Exit strategies for central banks
How can monetary inflation be avoided?

The central banks of major industrialized countries have not skimped on finding ways to bring an end to the worst financial and economic crisis since the Second World War. In addition to using conventional tools by dropping their interest rates to close to 0%, the central banks put in place a series of extraordinary measures for the purpose of injecting sufficient liquidities into the financial system, reducing credit spreads and kick-starting economic activity. Since most things come at a cost however, the price to pay was the rapid expansion of certain central banks’ balance sheets (graph 1).

A few analysts had forecast high inflation scenarios since expanding balance sheets at central banks are usually related to monetary growth, and monetary growth is generally associated with monetary inflation. These concerns appear somewhat exaggerated however, since not all central bank interventions come with the risk of exploding monetary growth. Only measures financed by the creation of excess reserves can really fuel such probabilities. What’s more, the reserves created by central banks would have to be used to grant new loans to feed money supply growth, which is not the case yet. There are no signs however that financial institutions will keep up this unusual behaviour if the economic situation and the markets improve. If nothing is done, the risk of monetary inflation in the medium term is very real. Fortunately, central bankers have several avenues at their disposal to stave off these risks.

After assessing inflationary risks linked to excess reserves, this *Economic Viewpoint* will focus on the exit strategies used by central banks to prevent monetary inflation in the medium term in the major industrialized nations. It bears noting that if interest rates in those countries are set to rise in the next year, the balance sheets could decline over an extended period. Time is not a key factor here, especially since the gradual withdrawal will help prevent an unnecessary spike in financial tensions or avoid compromising the economic recovery. Lastly, unless there’s a thaw in inflation expectations, all the other factors used to fuel inflation, whether they are related to the aggregate supply or demand, justify very little concerns in the medium term.

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EXCESS RESERVES: THE REAL SWORD OF DAMOCLES

It’s not so much the central banks’ decision to intervene by taking measures other than rate cuts and extending their balance sheets that is fuelling inflation concerns, but rather the fact that in some cases, the exceptional measures deployed were financed by the creation of new reserves. The monetary base, also called “central bank money,” is made up of financial institutions’ reserves, which are held in central banks. The rest of the monetary base consists of banknotes and coins in circulation. Note that these reserves are usually just a tiny portion of the monetary base. According to economic theory, an increase in the monetary base is usually followed by a proportionate increase in the money supply, an irrefutable source of inflation over a long period of time.

The principle is quite simple. When central bank operations translate into higher reserves, financial institutions are free to grant more loans. A portion of the loan amount ends up in circulation as paper money while the bulk of the funds are pumped back into deposits at financial institutions or through other financial channels to fund even more loans. In other words, the same “dollar” that was initially injected from central bank money can be loaned many times over. This multiplicative process is the basis for the quantity of money in an economy. The more money there is, the higher prices tend to rise, all things being equal.

A BRIEF RESPIE

High bank reserves should never be taken lightly. Nevertheless, as financial institutions with surplus liquidities are still reticent about lending the funds they have, the risk of monetary inflation is exceptionally low, perhaps even non-existent. And since financial institutions are still building up their reserves, the increase in the monetary base is not leading to a corresponding increase in the money supply.

Incidentally, it should be known that without the intervention of central banks, we would probably have experienced a severe monetary contraction. Left without sufficient liquidities through the conventional financial channels, several financial institutions would have had to drastically reduce their volume of activity, making available liquidities even harder to come by. In fact, deflation, i.e. a generalized drop in price level, was threatening several economies.

AND OVER THE LONGER TERM?

The unusual behaviour of financial institutions, which are amassing reserves voluntarily, will undoubtedly not last. While the financial tensions are gradually diminishing and the economic recovery is on track, new opportunities are on the horizon for financial institutions. They will increasingly be inclined to grant new loans, bringing the risk of monetary inflation back to the fore. And yet the scenario that calls for high inflation in the medium term can be avoided. In fact, central banks have several tools at their disposal to execute an effective exit strategy without overriding their objective of low, stable and predictable inflation.

Mandatory reserve ratio

Several central banks regulate the reserve amounts that financial institutions are required to hold under their authority. This is usually a fraction of the demand deposits. The presence of excess reserves today suggests that the basic requirements are not highly restricting. Nevertheless, if ever financial institutions wanted to conserve smaller amounts, the monetary authorities could simply raise their requirements, thereby limiting inflationary risks in one fell swoop. The complexity of today’s financial markets does not guarantee the success of this approach, however. Deposits—especially short-term deposits that are normally covered by regulations, only amount to a fraction of a financial institution’s liabilities. Financial institutions have access to other sources of financing that are not subject to mandatory reserves, such as loans taken out from other financial corporations and securitization. Unless new rules are created for mandatory reserves, other tools could fill this gap nonetheless.

