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Effectiveness of the Interest on Excess Reserves Operating Framework and of Options to Reduce Excess Reserves

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The Interest on Excess Reserves (IOER) Operating Framework

Under the operating framework adopted last autumn, the Federal Reserve established a rate of interest on excess reserves (and set the PCF rate a suitable distance above that level) but undertook no further actions to influence the level of overnight short term interest rates. This framework was adopted specifically for an environment in which excess reserve levels were expected to be high and volatile, with no expectation that the Desk would attempt to manage the level of reserve supply through open market operations. To prevent the fed funds rate from falling far below the rate paid on excess reserves when reserve supply is well above any level associated with requirements or working balances, this framework relies on arbitrage. To be sure, banks that would otherwise earn the IOER rate might not have any incentive to lend reserves at any rate below this level. However, banks borrow significant amounts in short-term funding markets from other institutions that do not have this option. In the arbitrage trade necessary to prevent short-term market rates from falling much below the interest rate paid on excess reserve balances, banks must be willing to purchase funds at interest rates below the rate paid on excess reserves, potentially in considerable volume, and then deposit the reserves accumulated at the Federal Reserve Banks just to earn the spread between the rate paid on excess reserves and the rate at which they purchased the funds. In this respect, under the current system, the IOER rate is intended to act as a magnet in bringing market rates up to the level of the IOER rate.

A conventional interest rate corridor framework, such as the one employed by the Federal Reserve for many years, differs from the IOER framework perhaps most critically in the requirement that the central bank be able to maintain excess reserves at minimal levels, allowing for just frictional levels of demand.[2] In the case of the Federal Reserve, fine-tuning operations were used to control excess reserves so as to steer market rates, at least on average, well within the corridor established by the PCF rate and the rate paid on excess reserves. The Federal Reserve jettisoned its corridor system last autumn when it became clear that its several balance sheet initiatives would inevitably contribute to levels, and volatility, of excess reserves that were incompatible with the operating prerequisites of its corridor framework.

[1] Chris Burke, Seth Carpenter, Jim Clouse, Sherry Edwards, Spence Hilton, Todd Keister, Jamie McAndrews, and Steve Meyer.

[2] These frictional levels of demand historically were generally minimal, owing to the relatively wide spread between market rates and the zero return earned on excess holdings.

Experience with the IOER Framework

Events in October and November 2008 were clearly at odds with the view that under the circumstances the IOER system would work perfectly to prevent market rates from falling much below the rate of interest paid on excess reserves. Over much of this two-month period, when the IOER rate was well above its current level of 25 basis points, the effective funds rate was persistently well below the rate paid on excess balances. Perhaps most obviously because their overnight lending activity accounts for a large portion of the trading volume captured in the calculation of the effective fed funds rate, the Government Sponsored Enterprises (GSEs)—which earn no interest on any balances they hold at the Federal Reserve—typically received rates well below the IOER rate on their overnight lending to banks. But other nonbank institutions that typically lend to banks on a short-term basis in other wholesale funding markets, such as the Eurodollar market, earned equally low returns. And short-term rates in other financing markets not dominated by banking institutions, such as those for repurchase agreements, were similarly low.

A number of plausible reasons have been cited for the shortfall in the market rates below the IOER rate at least some of which are likely to have reflected temporary conditions. The fall of 2008 was a period of considerable strain in the banking system, to say the very least, and the arbitrage activity needed to drive the fed funds rate close to the target did not take place. Lenders of funds may have been reluctant to shop for new counterparties. The GSEs, for instance, reportedly reduced the number of their counterparties after losses accrued to one of them in the wake of the Lehman Brothers bankruptcy. As a result, a lack of perfect competition in the market is one reason that arbitrage did not lead to narrow spreads. In addition, reluctance by borrowing firms may have represented another impediment to perfect arbitrage. During the financial turmoil of the fall, fed funds traders were likely reluctant to take actions such as borrowing large amounts in the fed funds market – that could potentially be misinterpreted by market participants or even by senior management of their own bank. Balance sheet constraints (capital and leverage ratios) appear to have restrained banks' willingness to buy funds at rates below the IOER rate, unless at concessionary prices, just so as to capture the spread between the borrowing rate and the IOER rate. Banks who were well positioned to take advantage of the arbitrage opportunity may have needed to develop new counterparty relationships and credit lines, which takes times. Banks may also have been reluctant to disrupt existing trading relationships for an arbitrage opportunity that was perceived to be short-lived.

Even including the volatile October and November 2008 months into the evaluation, the experience of the IOER framework has been instructive. One regularity that has been observed is that even though there is a gap between the IOER and the effective rate, that gap has not systematically widened on days on which reserves increased or narrowed on days that reserves decreased. A second regularity is that the gap has narrowed to relatively low levels, but this has been in the context of the 25 basis point IOER rate. Finally, the experience with high levels of reserves has led to significantly quicker settlement of payments on Fedwire as well as significantly decreased daylight overdrafts. The benefits of high and flexible levels of reserves have been clear in the payment system during this period.

