

David Longworth: Bank of Canada liquidity facilities – past, present, and future

Remarks by Mr David Longworth, Deputy Governor of the Bank of Canada, at the C D Howe Institute, Toronto, 17 February 2010.

* * *

Introduction

Thank you for inviting me here today. It is a pleasure to be with you. This afternoon, I would like to talk about liquidity and the role of the Bank of Canada. As was unmistakably brought home by the global financial crisis, it is critically important that financial institutions recognize and manage liquidity risk and, at the end of the day, it is essential that central banks respond to systemic liquidity shortages. Central banks are in a unique position to do this. They can create liquidity at virtually no cost. When they undertake liquidity support and are careful to guard against credit risk – as the Bank of Canada is – they do not impose any cost on the taxpayer. Furthermore, liquidity support does not imply inflationary monetary policy. This is because central bank balance sheets can be adjusted in ways that can lead to policy interest rates being maintained at appropriate levels and that do not lead to other sources of inflationary pressure.

In my remarks today, I will review how the Bank of Canada's liquidity measures,¹ including new measures introduced during the crisis, were guided by principles. I will discuss how these principles will continue to help us as we wind down our extraordinary liquidity facilities. Elaborating on one of those principles, I will endeavour to address how the provision of liquidity by the central bank can be done to minimize moral hazard, that is, the potential that actions of policy-makers provide an incentive to market players to take greater risks than they otherwise would. Finally, I will discuss what this may mean for the design and use of our facilities going forward.

I am sure no one has forgotten that day in September 2008, when Lehman Brothers went bankrupt, nor the messy aftermath that ensued in the days following. What was striking was the unprecedented spike in the cost of interbank borrowing, which then spread to other markets. Financial institutions around the world became unwilling to lend to each other, worsening an already difficult situation. Key intermediaries began to hoard liquid assets; some went so far as to put a stop, temporarily, to their market-making activities. At several points, interbank lending and other short-term funding markets, including for banks, ceased to exist for terms greater than overnight, thus making it clear that this was a shock of systemic importance.

In response, central banks and governments around the world took unprecedented action to stabilize the financial system and reduce the severity of the ensuing global recession. The Bank of Canada intervened repeatedly to provide liquidity to financial market participants to mitigate the risks of serious financial disturbances.

¹ See Appendix 1: Bank of Canada Liquidity Facilities, p. 11.

Going into the crisis, banks, globally, were highly leveraged² and had overestimated the ability of markets to provide liquidity in times of stress. They relied heavily on sources of funding, such as securitization, that disappeared as the crisis gained momentum. At the same time, their funding requirements were growing, because they were forced to take more assets back onto their balance sheets and because they had to meet a surge in demand for credit from those with bank credit lines who had previously relied on market sources of funding.

It is important to note that the decline in the liquidity of bank funding markets and the decline in the liquidity of asset markets in general are not unrelated. As was vividly demonstrated during the crisis, liquidity in asset markets is tightly intertwined with the ability of financial institutions to raise funds in money markets. Impairment in one market increased the likelihood of impairment in others. Indeed, market liquidity and funding liquidity of banks with trading operations are mutually reinforcing, creating the possibility of a “liquidity spiral” in a downward or upward direction.³

Central bank liquidity measures: pre-crisis

Prior to the crisis, the tools used by the Bank to provide liquidity to the financial system as a whole were measures designed primarily to reinforce our target for the overnight interest rate.⁴ These tools were – and still are – part of the Bank of Canada’s standard operating framework for the implementation of monetary policy. The main facility we use is the provision of settlement balances in the wholesale payments system – the Large Value Transfer System (LVTS) – which is supplemented, when required, by open market special purchase and resale agreements (SPRAs) and sale and repurchase agreements (SRAs).⁵

There are two facilities that can provide liquidity to individual financial institutions.⁶ First – and also intimately linked to the implementation of monetary policy, the achievement of the overnight rate target, and the settlement of the payments system – is our Standing Liquidity Facility at the Bank Rate. It provides liquidity, as required, to individual LVTS participants facing shortfalls in their end-of-day settlement balances.⁷ Second, our Emergency Lending Assistance, which has rarely been put to use, provides extraordinary liquidity support to solvent institutions that are facing serious and persistent liquidity problems.

² The leverage of the Canadian banks was capped by the existence of the asset-to-capital multiple set by the Office of the Superintendent of Financial Institutions. See A. Crawford, C. Graham, and É. Bordeleau, “Regulatory Constraints on Leverage: The Canadian Experience,” *Bank of Canada Financial System Review* (June 2009): 45–50.