Interest rate on reserves

Instead of tightening the regulations on mandatory reserves, the central banks could simply put in place incentives to maintain high reserve levels, like paying interest on reserves. Most central banks pay interest on excess reserves at a rate that is slightly less than the target overnight interbank rate. This is a type of floor rate for the interbank market since no financial institution should have to accept less from another institution. By setting the interest rate on deposits at a high enough level, a central bank can make sure the bulk of the excess reserves stays in the liability column of its balance sheet. Instead of counting on the conventional deposit facilities usually designed to absorb liquidities within a short time frame, term deposits that carry a longer term could be offered to financial institutions.

Government deposits at the central bank

Government deposits at the central bank are an alternative to creating reserves. And since governments do not usually swim in surpluses, they first have to issue debt securities on the market and then transfer all the funds generated to the central banks. The expansion of the Bank of Canada’s balance sheet was essentially financed by Canada’s federal government (graph 2 on page 3). The Federal Reserve (Fed) also benefited from similar financing from the U.S. Treasury. Reaching more than US$500B in 2008, the supplementary financing program’s contribution was limited to about US$200B as of 2009 and on
September 16, 2009, the U.S. Treasury announced that it would limit this financing to US$15B2 (graph 3). The fiscal pressures that are hanging over several governments make them less inclined to increase their overall debt levels to finance the central banks. This solution still has the advantage of being neutral from a monetary point of view, since the funds injected into the financial system by central banks stem from funds previously withdrawn by governments.

Debt securities issuances by the central bank

Unless they can count on government financial support, the central banks can elect to issue their own debt securities on the market to raise funds. The Reserve Bank of New Zealand financed its main credit facility (Term Auction Facility – TAF) by issuing debt securities as of November 20083. But not all central banks are free to do this, as authorization from government bodies is often required. Debt issued by central banks often competes with government debt, thus increasing overall financing costs.

Reverse repurchase agreements

Central banks regularly use repurchase or reverse repurchase agreements to adjust the level of liquidities in the financial system. More specifically, reverse repurchase agreements—meaning selling and repurchasing securities within a set timeframe at an agreed price—are used to absorb surplus liquidities. This is an interesting option for central banks as long as the logistics are adjusted since the amounts at stake in some cases can exceed the average volume handled under normal conditions.

Asset sale

Unlike reverse repurchase agreements, asset sales do not come with a buyback agreement. After the sale is made, the asset is removed from the central bank’s balance sheet, thereby reducing its size. This is in fact the ultimate solution for central banks. Assets are struck from the balance sheets gradually as the programs come to an end or simply wind down. Several central banks opted to buy commercial papers to help provide short-term financing to companies, among other options. This measure now appears to be less necessary and the amounts held by central banks are declining. The sale of certain types of assets also frees up financial resources to purchase other assets. For example, a central bank may choose to sell government debt securities to purchase corporate securities, and vice versa.

THE U.S. AND U.K FACE GREATER RISKS

A comparison of international data shows that the Fed and the Bank of England are the central banks that relied most heavily on reserve growth to finance their balance sheet expansions (graph 4 on page 4). As a result, the United States and the United Kingdom are the most at risk for monetary inflation in the medium term, which only highlights the need for an effective exit strategy in those countries. The Bank of Japan, much like the European Central Bank, also relied on reserve creation, but to a much lesser extent. The Bank of Canada has not resorted to this tactic, except that the Bank is aiming for a surplus balance of C$3B since it set the key interest rate and the rate on deposits at 0.25%. This weak surplus is still not enough to trigger inflationary pressures in Canada. Instead, it ensures that the overnight rate is trading at its lower bound4. The exit strategies of the European Central Bank,

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the Bank of Japan and the Bank of Canada will not need to be as broad as their British and U.S. counterparts. The temporary programs put in place by these central banks will gradually unwind as their usefulness erodes, as the financial markets recover or when most scheduled end dates are reached. As such, any surplus assets will be gradually sold off to the market and the balance sheets will snap back to their normal size. In fact, the Bank of Japan’s balance sheet grew by very little during this crisis.

