

April 14, 2008

The Fed's policy of injecting liquidities – is it really expansionist and inflationist?

To adapt to its role in stabilizing prices and economic growth, the U.S. Federal Reserve has several tools in its arsenal. The first is obviously its official monetary policy, which is dictated by movement in its main key interest rate, the federal funds target rate. Since last fall, the U.S. Federal Reserve has reduced this interest rate by 300 basis points: it now stands at 2.25%. The Fed must also ensure the stability of the credit market. The troubles in this market, which began in the summer of 2007, have presented the Fed with considerable challenges. Its role as a last-resort lender and supplier of liquidities to the interbank market means that its initial mission was carried out. The sums of money injected by the Fed boggle the imagination. Hundreds of billions of U.S. dollars are apparently «transferred» from the coffers of the U.S. Federal Reserve to financial institutions that are in trouble. Several observers are concerned about the consequences of bailing out the financial sector. Is the Fed printing money to help Wall Street exclusively? Are taxpayers bearing the brunt of this reinforcement? Will these measures lead to an inflationist thrust that will chip away at the cost of living of Americans and aggravate the greenback's situation? In this Economic Viewpoint, we will try to explain how the Fed injects liquidities into the banking system and the resulting impact on financial aggregates and on the economy.

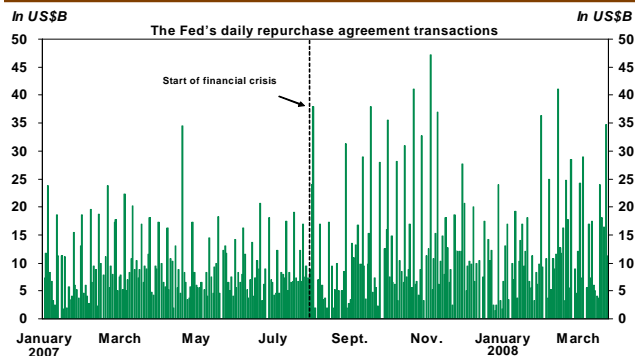
WHAT DOES THE U.S. FEDERAL RESERVE DO, EXACTLY?

Since the start of the financial crisis,¹ in August 2007, the Fed has multiplied its measures aimed at facilitating exchanges on financial markets, especially in the interbank market. The first action taken, on August 10, was to temporarily inject US\$38B in liquidities into the interbank market through repurchase agreements where the Fed lends sums to requiring institutions for a short period of time in exchange of collateral.² This type of agreement takes place on any given business day, crisis or no crisis. It's in the amounts granted to banks through repurchase agreements that we are seeing the Fed flex its muscles to limit pressure on the interbank market (graph 1).

¹ The sources, development and implications of the financial crisis are explained in the Economic Viewpoint dated March 17, 2008, entitled: "Credit problems are creating a major risk."

² Several tools used by the U.S. Federal Reserve to manage liquidities (except for new measures created in 2007 and 2008) are explained in the *Guide to monetary policies of the main industrialized and emerging countries* published by Desjardins Economic Studies.

Graph 1 – Repurchase agreements (repos) struck by the U.S. Federal Reserve



Sources: Federal Reserve of New York and Desjardins, Economic Studies

Another readily available method is discount window loans. To encourage the use of this option, the Fed has reduced the gap between the required interest rate (the discount rate) and the federal funds rate. This gap has fallen from 100 points to 50 points on August 17, 2007, to 25 points on March 16, 2008 (graph 2).

François Dupuis
Vice-President and Chief Economist

Francis Généreux
Senior Economist

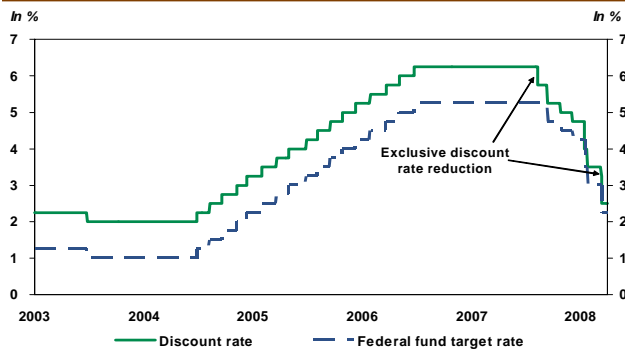
Yves St-Maurice
Director and Deputy Chief Economist

514-281-2336 or 1 866 866-7000, ext. 2336
E-mail: desjardins.economics@desjardins.com

NOTE TO READERS: The letters **k**, **M** and **B** are used in texts and tables to refer to thousands, millions and billions respectively.