³ See M. K. Brunnermeier and L. H. Pedersen, “Market Liquidity and Funding Liquidity,” *Review of Financial Studies*, 22, No. 6 (June 2009): 2201–38; and Markus K. Brunnermeier, “Deciphering the Liquidity and Credit Crunch 2007–2008,” *Journal of Economic Perspectives*, 23, No. 1 (Winter 2009): 77–100.

⁴ The overnight rate is the key means for achieving the Bank’s monetary policy objectives and the anchor of the yield curve.

⁵ Often referred to as a “repo,” or repurchase agreement, a PRA is a transaction in which the Bank of Canada offers to purchase Government of Canada securities from designated counterparties with an agreement to resell them at a predetermined price the next business day. Special PRAs (SPRAs) are transactions initiated by the Bank and are used to reinforce the target rate if overnight funds are generally trading above the target; these instruments add liquidity to the system. Alternatively, sale and repurchase agreements (SRAs) are used when overnight funds are generally trading below the target rate; these remove liquidity from the system.

⁶ See Bank of Canada, 2004, “Bank of Canada Lender-of-Last-Resort Policies,” *Bank of Canada Financial System Review* (December): 49–55, and F. Daniel, W. Engert, and D. Maclean, 2004–2005, “The Bank of Canada as Lender of Last Resort,” *Bank of Canada Review* (Winter): 3–16.

⁷ When LVTS participants are in deficit at the end of the day, and therefore need to access the Standing Liquidity Facility, aggregate participant deposits at the Bank of Canada will exceed the target for net settlement balances.

This simple set of facilities has long served the Bank and the financial system well and continues to do so.

Liquidity and monetary policy

In normal times, including just prior to the crisis, the focus of the Bank's liquidity measures was on supporting our monetary policy stance. Liquidity actions were designed and intended to affect aggregate levels of liquidity (often just intraday) to achieve our overnight rate target, rather than the distribution of liquidity within the system. This is because a well-functioning financial system normally allocates liquidity efficiently, which is critical to a central bank since it supports the effective transmission of monetary policy.

The crisis did not divert the Bank's focus from monetary policy. Just as before the crisis began, the Bank reinforced its target overnight rate *during* the crisis through the intraday use of SPRAs and SRAs, and, at the end of the day, the setting of the target for next-day settlement balances. Early in the crisis,⁸ these policy tools were used aggressively.

Five principles to guide extraordinary liquidity intervention

As global financial markets became more turbulent in the summer of 2007, central banks around the world realized that unusual measures might be necessary to provide liquidity to support financial stability. The Bank of Canada developed and then published in the spring of 2008 a set of five principles to guide its liquidity interventions. These principles were used to shape the design and application of our extraordinary liquidity facilities.⁹ Allow me to elaborate on these five principles.

- i. First, intervention should be **targeted**, aimed at mitigating only those market failures of system-wide importance with macroeconomic consequence that can be rectified by a central bank providing liquidity.
- ii. Second, intervention should be **graduated**, or commensurate with the severity of the problem.
- iii. Third, intervention should be **well designed**, using the right tools for the job: market-based transactions, provided through auction mechanisms, should be used to deal with market-wide liquidity problems, while loans should be used to address liquidity shortages affecting specific institutions.
- iv. Fourth, intervention should be at market-determined prices to **minimize distortions** and under conditions aligned with those in the market, to limit the possibility that the central bank will crowd out the return of markets.
- v. Fifth, and finally, the Bank should **mitigate the moral hazard of its intervention**. Such measures include limited, selective intervention; the promotion of the sound supervision of liquidity-risk management; and the use of penalty rates as appropriate.

⁸ From 9 August 2007 to 30 April 2008.

⁹ The development of these principles was influenced by work by the Bank for International Settlements' Committee on the Global Financial System; this work was published as CGFS Paper No. 31, "Central bank operations in response to the financial turmoil," in July 2008. For a more detailed discussion of the principles, see W. Engert, J. Selody, and C. Wilkins, "Financial Market Turmoil and Central Bank Intervention," Bank of Canada *Financial System Review* (June 2008): 71–78.