The Fed’s exit strategy will be unable to simply rely on winding down its aid programs. Despite cutbacks in many of the programs, the Fed still has major financing needs, as evidenced by the purchase of federal agency debt securities and mortgage-backed securities. Alternative sources of financing will have to replace the excess reserves, which will remain high. The monetary authorities have issued several communications to this effect since last summer, including an article signed by the Fed’s President, Ben Bernanke, published in the Wall Street Journal in July\(^5\). Paying interest on surplus reserves at a rate that is equivalent to the federal funds target rate should prompt several financial institutions to maintain a portion of their deposits at the central bank. Term deposits should also be offered to drain part of the surplus liquidities in addition to using reverse repurchase agreements on a wide scale. With regard to this last measure, given that the transaction volume will be heavier than usual, the Federal Reserve Bank of New York is already doing preparatory work in addition to the Primary Dealers\(^6\). In any event, the Fed’s case will be watched closely; it is after all the institution that controls the volume of the world’s main currency in circulation. Higher inflation in the United States could lead to the greenback’s rapid depreciation and a major international slump, among other setbacks.

The United Kingdom continues to emphasize its need to increase monetary growth to achieve an annual inflation target of 2% in the medium term (graph 5). The Bank of England is clearly counting on quantitative easing mainly with unsterilized purchase of British government bonds (gilts) to stimulate consumer spending and soften current deflationary pressures. On November 5, 2009, the Bank announced that it would buy up to £25B (US$42B) more of gilts. In all, £200B (US$335B) in securities will be bought by the end of the year. Since the market for government securities is highly liquid, the Bank of England will be able to resell these securities in a timely manner, based on the level of liquidities needed when interest rates start to rise. Incidentally, the main details of the Bank of England’s exit strategy were disclosed at mid-year in an article published in the Quarterly Bulletin\(^7\). Rather than quickly selling the government bonds purchased, the Bank could instead issue its own debt securities to alleviate the possible consequences of selling a large number of gilts in a short amount of time.


to control interest rates, a central bank must be able to adjust the quantity of liquidities in the interbank market, which can be done despite an ongoing high balance sheet. That being said, the cost of money is easier to adjust when there are no surplus liquidities. In Canada for example, the unconventional policies were mainly financed by deposits by the federal government which does not generate any surplus liquidities on the market.

On the other hand, those central banks that have generated surplus liquidities can rely on the remuneration of excess reserves or on alternative sources of financing to raise their interest rates. The fact that most of the central banks provide remuneration for reserves enables them to drain off as much liquidity as is needed to raise interest rates, provided that the interest rate applied to the reserves is raised at the same time as the overnight rate. In fact, financial institutions have nothing to gain by lending each other funds at a rate lower than the interest rate on deposits at the central bank. Moreover, by turning to alternative sources of financing such as reverse repurchase agreements and the issuance of debt securities or term deposits, the central banks can adjust the supply of liquidities on the interbank market and carry out their conventional monetary policies while maintaining their full range of unconventional measures, if they wish.

**UNWINDING IS ALREADY UNDERWAY**

Concerns about the central banks’ ability to raise their interest rates may also be relieved by the fact that the central banks’ unwinding is already underway, and that a significant portion of the process should be completed before interest rate hikes start, which is expected in the second half of 2010. Since the unconventional measures adopted by the central banks are temporary, they will naturally come to an end as they reach their maturity dates. Moreover, the gradual recovery in the financial markets, which will result in reduced participation in the various assistance programs that exist, will accelerate the contraction of the central banks’ balance sheets.

The Fed publishes detailed statistics on its balance sheet every week, and a net reduction has been observed in the past few months in the use of its short-term assistance measures (graph 6). For many of them, the maturity date is scheduled for February 1, 2009, after a six-month extension was granted to them at the beginning of the summer. This applies, in particular, to the commercial paper purchase program, the Primary Credit Dealer Facility (PDCF), the Term Security Lending Facility (TSLF) and the special swap lines with foreign central banks. No maturity date has yet been set for the Term Auction Facility (TAF), but the flow has been reduced. The market likes this facility, since it avoids any stigma for the financial institutions that take advantage of it, as happens when they take out conventional loans of last resort (Discount Window).