Possible Future Effectiveness of the IOER Framework

Together, the factors cited allowed for a positive and persistent spread to exist between the interest rate paid on excess reserves and the effective federal funds rate (and other measures of short-term interest rates). But while the experience to date with this new method of implementing monetary policy is informative, it is important to keep in mind that market conditions were substantially different during the fall of 2008 than they will be when the FOMC decides to raise the target federal funds rate to substantially higher levels. At that time, both short-term money markets and the banking system will be substantially healthier than they were during the fall. Banks will generally be in a better position to take advantage of arbitrage opportunities, and lenders of funds will likely be more willing to develop new counterparty relationships that will be profitable in this environment. Market participants will be more familiar with the interest-on-reserves regime and the opportunities it presents. For these reasons, we anticipate that arbitrage activity would likely be more effective in preventing short-term market rates from falling significantly below the remuneration rate on excess reserves, even should excess reserve levels remain at historically high levels for some time to come.

Moreover, there are also some active steps that the Federal Reserve might pursue to make the IOER framework function more effectively in the future. These include clearer communication to market participants about the trading opportunities within this framework that are acceptable, and even encouraged. To the extent that banks' have felt constrained by concerns over their leverage ratios relative to regulatory standards in pursuing even riskless arbitrage opportunities, development of new regulatory guidelines could be explored. The Federal Reserve could seek authority to pay interest on all balances held on deposit, including those held by the GSEs. Mechanisms that remove the counterparty credit risk associated with lending to any single depository institution could encourage lenders that do not have the option to earn the IOER rate on any excess cash balances they hold to widen the network of banks to which they would be willing to lend. One such proposal being examined is the creation of special reserve collateral accounts, made available to depository institutions by Federal Reserve Banks, which would allow a bank that borrows reserves for arbitrage purposes to use the reserves themselves as collateral, eliminating the credit risk in such a transaction.[3] Each of these changes would make the current operating framework more effective by generating a tighter link between the federal funds rate and the interest rate paid on excess reserves.

Effectiveness of Options to Reduce Excess Reserves

While there are reasons to believe that the IOER framework in its present form or with some modification could provide the Federal Reserve with the necessary control over short-term interest rates in the future, even with historically high levels of excess reserves, one may not be

[3] See "Reserves Collateral Accounts," by Jamie McAndrews (Federal Reserve Bank of New York), internal memorandum, June 8, 2009.

entirely confident of this outcome. For this reason, and to be able to address other unforeseen contingencies, it may nevertheless be critical that the Federal Reserve develop other tools that would enhance its control over the size or composition of its balance sheet. In the remaining sections of this note, we explore the issues associated with developing several alternative operating instruments—all designed to increase the Federal Reserve's ability to drain excess reserves in the banking system on a scale that historical instruments do not allow. But before turning to a review of these instruments, we end this section with a brief discussion of how reducing excess reserve levels could be expected to enhance the Desk's ability to control short-term interest rates in the current environment.

It may seem intuitive that by reducing the level of excess reserves, the federal funds rate and other bank funding rates that would otherwise be below the IOER rate would at least be closer to that level. Yet one of the behavioral features of the IOER framework is the relative insensitivity of market rates to even large swings in the level of excess reserves, so long as reserves remain in some absolute sense "high," an outcome largely supported by recent experience. All this suggests that in order to be effective in putting sufficient upward pressure on market rates, reductions of excess levels within the IOER framework may have to reach some critical point where a sufficient mass of banks would need to borrow reserves to avoid deficiencies, or reach some other point at which the "scarcity value" of reserves begins to drive up market rates. While banks themselves would still have no incentive to lend reserves at a rate below the IOER rate, the GSEs and other nonbank lenders would find more opportunities to lend to banks at rates closer to the IOER rate. And if the supply of excess reserves were to drop further, market rates would eventually reach and then rise above the IOER rate, at some point reaching a level at which even banks with excess positions would be induced to lend. How much (or to what level) the supply of excess would have to shrink to reach the point where these overnight bank funding rates were in line with the IOER rate is unknown, as would be the general behavior of market rates in response to movements in the level of reserves around that point. Alternatively, a corridor system could be more formally reinstituted, which would at least provide greater clarity about reserve levels needed to maintain market rates, on average, around a target level within a range set by the PCF and the IOER rates. Prerequisites would require certainty about the ability to drain virtually all excess reserves if needed, and establishing a target for market rates above the IOER rate to provide the proper incentive for banks with excess positions to lend.[4]

Finally, a number of the options for draining reserves on a large scale could be expected to have a differential impact on rates in the markets in which these operations occur. Conceivably, these relative rate effects could be exploited in some systematic fashion to affect the federal funds rate and other bank borrowing rates, establishing an interest rate transmission mechanism apart from the direct impact these operations would have on bank funding rates

[4] There is no certainty about the minimal level this spread would have to be. Other central banks have adopted a spread anywhere between 25 and 100 basis points. To establish a symmetric corridor, the PCF rate would need to be set at a similar level above the target for market rates.

operating through the level of excess reserves.