



TD Economics

Special Report

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IS THE CREDIT CRUNCH PUSHING THE U.S. FEDERAL RESERVE TO ITS LIMIT?

Since the onset of the global credit crunch in August 2007, the U.S. Federal Reserve has resorted to a slew of innovative (and sometimes unconventional) approaches to dealing with the ongoing disruptions in the U.S. financial sector. In fact, when the money markets seized up unexpectedly in the summer of 2007, it became apparent to the U.S. monetary authority that the discount window had become too limited and inadequate for dealing with the financial market dislocation that had ensued. As a result, the Fed was forced to introduce various new measures that were aimed at providing short term cash to the distressed U.S. financial institutions that have been unable to raise the requisite liquidity on the interbank money market.

In this piece, we present a brief analysis of these new measures, and discuss their possible impact on the U.S. consumer inflation rate, the composition of the Fed's balance sheet and the behaviour of financial institutions as it relates to their risk-taking behaviour going forward. Our main conclusion is that the impact of these liquidity injection measures on the monetary base will likely be somewhat muted. Moreover, we argue that should the Fed's balance sheet become undesirably thin, there may be ways in which it can be bolstered without the Fed resorting to unnecessary money creation. We also show that while we believe that the discussion of moral hazard has some validity, it becomes obvious that the issue of moral hazard must come second to the desire for financial stability.

The credit crunch in a nutshell – the hoarding mentality

The credit crunch of August 2007 began when financial institutions became increasingly reluctant to extend

HIGHLIGHTS

- **Since the onset of the global credit crunch in August 2007, the U.S. Federal Reserve has resorted to a slew of innovative (and sometimes unconventional) approaches to dealing with the problems faced by distressed U.S. financial institutions.**
- **The effort has been part of the Fed's attempt to stave off a full-fledged financial sector meltdown, and to blunt the adverse impact of the ongoing disruptions on U.S. economic activity.**
- **Despite the massive amounts of liquidity injected into the money market, we do not expect the measures introduced to pose any significant inflationary risks to the U.S. economy.**
- **Moreover, we do not believe that the Fed's ability to provide further liquidity injections into the financial system is compromised by its current level of commitment.**
- **But should the Fed's cupboard become bare, there are several options that it can pursue to address any shortcoming it may face.**
- **Ensuring stability in the financial markets has enormous implications for the economic well-being and prosperity for any society such that it becomes imperative for it to be pursued at reasonable costs.**

overnight credit to their counterparts in the interbank money market, as fears intensified that losses from the subprime mortgage crisis could conceivably make some counterparties insolvent, and thus put at risk the loans that have been made

The Discount Window

Historically, the discount window has been the key facility available for banks to access overnight liquidity at the Fed, acting as the principal safety valve to the banking system by ensuring that there is sufficient liquidity in the financial sector. The design of the facility was akin to the Bagehot (1873) principle that at times of financial crisis the central bank should “lend quickly, freely and readily” against good collateral, but with a penalty so that the loans do not represent a subsidy to the borrower. As such, there were explicit deterrents in place to preclude depository institutions from using the window as a regular source of funding.

In the U.S., prior to 2003, the borrowing rate was set below the federal funds rate. To remove the arbitrage opportunity that the favourable spread offered, numerous hurdles were put in the way of potential borrowers. Some deterrents took the form of regulations that required financial institutions to use the facility only as a last resort. As such, banks were required to demonstrate the need for the credit and show that they had exhausted all other available sources of credit. As a result of the administrative burdens placed on banks, and the shame and stigma associated with the use of the discount window, banks were generally unwilling to approach the window. And despite the overhaul of the facility in 2003, which was aimed at replacing the administrative burden with an above-federal funds rate borrowing rate, with a view of ridding the system of the stigma, the use of the facility by distressed banks has remained tepid at best.