Despite the contractions that have been observed, the Fed’s overall balance sheet is taking some time to diminish, because other, longer-term assistance programs are continuing to expand. The Fed recently completed its purchases of U.S. government bonds to the tune of US$300B, and between now and the end of the first quarter of 2010 will complete its purchase of US$1,250B of mortgage-backed securities and US$175B of federal agency debt securities. This means that the Fed’s balance sheet should expand further in the next few months, before stabilizing and finally undertaking a general slimming program (graph 7).

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In other parts of the world, the Bank of Japan announced on October 30 that it would put an end to its outright purchases of commercial papers at the end of this year, and would do likewise for its special funds-supplying operations to facilitate corporate financing by the end of March 2010. Starting in April 2010, the Bank of Japan will rely more on current funds-supplying transactions against pooled collateral to support the economy and the financial markets as needed. In Canada and in the euro zone, the longer-term special financing transactions carried out in the past few quarters should reach maturity during the next year and allow things to gradually return to normal, if no further issuances are required. As for the Central European Bank, it is pursuing a program of covered bond purchases in a total amount of €60G (US$90B), which should be completed by the end of June 2010. In the United Kingdom, the extraordinary measures consist mainly of outright gilt purchases, and there are no plans to sell them back any time soon.

**AN OVERLY SUDDEN TRANSITION WOULD BE RISKY**

The disengagement that has been started may strike some as too slow, but we must not lose sight of the objectives of the various programs. These are, among other things, to ensure that there is sufficient liquidity in the financial system, to reduce credit spreads and to stimulate economic activity. Although marked improvements have occurred in recent months, the situation is not completely back to normal, and the recent progress should not be taken for granted. Clearly, an overly quick disengagement would be risky for the stability and recovery of the financial markets, as well as for the sustainability of the nascent economic recovery. A precipitous sale of the assets accumulated by the central banks could generate upward pressure on all the interest rates, among other things, and could hamper the financing of government and corporate debt.

Furthermore, the central banks are not alone in having to wind down their activities over the next few quarters. The stagnation and coming reduction in government spending coinciding with the end of the stimulus plans will be a crucial step for most economies. Economic growth will have to come from the private sector, and this will not be a piece of cake, given the ongoing debt reduction by American households and the weakened state of certain industries due to the crisis. The central banks will have to take this into account in their decisions, especially since the stimulus plans are not the only measures coming to an end. For example, in the U.S., the Debt Guarantee Program, a component of the Temporary Liquidity Guarantee Program of the Federal Deposit Insurance Corporation (FDIC), will soon be over. The original plan was to cease offering those guarantees on debts issued after October 31 of this year, but a program to deal with emergency cases was set up until April 30, 2010 in order to ensure a smooth transition. A little over US$300B in short-term loans was guaranteed by the FDIC at the end of October.

**ANOTHER CONDITION IS ESSENTIAL TO MONETARY INFLATION**

Even though the level of excess reserves is high, the financial institutions are able and willing to lend more, and the central banks are in no hurry to wind down their operations and raise their interest rates, risks of monetary inflation could still remain low in the medium term. That is because another factor, which we have not discussed yet, comes into play: in order for inflationary risks to materialize, consumers and businesses must be able and willing to borrow more.

During the deflation episode that hit Japan a few years ago, the Bank of Japan adopted a very aggressive quantitative easing policy. The size of its balance sheet and the creation of reserves reached levels far higher than what we are seeing now (graph 8 on page 7). Nevertheless, it took a long time before there was any impact on prices and economic growth, due to low demand for credit. Many things can discourage households and businesses from borrowing more money. First of all, if they anticipate that prices will fall, this will curb their enthusiasm for borrowing due to the increase in real interest rates that this involves. Secondly, a significant loss of wealth can also change consumers’ behaviour and encourage them to save more. Finally, businesses’ decisions to invest, which are also sensitive to real interest rates, may be revised downwards due to high surplus production capacity and low expectations of profit.

**WHAT ABOUT OTHER INFLATIONARY RISKS?**

Factors such as the level of economic activity, job market conditions and the expectations of economic agents all have an impact on price trends, and it is important to consider them in a more comprehensive analysis of inflation. However, it would appear that with the exception of risks associated with expectations of inflation, very few indicators suggest that prices might rise quickly in the medium term.

