial architecture. Policymakers have generally expressed a preference for asset allocation policies that maintain Federal Reserve control of its balance sheet, avoid credit allocation, and minimize credit risk.⁶ Interventions have been limited in duration and, when possible, offset so as to leave only manageable effects on reserve balances. They have been focused on providing liquidity to creditworthy institutions that have lost access to funding, on reviving important markets that have seized up, and stabilizing systemically critical failing institutions. These policies have been structured to avoid explicit credit allocation and minimize the credit risk borne by the Federal Reserve.

As the turmoil has widened and macroeconomic concerns intensified, policy objectives for financial stability and maximum sustainable growth have offset policymakers' asset allocation preferences, leading to larger and more long-lived interventions. Many of the facilities put in place recently have swelled the Federal Reserve balance sheet and put downward pressure on the federal funds rate because of the large amount of reserves they created. Moreover, some facilities have led to the assumption of somewhat greater credit risk by the Federal Reserve. For example, while the most recent intervention—the TALF—is in part structured to revive the asset-backed market by financing AAA-rated ABS, it is also intended to stimulate the extension of credit to consumers and small businesses and, to do so, is explicitly designed to take on tail risk.⁷

An important reason why the Federal Reserve has sought to avoid engaging in credit allocation and taking on credit risk in the past is a view that, if such governmental actions are desirable, they are more appropriately exercised by the fiscal authority.⁸ An approach to liquidity intervention that respects this policy preference as well as the legal limits discussed above is to lend using an SPV that obtains capital from the Treasury and liquidity from the Federal Reserve, as in the TALF. This approach would limit the credit risk borne by the Federal Reserve. Moreover, the Treasury could be actively involved in identifying appropriate sectors to support. Interventions designed this way would have the added advantage of effectively leveraging scarce congressionally appropriated funds and thus would magnify the power of the

⁶ See, for instance, *Alternative Instruments for Open Market and Discount Window Operations*, Federal Reserve System Study Group on Alternative Instruments for System Operations, December 2002, pp 1-1 to 1-2.

⁷ The program, however, largely preserves a key role for markets, in the sense that investors (and not the Federal Reserve) will decide which assets (within the broad category of consumer ABS) will get funded.

⁸ *Alternative Instruments for Open Market and Discount Window Operations*, pp. 1-6 to 1-7.

Government's efforts to mitigate the effects of the financial crisis and ultimately restore the functioning of the financial system. Such close collaboration between the Federal Reserve and the Treasury may raise issues related to Federal Reserve independence; however, the Federal Reserve always retains the option to decline a Treasury proposal. It may also raise concerns about circumvention of limitations placed by Congress on the amount of government resources put at risk.

The Potential Economic Stimulus from Liquidity Intervention⁹

It is very difficult to measure with any precision the scope for further liquidity interventions to stimulate the economy. One possibility is to estimate the extent to which the optimal-control policy path presented regularly in the Greenbook and Bluebook has been reduced as a result of the financial turmoil. While further liquidity measures cannot repair all the damage that has been caused by the turmoil, if they help return financial markets and institutions to their pre-crisis conditions over time, they would arguably impart a stimulus to the economy on the order of lowering the federal funds rate by an amount similar to, albeit somewhat less than, the reduction in the optimal path owing to the turmoil.

Optimal control simulations similar to those presented regularly in the Bluebook and Greenbook indicate that financial turmoil has lowered the average 2008-2010 value of the optimal-control federal funds rate path by a little over 5 percentage points; stress has lowered the 2009 average value of the path even more, by over 6 percentage points. Liquidity interventions cannot, of course, address all the consequences of the financial crisis; for this reason, an optimal control simulation that estimates the consequences of only the staff's judgmental estimates of nonstandard financial turmoil effects may be better suited to provide a measure of the effects amenable to expanded liquidity and credit interventions. Those estimates suggest that the nonstandard financial turmoil effects lowered the average 2008-2010 and the average 2009 value for the optimal control path by about 2-1/4 percentage points.

In sum, liquidity interventions that ameliorate the effects of the financial market turmoil may have economic benefits comparable to cuts in the federal funds rate ranging from 2-1/4 to 6 percentage points, with the lower end of that range likely being more realistic because the interventions would no doubt offset at most only part of the effects of the turmoil.

References

McAndrews, James, Sarkar, Asani, and Wang, Zhenyu (2008): The Effect of the Term Auction Facility on the London Inter-Bank Offered Rate. Federal Reserve Bank of New York Staff Report no. 335.

Taylor, John B. and Williams, John C. (2008): A Black Swan in the Money Market. Federal Reserve Bank of San Francisco Working Paper 2008-4.

⁹ Dave Reifschneider, Division of Research and Statistics, provided substantial input to this section.