IMPORTANT: This document is based on public information, obtained from sources that are deemed to be reliable. Desjardins Group in no way guarantees that the information is complete or accurate. The document is provided solely for information purposes and does not constitute an offer or solicitation for purchase or sale. The document may under no circumstances be construed as a commitment by Desjardins Group, which takes no responsibility for the consequences of any decision made based on the information herein. The prices and rates shown are for information purposes only as they may change at any time based on market conditions. Past returns are no guarantee of future performance, and Desjardins Group does not hereby purport to provide any investment advice. The opinions and forecasts contained herein are, unless otherwise indicated, those of the document's authors and do not represent the official position of Desjardins Group. Copyright © 2008, Desjardins Group. All rights reserved.

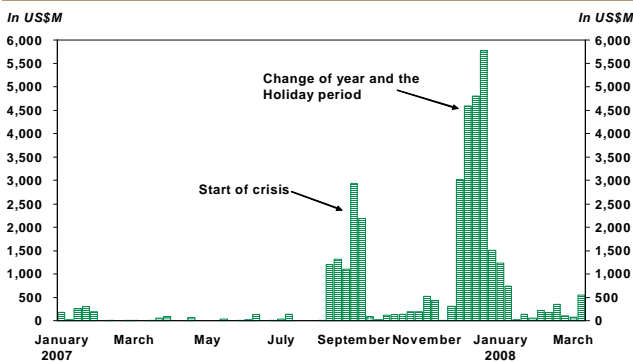
Graph 2 – The Fed reduces the gap between the discount rate and federal funds target rate



Sources: Federal Reserve Board and Desjardins, Economic Studies

The repurchase agreements and discount rate loans were not enough to stem the tide of this crisis, however. Repos are meant to be short-term facilities used by the Fed to restore, by adding or removing liquidities, the interest rate in the federal funds market (where banks borrow from each other) to reach the target set in its monetary policy (the key rate). This tool did not manage, however, to support financial institutions in their quest for liquidity in any sustainable way. That said, the discount rate has not been used very often (graph 3), since there is a stigma against doing so in the financial sector; institutions that use the discount window appear fragile and therefore less worthy of trust for interbank exchanges.

Graph 3 – With the exception of two specific periods, institutions did not opt for discount rate loans very often

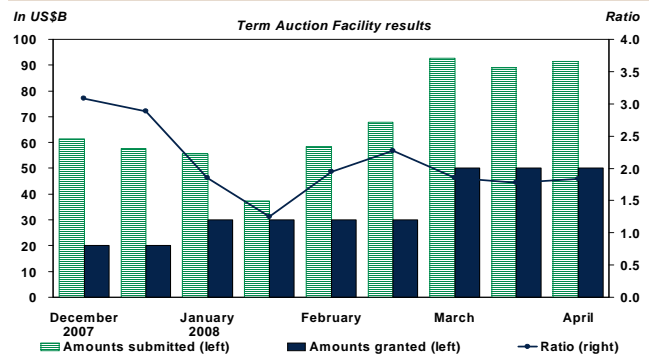


Sources: Federal Reserve Board and Desjardins, Economic Studies

To level out the lack of efficiency of these two main tools, the Fed has implemented new credit facilities. In December, the Fed created the TAF (Term Auction Facility), which is aimed at providing ample liquidities to depository institutions by auction. At the beginning, the auction amounts were US\$20B. The amounts then grew to US\$30B (January 4) then jumped once again to US\$50B (March 7). These increases in available liquidities allowed the Fed to better respond to the relatively high demand from participating institutions. The Fed publishes the ratio of requests submitted vs. the amounts available for

each auction. The first auctions held in December showed that demand was three times greater than the US\$20B available. With the increase to US\$30B and then US\$50B, this fell to less than 2 (graph 4).