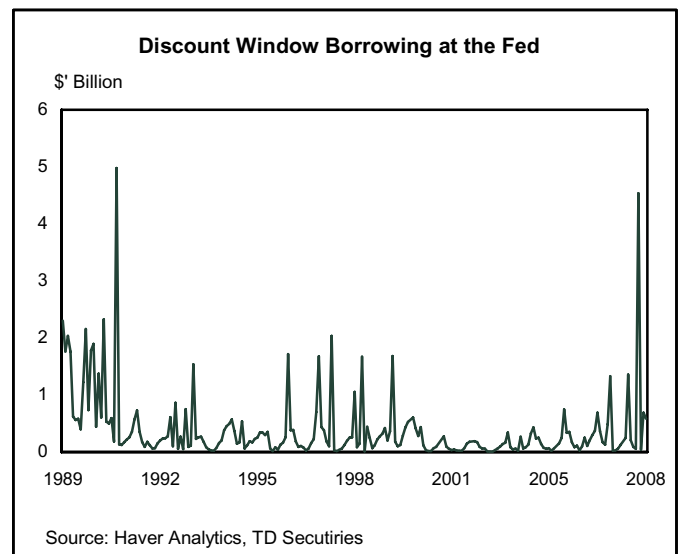
to them. The result of this heightened sense of counterparty risk was a freeze in the once buoyant and crucial interbank short-term money market, thereby limiting the ability of banks to effectively manage their reserves at the Fed or meet the funding requirements that inevitably arise during the course of the business day. This meant that banks that would otherwise have been able to borrow from their counterparts under normal circumstances to meet their short-term liquidity needs were effectively shut out from the money market, and consequently, were on the verge of becoming illiquid.

On the other side of this equation, banks that were flush with excess liquidity (cash in excess of their reserve and liquidity requirements) were increasingly unwilling to lend to their needy cousins, and instead began to hoard the cash just in case a need were to arise in the future.

This situation was of major concern to the Federal Reserve since it meant that the stability of the U.S. financial sector was threatened, and the ability of the sector to act as a conduit for the transmission of monetary policy was egregiously impaired. With this in mind, it became apparent to the Fed that the reductions in the fed funds rate and the unprecedented cuts in the primary credit rate (the rate at which “sound” depository institutions can borrow at the discount window) were insufficient to deal with the eruptions in the money markets. This therefore prompted the Fed to embark on a number of new initiatives aimed at directly tackling the distresses in the interbank money market.

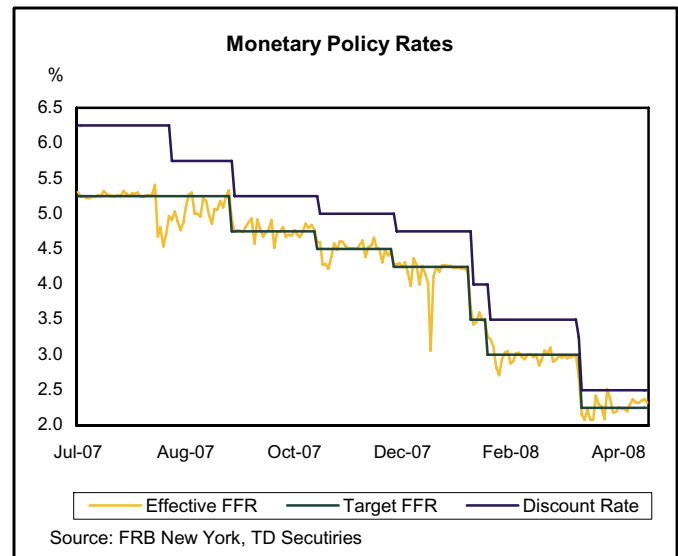
The set of measures introduced by the Fed included the enhancement of the discount window facility, the creation of an alternative discount window for primary dealers (including investment banks), the introduction of term credit to banks (which was announced jointly with the Bank of Canada, the Bank of England, the European Central Bank, and the Swiss National Bank), and the enactment of swap agreements with other central banks. In total, they amounted to a substantial overhaul of the Fed’s credit facility and combined to provide massive amounts of liquidity to the U.S. financial sector. They are summarised as follows:

- 1. Enhancement of the discount window** To counteract the impotence on the part of the discount window to deal with the ongoing financial distress and the stigmas that have generally been associated with its use, the Fed embarked on a substantive overhaul of the facility in an effort to improve its access and use. The two key