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We must keep in mind that there have been significant downturns in production in many countries in recent quarters (graph 9). It will take time to recover those losses. In Japan, after an increase in real GDP in the second and third quarters, a gain of 6.3% would still be needed to match the production levels that prevailed before the crisis. In the U.K., the gap continues to widen and it would now take a gain of 6.2% to close it. The euro zone comes next with a shortfall of 4.1%, while Canada and the United States could be satisfied with gains of 3.4% and 3.1%, respectively. The U.S. economy enjoyed a respectable rally of 0.9% in its real GDP (not annualized) in the third quarter, which narrowed the gap by a little over 20%, but growth will not remain so high in the coming quarters.

That being said, the best indicator of pressure on prices is still the gap between real GDP and its potential. Even though potential GDP growth drops during a recession, which can speed up the return to full potential, the fact remains there’s a sizeable gap to be filled. This can be seen from the production capacity utilization rates, which have plunged sharply of late (graph 10). An increase in unemployment is also a good indicator of under-utilization of available resources (graph 11).

All of this excess supply has the effect of keeping a damper on prices, and this situation will not reverse itself overnight. Furthermore, deterioration in the job market prevents wages from climbing (graph 12); this variable has a strong impact on inflation rates in the medium term.

The only factor that could really generate risk of inflation is variation in expectations of inflation. When people anticipate...
that prices will rise, they tend to demand bigger wage increases, spend more and borrow more, which necessarily translates into price increases. For the time being, expectations seem to be entrenched near the inflation targets set by the central banks, but some people fear that despite explanations intended to quell fears of monetary inflation, economic agents could still anticipate significant price increases in the medium term.

The truth is that nothing guarantees that expectations of inflation will rise. Rationally, it can be demonstrated that the central banks have at hand all the tools they need to carry out their monetary policy successfully. On the other hand, a rational person can also analyze the problem from another angle. It then becomes a debate of opinions regarding the credibility of the central banks and the effectiveness of the tools available to them for managing the situation appropriately. As well, the agents need to base their expectations on analyses that are just as thorough. Some of them may simply be basing their expectations on past price trends, which are unlikely to pose a problem in the medium term. Lastly, a rational analysis has to look at more than just forecasts on monetary growth. The overall economic situation must also be taken into account. In short, while the risk of increased expectations of inflation is real, it appears to be fairly limited.

**CONCLUSION: INFLATION SHOULD NOT BE A PROBLEM IN THE YEARS AHEAD**

Despite the gigantic proportions that the balance sheets of certain central banks have reached, it is possible to avoid monetary inflation. Due to the creation of larger excess reserves in the U.S. and the U.K., those countries seem more exposed to the problem of monetary inflation. Nevertheless, a wide range of tools is available to central bankers to help them successfully disengage from the numerous measures they have been carrying out for more than a year now.

The interest rate on reserves will play a key role in the exit strategies and will also make it possible to raise the interest rates in the interbank market even before the central banks finish reducing their balance sheets. The use of reverse repurchase agreements and the issuance of debt securities or term deposits will help to reduce the surplus liquidity while allowing the central banks to maintain some assistance programs until such time as the financial system and the economy are able to function normally without the help of government authorities.

This opens the door to many options with respect to the sequence of decisions to be made by the central banks. They might maintain their objective of low, stable and predictable inflation in the medium term. Now that the issue of monetary inflation risk has been resolved, all the inflation risks seem to be contained. The excess supply in the production apparatus should slowly dwindle, allowing more time before it becomes necessary to start raising interest rates. The countries where monetary tightening has already started, such as Australia and Norway, had not recorded such substantial declines in production.

In any event, the central banks have already started gradually withdrawing many programs, especially those providing short-term financing; meanwhile, conditions in the interbank credit market have improved considerably. Assuming that the recovery, tepid though it may be, follows its course with no major hurdle, the majority of the central banks’ unconventional measures should come to an end some time in 2010. If necessary, the Fed could hold onto its longer-term assets (largely consisting of mortgage-backed securities) for a few more years. As for the Bank of England, it should not relinquish its gilts too quickly, for fear of generating undesirable interest rate fluctuations. Both of these central banks will probably have to manage a surplus of liquidities over a longer period of time.

Finally, the sequence of the central banks’ disengagement will certainly be influenced by the withdrawal of governments, whose stimulus plans will, for the most part, come to an end next year. Apart from a possible return of financial tensions, the recovery could be compromised if the available aid were to be withdrawn all at once at a time when private demand might be sluggish about stepping up to the plate. According to the worst scenario, in which demand for credit remained very weak, additional stimulus plans might be required; but the central banks might also have to roll up their sleeves and intensify their efforts (already considerable) without any fear of inflation such as Japan experienced a few years ago.

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