Graph 4 – TAFs prove to be popular and the amounts allocated have increased



Sources: Federal Reserve Board and Desjardins, Economic Studies

The Fed went one step further than simply creating the TAF. New credit facilities were added to increase the number of participants (including the primary dealers other than commercial banks, i.e. the major investment banks and main brokerage firms),³ to increase the sums available and increase and broaden the types of securities put up as guarantees by the Fed to carry out these operations (including mortgage loans in the private sector).

Table 1 presents a summary of the different facilities that are now available for banks and primary dealers.

“STERILE” OPERATIONS

By making these liquidities available, the U.S. Federal Reserve is seeking to limit the pressures on the credit market. Contrary to its policy of aggressive cuts to key interest rates, these are not monetary policy measures that target accelerating the growth rate of the U.S. economy. Nor is the provisioning of new liquidities a specific attempt to prevent a recession. Instead, it is a way to prevent a dysfunction of the credit market that could further deteriorate the health of the financial system and, by extension, the economic situation.

Yet the significant sums provided to banks by the U.S. Federal Reserve would usually lead to an increase in monetary aggregates, which eventually leads to economic growth and faster inflation. Is the Fed trying to monetize financial problems?

³ The primary dealers are: BNP Paribas, Bank of America, Barclays, Bear Stearns, Cantor Fitzgerald, Citigroup, Countrywide, Credit Suisse, Daiwa, Deutsche Bank, Dresdner Kleinwort, Wasserstein, Goldman Sachs, Greenwich, Inc., HSBC, J. P. Morgan, Lehman Brothers, Merrill Lynch, Mizuho, Morgan Stanley and UBS.

Table 1
Forms of Federal Reserve Lending to Financial Institutions

	<i>Open market operations (repos, reverse repos, outright buying and selling of treasuries)</i>	<i>Discount Window</i>	<i>Term Auction Facility (TAF)</i>	<i>Primary Dealer Credit Facility (PDCF)</i>	<i>Term Securities Lending Facility (TSLF)</i>
Admissibility	Primary Dealers	Depository institutions	Depository institutions	Primary Dealers	Primary Dealers
Term of loan	Overnight to 28 days	Overnight to 90 days	28 days	1 day	28 days
Type of loan	Funds	Funds	Funds	Funds	Treasuries
Interest rate	Fed funds rate	Discount rate	Auction bid rate	Discount rate	Auction bid rate
Frequency	Daily	As requested	Every other Week	As requested	Weekly
Accepted collateral	Treasuries, agencies, agency mortgage-backed securities	Treasuries, agencies, agency mortgage-backed securities, other securities	Treasuries, agencies, agency mortgage-backed securities, other securities	Treasuries, agencies, agency mortgage-backed securities, investment grade debt securities	Treasuries, agencies, agency mortgage-backed securities, investment grade debt securities, other securities
Creation	Existing (modified March 7, 2008)	Existing (modified August 17, 2008)	December 12, 2007	March 16, 2008	March 11, 2008

Source: Federal Reserve of New York

No. Financial institutions are nevertheless on the receiving end of generous assistance, and the Fed is trying to neutralize the effect on the real economy.

To see how the Fed is managing to sterilize these injections of liquidities, you have to know about the Fed's balance sheet items. Each week, the U.S. Federal Reserve publishes a report indicating the value of its assets and liabilities. In short, the Fed's assets are composed of debt securities held by the Fed, either government debt (Treasury securities) or the debt of institutions that borrowed sums from the Fed. Liabilities consist mainly of deposits made by financial institutions and held at the U.S. Federal Reserve (the reserves) as well as currency in circulation. It is when the currency in circulation increases (used by institutions and disseminated into the economy) that a central bank's policy becomes expansionist and inflationist. The Fed's main balance sheet items as at April 2, 2008, are presented in table 2.

When the Fed lends liquidities to financial institutions, these loans increase the Fed's assets in the following balance sheet items: repurchase agreements, credits and other loans, depending on the facility used. The sums loaned are added to the institution's reserves within the bank's liabilities. However, banks usually use these sums for their financial transactions and would exchange these reserves for currency. This transaction is entered in the Bank's balance sheet liabilities – the "Reserves" item falls and the "Currency in Circulation" item increases.