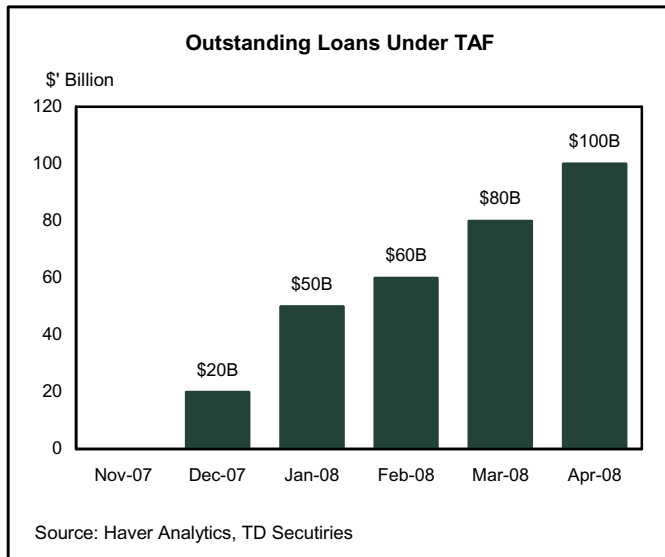
changes included the reduction in the spread over the fed funds rate and the lengthening of the term of the loans offered. On August 17, 2007, the Fed reduced the spread between the fed funds rate and the rate for primary credit to 50bps, down from 100bps previously. The maturity period for primary credit was also lengthened to 28 days, rather than the customary overnight use. This was then followed up on March 16, 2008, when the Fed reduced the spread further to 25 bps, and increased the maximum maturity period to 90 days.

2. **Term Action Facility (TAF) - \$100B** Given the inadequacies of the discount window, the Fed introduced a new “temporary” facility on December 12, 2007, in conjunction with other central banks (namely, the Bank of Canada, the Bank of England, the European Central Bank, and the Swiss National Bank) aimed at directly targeting the depository institutions that were being affected by the credit crisis, but were unwilling to access the funds available through the discount window. The mechanism, termed the Term Auction Facility (TAF) was intended to provide direct liquidity to depository institutions that are eligible to borrow under the primary credit program. These bi-weekly auctions were initially announced to be for a total of \$20 billion per issue, with a maturity period of 28 days, but by March 2008 the amount of lending was increased to \$50B per issue – with the option for further increases if the need arises. And not surprisingly, the responses to these auctions have been quite enthusiastic, with the entire subscription being allocated on all occasions the auction was held. In fact, the increases in the amount auctioned have been entirely due to the success of the facility in encouraging institutions to participate, and the growing demand for the funds.
3. **The Primary Dealer Credit Facility** Despite the changes to the discount window and the introduction of the TAF, the inability of non-depository financial institutions to borrow under either program posed significant risks to the effectiveness of the new measures to resolve the credit crunch. To tackle this handicap, on March 16, 2008, the Fed announced a new overnight facility that extended access to funding at the Fed to primary dealers (including investment banks). This program is essentially akin to the discount window, but instead gives access to primary dealers. And by having this facility, the Fed has been able to spread a wider net over the financial sector. It turns out that this was the



first time since the 1930s that the Fed has provided direct access to the discount window to non-depository institutions. And while the introduction of this measure marks an extraordinary step by the Fed, the mandate for this particular action comes from Section 13(3) of the Federal Reserve Act, which states that the Fed can lend to individuals, partnerships, or corporations under “unusual and exigent circumstances”.

4. **Term Security Lending Facility (TSLF) - \$200B** In an effort to facilitate lending activities in the overnight interbank money market, the Fed initiated the TSLF on March 11, 2008. The program is similar to the standard Securities Lending Activity (SLA) program and has a loan term of 28 days. According to the Fed, the program is intended to “promote liquidity in the financing markets for Treasury and other collateral and thus to foster the functioning of financial markets more generally.” Under the program, primary dealers will be able to swap some of their securities with the Fed for Treasury bills, which they can then use as collaterals on the interbank money market. This exchange will be done at a discount, due to the added risks that the Fed will be acquiring in the process. This approach is different to the previous measures in the sense that it does not involve the injection of cash into the system.
5. **Swap Agreements with ECB and SNB - \$36B.** As part of the coordinated response to the global credit crisis the Fed has also arranged swap agreements with the European Central Bank and the Swiss National Bank to provide additional liquidity through a reciprocal currency arrangement.