Table 2
U.S. Federal Reserve balance as at April 2, 2008

Assets (in US\$B)	
Government securities	581.2
Repos	76.0
Term auction credit	100.0
Other loans (discount, primary dealers)	44.8
Other	83.4
Total	885.4
Liabilities (in US\$B)	
Reserves	4.5
Currency in circulation (net of Fed holdings)	779.6
Reversed repos	41.1
Other deposits	13.5
Other	6.8
Total	845.5
Capital (in US\$B)	39.9

Source: Federal Reserve of New York

The U.S. Federal Reserve's increased liabilities (increased reserves or currency) represents an increase in the monetary base⁴ which, in turn, leads to an increase in the money supply in the economy. Acceleration in the growth of the money supply is usually expansionist and inflationist.

⁴ The monetary base corresponds to the sum of coins and banknotes in circulation and bank deposits held at the central bank (bank reserves). The elements of the monetary base are made up of the most liquid financial assets in an economy. The monetary base and the money supply are closely related. Source: *Practical Guide to Economic Concepts and Theories*, Desjardins Economic Studies.

To prevent increases in the money supply, the Fed is looking to offset increases in its liabilities by withdrawing liquidities (reserves and currency) from the economy. We have seen the Fed proceed with this “sterilization” by selling assets on the market. By trading federal government bond (its main asset) against currency, the Fed is contracting the monetary base, effectively nullifying the macroeconomic effect of the initial loan to the financial institution.

Table 3 presents the different steps of these procedures. Column A represents a fictitious loan of US\$100B granted via the TAF. Column B shows the exchange of the reserve into currency. Column C represents the effect of the sale of government bonds by the Fed. As such, we note that the net effect is only seen in the Federal Reserve’s assets. The aid in liquidities to financial institutions is offset by the sale of government securities. The composition of assets changes, but the Fed’s balance sheet doesn’t. The monetary base remains the same; the stimulus of the initial measure is nullified even though the borrowing bank disposed of additional liquidities.

Table 3
Example of a loan to financial institutions and “sterilisation”

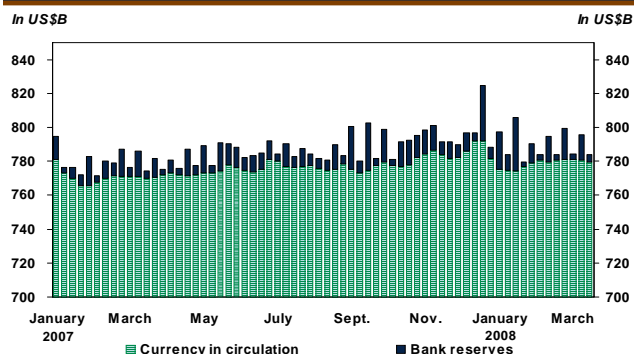
Assets (in US\$B)	A	B	C	Net effect
Government securities	0	0	-100	-100
Repos	0	0	0	0
Term auction credit	+ 100	0	0	+ 100
Other loans (discount, primary dealers)	0	0	0	0
Other	0	0	0	0
Liabilities (in US\$B)				
Institution’s reserves	+ 100	-100	0	0
Currency in circulation (net of Fed holdings)	0	+ 100	-100	0
Reversed repos	0	0	0	0
Other deposits	0	0	0	0
Other	0	0	0	0

Source: Desjardins, Economic Studies

What is true in this example about the Term Auction Facility is also true for loans at the discount window or for other credit facilities, including those extended to the primary dealers.

Do the actions taken by the U.S. Federal Reserve since the start of the crisis resemble this simplistic modelling? Yes. Since the start of the crisis (August 2007), the Fed’s liabilities have increased by only 1.2%, a pace that is much slower than the growth in the consumer price index (2.3%). The real increase, adjusted for prices, is therefore negative. In fact, the quantity of currency in circulation has grown by only 0.3%, much lower than the rate of inflation. Graph 5 shows the stability of the currency in circulation and bank reserves since the beginning of 2007.

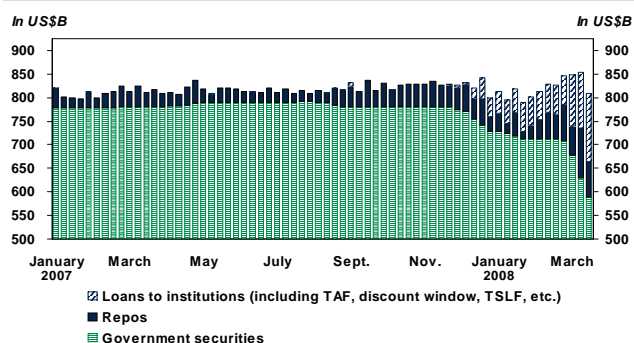
Graph 5 – The Bank’s liabilities remain relatively stable



Sources: Federal Reserve Board and Desjardins, Economic Studies

As we have seen, the Fed’s policy is usually manifested in the type of assets it holds. Total assets, much like total liabilities, have barely moved. However, since the start of the crisis, we have noted the inevitable reduction in the share of assets held in federal government securities. At the same time, the share of assets held as financial institution debt (repurchase agreements, discount window loans, term auction credit and other loans) is up sharply (graph 6).

Graph 6 – The Fed’s total assets are stable enough but their composition has changed



Sources: Federal Reserve Board and Desjardins, Economic Studies

Since August 2007, US\$202B has been loaned to financial institutions by the Fed. This is the net effect of the “bail-out” for these institutions. This sum is nowhere close to the sums we see reported most often, which are much higher.⁵ These estimates are made by adding the overall amount of loans granted, usually for the short term, without taking any reimbursements made into account.

⁵ A recent article from the Bloomberg agency pegged the total amount of loans at US\$628B. See Daniel KRUGER and Sandra HERNANDEZ, “Good News for Bernanke From Bonds Is Bad for Rates”, *Bloomberg News*, April 7, 2008.

THE FED'S LOAN GUARANTEES

Each loan granted by the Fed to financial institutions is guaranteed by the assets held by the institution. For repurchase agreements, collateral change hands for the duration of the transaction, which is usually short. For other types of loans, discount, TAF, etc., the Fed does not take over the securities submitted by the borrowing institution directly (unless the loan is in default). However, the Fed ensures the value and liquidity of the collateral and requests securities with a higher value than the amount borrowed, although this margin depends on the quality of securities submitted as collateral, which increases if the security is less liquid. The Fed has recently broadened the scope of securities that can be put up as collateral. As such, for certain transactions, the Fed will accept as guarantees securities from agencies (Fannie Mae, Freddie Mac), and mortgage securities from agencies or the private sector. If the value of securities put up as collateral falls below the amount of the loan granted by the Fed, other securities would have to be added. The Fed can also put an end to the agreement and call in the loan. Since each loan is guaranteed this way, any risks to the Fed are by and large limited, especially since the Fed will not have to deal with the deterioration in the value of assets used as collateral.

A SPECIAL CASE: THE RESCUE OF BEAR STEARNS

While the Fed showed prudence in this matter as well, the Fed has taken on a somewhat larger risk in the rescue of Bear Stearns by J.P. Morgan. Concerned about a possible financial domino effect, the Fed was trying to prevent Bear Stearns from filing for bankruptcy, which was imminent, according to Fed Chairman Ben Bernanke when speaking before a Congressional committee. To facilitate the transaction, the Fed took ownership of US\$29B worth of Bear Stearns assets, which included, among others, residential and commercial mortgage debt securities. The securities, evaluated at US\$30B at transaction time, will be transferred to a fund into which J.P. Morgan is slated to inject US\$1B as well. J.P. Morgan will be the first to sustain eventual losses and the Fed will be the first to record eventual gains, and the first to be reimbursed (capital and interest). The loan is for a 10-year period.

IF THE FED'S POLICY IS NEUTRAL, WHY IS THE MONEY SUPPLY INCREASING?