How will they impact inflation?

At its most basic level, any expansion in the money supply beyond the amount supported by changes in money demand is inflationary. This goes to the heart of Milton Friedman's observation that "inflation is always and everywhere a monetary phenomenon." That is to say, inflation can only arise if the supply of money exceeds the level dictated by money demand (or as the axiom goes: too much money chasing too few goods). As such, at first glance it may appear that the direct injection of liquidity into the money market may contribute to inflation in the U.S. However, a further look at the various measures and an examination of the subsequent actions taken by the Fed suggest otherwise. In fact, what can be concluded is that the inflationary impact from these injections is likely to be somewhat muted.

To see this, we must first make a key distinction between the various Fed programs in terms of their impact on the monetary base. In particular, of the four programs introduced by the Fed, only the TSLF will have no direct impact on the monetary base. On the other hand, the TAF, the PDCF and the changes to the discount window facility could conceivably result in an expansion of the monetary base. The reason for this is quite simple. Unlike the other three instruments, the TSLF is a bond swapping program, and as such involves no new cash being injected into the economy. In the case of the TAF and the two discount window facilities, the monetary base will rise by an amount equivalent to the value of the loans extended by the Fed. It is important to note, however, that despite the temporary nature of these injections, the fact that there is a rolling

nature to these provisions means that they can have an impact on the money supply – and consequently inflation.

The Fed mops up the excess money

To offset the inflationary impact of these measures, the Fed has engaged in numerous liquidity draining exercises via open market operations. This act of sterilising the cash injections into the money market is a way of mitigating the impact of these measures on the monetary base so that the additional cash does not become inflationary. To this end, the Fed has undertaken over 15 separate permanent open market operations since the beginning of March this year, amounting to a total of \$115 billion of liquidity being drained from the monetary system by the Fed through sale of U.S. Treasuries. This eventually results in the monetary base shrinking by the value of the securities sold as the money will be taken out of circulation by the Fed.

In addition to this, the Fed has also been involved in the redemption of U.S. Treasuries that have become due. In this case, since August 2007 the Fed has redeemed over \$125B of Treasury bills. This is done by the Fed not rolling over the maturing Treasury bills as they become due. Here again the intent is to drain liquidity.

Taken together, a total of \$240B of liquidity has been removed from the monetary system by the Fed in the past four months, thereby offsetting the injections made in the money market. The conclusion that can be drawn from this is that while the liquidity injection measures can be inflationary in isolation, the liquidity withdrawals undertaken by the Fed will likely mitigate their inflationary impact.

Essentially, what the Fed has done by these reverse operations is to reallocate the liquidity in the system from investors that are willing to purchase Treasuries and to provide it to financial institutions in the money market where liquidity has dried up. The crux of this observation then is that the reallocation exercise will effectively leave the monetary base relatively intact as the pool of liquidity in the monetary system will remain unchanged.

Is the Fed running out of ammunition?

The next issue that has become a talking point recently is the perception that the Fed may run out of ammunition as it has committed a substantial portion of its balance sheet to the resolution of the credit crunch. By April 9, the value of the Fed's total asset position stood at \$895B, against which the Fed has committed a total of over \$502B. The commitments include the TAF (\$100B), PDCF (\$36B has