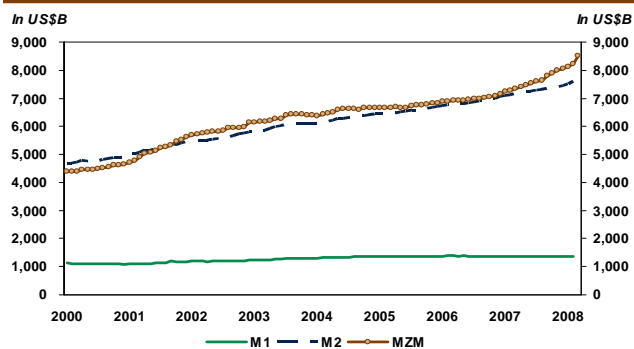
While the policy of injecting liquidities is largely sterilized, we have nevertheless noted rapid advances in money supply. The money supply corresponds to the quantity of currency in an economy that can be easily exchanged for goods and services. Several aggregates are available to measure movements in the money supply. In the United States, the

most widely used tools are M1, M2, and MZM. Here are the definitions:

- M1:** Currency in circulation + traveller's cheques + demand deposits + other checkable deposits. Published by the Federal Reserve.
- M2:** M1 + savings deposits + time deposits of less than US\$100,000 + balance in retail money market mutual funds. Published by the Federal Reserve.
- MZM:** M2 – term deposits + other money market mutual funds. Published by the St. Louis Fed.

Graphs 7 and 8 represent the advances in U.S. dollars and in the annual variation of these monetary aggregates. It is clear that there has been almost zero movement in M1 for some time now while M2 and particularly MZM are up sharply. M1 is closer to the monetary base which, thanks to the Fed's sterilization efforts, is barely advancing. In fact, the increases in M2 and MZM are explained in large part by their components that are associated with money market mutual funds. When turbulence reigns in financial markets, when the performance of stock markets is uncertain, when weak long-term interest rates abound, this type of asset is appreciated. Stuck between a high aversion to risk and fairly weak performance forecasts for fixed-income securities, investors are favouring fairly liquid investments, at least temporarily. That said, money market funds remain more attractive than most demand deposit accounts. Graph 8 shows that a similar situation took place when interest rates fell during the 2001 recession led by the bursting of the technology bubble.

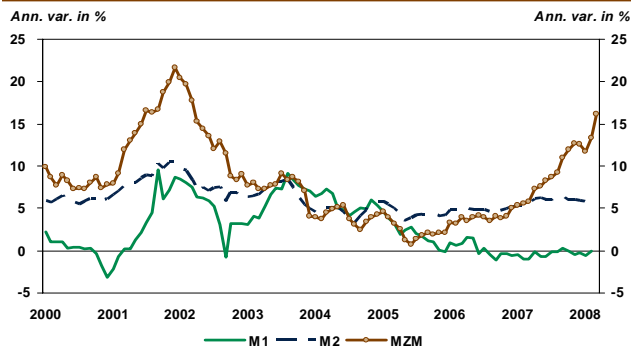
Graph 7 – Movements in the U.S. money supply (1)



Sources: Federal Reserve Board, Federal Reserve of St. Louis and Desjardins, Economic Studies

The advances in monetary aggregates can be attributed in part to Fed policy; however, it is a better reflection of the policy (expansionist) of lower key interest rates than the movement (neutral) of liquidities and reserves within the interbank market. The expansionist character of a money

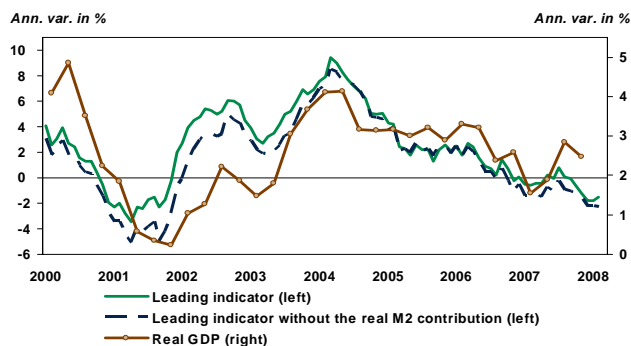
Graph 8 – Movements in the U.S. money supply (2)



Sources: Federal Reserve Board, Federal Reserve of St. Louis and Desjardins, Economic Studies

supply that is fired up by lower interest rates is reflected in the advanced indicator's fluctuations. The M2 measure, adjusted for inflation, is a component of this indicator in the U.S. This is, in fact, one of the only statistics that has been making a positive contribution to this index for some time now. If not for the contribution of the real money supply, the development of the advanced indicator would be even more depressed (graph 9).