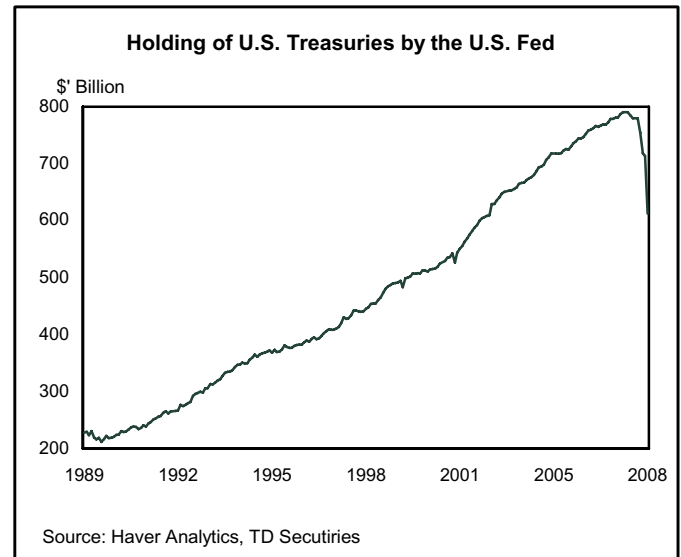
been borrowed as of April 2, 2008, though this can increase depending on demand), the TSLF (\$200B), the JP Morgan Bear Stearns deal (\$30B), swap agreements with the ECB and SNB (\$36B) and 28-day rolling repurchase agreements (\$100B).

Moreover, as a result of the liquidity measures introduced, the Fed's holding of securities on its balance sheet now stands at its lowest level since 1989. In fact, its holding of overall U.S. Treasuries has fallen from a high of \$791B in August last year to around \$560B currently. Most of this decline has come from its drawdown of U.S. Treasury bills used in the various operations. During this period, the Treasury bills holding fell from a record high of \$277B at the beginning of 2007 to \$82B by April 17, 2008 – representing a decline of over \$184B. Included in this decline is the \$133B that has been lent under the new TSLF.

This then begs a very intriguing question: can the Fed run out of options by this high degree of commitment? The simple answer is no. Indeed, while it may be tempting to believe that the ability of the Fed to meet future liquidity needs could be compromised, it is an over simplification of the Fed's ability to manage the money supply since it misses the fact that the Fed is the issuer of US dollars. This therefore means that in principle the Fed's scope for monetary accommodation is unlimited. As such, the balance sheet of the Fed can simply be expanded by the printing of money, though this is unlikely to be the course of action taken because of its impact on U.S. inflation. And since printing money is perhaps an undesirable course of action for the Fed it will likely pursue other options that may be available to it.

Alternatives to printing money

One proposal that appears to have become a point of discussion among policy makers is for the U.S. Treasury to issue debt beyond the level required to fund the federal deficit and to deposit the proceeds from the sale into its account at the Fed¹. In this case, the Fed will have effectively expanded its balance sheet without the issuance of new money. However, while this approach may bolster the balance sheet of the Fed, it may not necessarily be itself monetary policy neutral. That is, if the U.S. Treasury were to issue debt to the public that is not ploughed back into the economy via its expenditure, it is effectively a net liquidity withdrawal from the system, which is equivalent to monetary policy tightening. This must then be offset by the Fed immediately liquifying the system with an equiva-



lent amount.

Another option that has also been widely discussed is for the Congress to grant the Fed the ability to issue its own bonds on the open market. This, however, like the previously discussed approach, will also result in the extraction of liquidity from the system and as such is not by itself monetary policy neutral. However, if the cash is then loaned out immediately to financial institutions through liquidity injections, the neutrality would be achieved.

An alternative approach, which would achieve the same objective of beefing up the Fed's balance sheet without affecting the monetary base, would be for the Fed to buy government bonds directly from the U.S. Treasury with some of the cash it currently holds on its balance sheet, with the proceeds from these sales being deposited immediately into the Treasury's account at the Fed. While this approach may require changes to the regulations surrounding the purchase of Treasuries by the Fed – which at this point prohibits the direct purchase of securities – it will achieve the same objective of enhancing the Fed's balance sheet without affecting the overall money supply.

The beauty of this approach would be that the Fed can then use the securities it has acquired and then lend them to financial institutions under its Security Lending Facilities. Indeed, while this approach will be a throw back to the pre-1960s when the Fed heavily monetised the public debt², it remains a common feature of central banking around the world. The difference in this case, however, will be that the Fed will not be directly monetising the debt in the strict sense of the word since the proceeds from the sale will be deposited directly into the U.S. Treasury's ac-

count at the Fed and not enter the monetary system as would have been the case in the past.

Moreover, it is important to note that this approach will not be unique to the Fed since other central banks around the world are engaged in similar activities. For example, the Bank of Canada acquires a fixed percentage of Government of Canada bonds on a non-competitive basis at each bond auction.

Can the measures engender moral hazard?

In light of the aggressive actions taken by the Fed over the past year to ameliorate the adverse impact of the ongoing credit crunch on the U.S. financial sector, it has become increasingly common for the issue of moral hazard³ to be highlighted. This issue is indeed germane, to the extent that one can argue that the actions of the Fed may be perceived by financial institutions as an implicit floor being provided to the financial sector by the monetary authority – thereby fostering risky behaviour on the part of these financial institutions. However, when placed in the context of a financial system that has been teetering on the brink of costly disruptions, the justification for the Fed's liquidity injections since August becomes obvious.

In this case, while the fears that the implicit guarantees by the Fed will engender risky behaviour on the part of financial institutions have some validity, it must be viewed in light of the policy framework under which the Fed currently operates. In a counterfactual sense, it can be easily seen that (given the alternative choice available to the Fed at the time) the decision to provide additional liquidity to lubricate the wheels of the money markets was indeed rational and dictated by the desire to forestall the threatening financial sector meltdown. Indeed, not only was the alternative of allowing market forces to take its course – which in effect could have meant that some banks may have become insolvent – an unpalatable option for the Fed, but the social and economic costs that would also entail meant that it was also a politically unacceptable price for the American society to bear in an election year.

The point here is that ensuring stability in the financial markets has enormous implications for the economic well-being and prosperity for any society such that it becomes imperative for it to be pursued at a reasonable cost. This is

not to say that it must ensure profitability or even solvency of all financial institutions. However, to the extent that any particular financial institution poses a systemic risk to the financial sector (and by extension to the public good of financial stability) it becomes of utmost importance that action be taken to safeguard the sector – even if that means providing a lifeline to a particular institution that was engaged in risky behaviour. And to the extent that the distinction can be made between the two, then this should be done. Nonetheless, it is equally the case that if the distinction cannot be made in any meaningful way, that the interests of the public (financial stability) be placed above the interest of economic correctness (avoiding moral hazard).

Despite this, it is important that appropriate mechanisms be put in place to ensure that the risks of moral hazard are mitigated. To this end, one can point to the current proposals from the U.S. Treasury to overhaul the regulatory and supervisory mandate for the U.S. financial sector as a step in that direction. Indeed, it is encouraging to note that these recommended changes by the U.S. Treasury have come at a time when the psyche of the financial sector (and the general public as a whole) appears accommodative to an overhaul of the financial system. Nonetheless, it will be important for the regulatory and supervisory changes in the U.S. (that will inevitably come) take account of the changing face of the global financial architecture and the integral inter-connections between financial sectors around the world.

The bottom line

In conclusion, it is fair to say that the new measures introduced by the Fed are unlikely to contribute significantly to U.S. inflation. This is because the offsetting liquidity draining exercises undertaken by the Fed have meant that their impact on the monetary base will be limited. Moreover, we note that despite the depletion of the Fed's U.S. Treasury holding, there are options available for it to beef up its balance sheet without resorting to the printing of money. Indeed, we believe that the Fed has sufficient capacity to do more to stabilize the U.S. financial sector in the future if the need does arise.

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Endnotes

- ¹ See Ip (2008) for a discussion of these proposals.
- ² The Federal Reserve monetizes the federal debt when it directly purchases U.S. Treasuries with new cash issue.
- ³ Strictly speaking, moral hazard refers to a situation where the actions taken by a party (the purchase of an automobile insurance policy) inadvertently influences the behaviour of that individual in a manner that encourages risky behaviour (driving recklessly because you are covered).

References

- Bagehot, Walter, 1873. *Lombard Street: A Description of the Money Market*. London: Henry S. King and Co.
- Ip, Greg, 2008. Fed Weighs Its Options in Easing Crunch. *Wall Street Journal*, April 9, 2008.