Graph 9 – Growth in money supply contributes to the evolution of the leading indicator

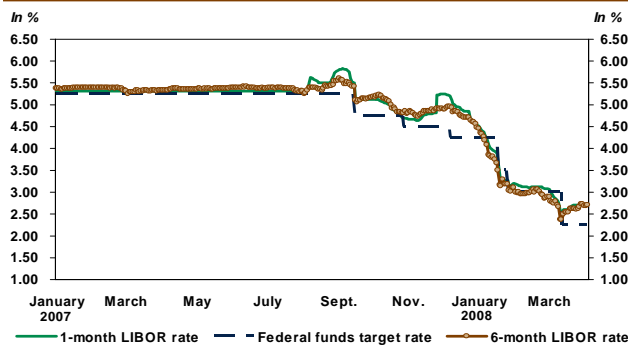


Sources: Federal Reserve Board, Conference Board and Desjardins, Economic Studies

LIMITS, CHALLENGES AND OPPORTUNITIES

The loans granted to financial institutions have allowed the interbank market to find its way through the mind field of pressures that have riddled its path since the start of the crisis. These pressures still exist (graph 10), but they are no doubt less severe than if the Fed had not acted. By providing this aid, especially in the rescue of Bear Stearns, the Fed sought to prevent a dysfunction in the credit market which had the potential to alarm a greater number of investors and provoke a further tightening of credit conditions for households and businesses.

Graph 10 – The Fed's liquidity policy has alleviated some of the pressures on the interbank market

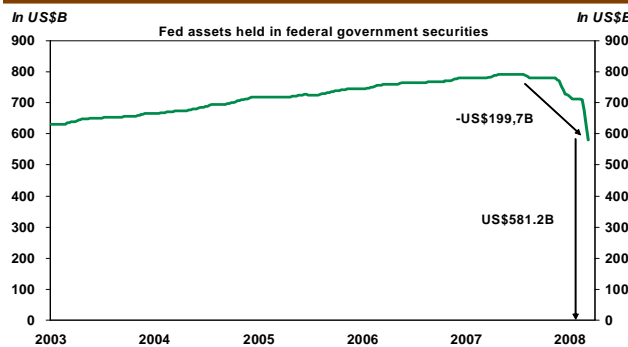


Sources: Datastream and Desjardins, Economic Studies

It is, however, clear that the Fed is still trying to solve two current problems in the economy, i.e. the credit crisis and the decline in production, using two different methods. The first consists of lowering the key interest rates, which is expansionist even though the tightening of credit conditions is currently limiting its effectiveness. The second consists of lending money to financial institutions, which is neutral for the moment.

If the Fed remains keen on sterilizing almost all the actions taken to provide liquidity to financial institutions, it will have to sell more securities that it currently holds. As at April 2, its assets in government securities totalled US\$581.2B, a drop of US\$199.7B in the past year. These billions are the rest of the ammunition in the U.S. Federal Reserve's arsenal (graph 11). This is a huge amount, but with the current pace of events since the beginning of the year, the Fed just may have to tone down its fervour. If the financial situation deteriorates further, which is not in our current scenario, the Fed will have to limit the sterilization of its own actions and as a result increase the expansionist character of its policies. It is obvious that, if the financial and economic dynamic deteriorates further, such generous support from the Fed could be most welcome. That said, if the assets held by the Fed run dry, the Fed can always

Graph 11 – The Fed still has many tools in its arsenal, but less so



Sources: Federal Reserve Board and Desjardins, Economic Studies

turn to the U.S. Treasury and ask it to issue more debt. The Fed can also issue debt securities. The possibilities, and opportunities, are many.

As long as the Fed continues to use the tools in its arsenal successfully, which it has done thus far, we need not worry about a financial carnage or over-heated inflation as many pessimistic observers fear. However, the uncertainty of the economic and financial situation will lead the Fed to continue on its prudent path to make sure it is not caught off guard by a further deterioration or a sudden rebound in the markets and economic activity. The Fed will therefore continue to provide liquidities to banks and to major traders and key interest rates will fall again slightly. The scope of these measures should soften shortly and some calm should be restored during the second half of 2008.

Francis Généreux
Senior Economist