Liquidity measures to address the financial market turmoil

Guided by these then newly developed principles, the Bank gradually expanded its liquidity framework in four dimensions: terms to maturity, amounts, counterparties, and eligible securities.^{10, 11}

The first trigger came in the latter part of 2007 when liquidity in credit markets shrank around the world, including in Canada, with credit spreads rising dramatically on a broad range of assets. As the normal generation of liquidity among system participants broke down, there were implications for the broader financial system. To address these heightened pressures, the Bank of Canada conducted term purchase and resale agreements (PRAs) in December 2007 with primary dealers against an expanded set of eligible securities, with maturities extending past the end of the year. This marked the first time that liquidity operations extending beyond one business day were offered in support of funding liquidity.¹² Consistent with what would become our first principle, the Bank did not intervene until it became clear that liquidity distortions were taking on system-wide importance. With this measure, the Bank of Canada expanded its role to provide funding liquidity directly to major market participants to stabilize the financial system and to limit spillover effects to the broader economy.

In March 2008, in response to the pressures surrounding Bear Stearns, term PRAs were reintroduced, this time on a biweekly basis. In addition, the Bank expanded the set of assets acceptable as collateral to secure intraday exposures in the LVTS and, correspondingly, for loans provided under the Standing Liquidity Facility. We allowed certain types of asset-backed commercial paper (ABCP)¹³ to substitute for other, more-liquid collateral pledged in the LVTS, which, in turn, could be used more easily by financial institutions to obtain market-based funding. Later, in June of that year, to provide flexibility, we also allowed U.S. Treasury securities. These steps illustrated the second and third principles – that intervention should be commensurate with the severity of the problem and that it should use the appropriate tools for the job.

As the spring progressed in 2008, funding conditions in Canadian money markets had improved relative to those in other countries. So, guided by the principle that intervention should be commensurate with the problem, the Bank announced on July 10th that it would not renew maturing term PRAs.

In the autumn of 2008, as you all know well, severe financial market pressures suddenly re-emerged, sparked by a series of failures and near-failures of financial institutions in the United States and Europe. Lehman Brothers was not the only one, although it was the most significant failure. As I described a moment ago, the ability of both financial and non-financial borrowers to obtain market-based financing was seriously impaired. The deterioration in Canadian financial markets was much less severe than elsewhere, although liquidity was limited at all maturities, and trading volumes were thin.

¹⁰ For a more detailed discussion, see L. Zorn, C. Wilkins, and W. Engert, "Bank of Canada Liquidity Actions in Response to the Financial Market Turmoil," Bank of Canada *Bank of Canada Review* (Autumn 2009).

¹¹ The complementary liquidity facilities provided by the Government of Canada, such as the Insured Mortgage Purchase Program, were also important in addressing the financial market turmoil in Canada.

¹² Prior to December 2007, term PRAs had been conducted only on an occasional basis to manage the Bank's balance sheet and address seasonal fluctuations in the demand for bank notes. In addition, the December 1999 operations provided stable funding for the primary dealers over the "Y2K" period, given the uncertainty surrounding the ability of software to properly take into account the change to the year 2000.

¹³ There are strict eligibility requirements for ABCP securities, such that only those securities with minimal credit and liquidity risk are accepted. See: http://www.bankofcanada.ca/en/notices_fmd/2009/securities_collateral060309.pdf.

The Bank's term PRA facilities were resumed, under the existing terms and conditions.¹⁴ Within a few weeks, the Bank aggressively expanded its provision of liquidity, commensurate with the increasing severity of the crisis. The frequency of term PRAs was increased to weekly from biweekly; eligible counterparties were expanded to include LVTS participants in addition to primary dealers; and a 3-month term PRA maturity was added. The Bank also temporarily broadened the list of securities eligible as assets in term PRA transactions to include own-issued ABCP.

As the crisis deepened through the rest of the autumn of 2008, new measures were introduced. In October, the Bank temporarily broadened the list of assets accepted as collateral to include the Canadian-dollar non-mortgage loan portfolios of LVTS direct participants.¹⁵ These assets were eligible to secure intraday exposures in the LVTS and, correspondingly, to secure loans under the Standing Liquidity Facility. Also in October, because the traditional liquidity transmission mechanism was not operating, and thus to address liquidity shortages beyond our traditional counterparties, we introduced a new term PRA facility aimed directly at large participants in the money markets. In designing and implementing these tools, the Bank was guided in particular by the third principle, which recommends using the right tool for the job.

In November, we introduced a term loan facility at a penalty rate for direct participants in the LVTS, secured by their Canadian-dollar non-mortgage loan portfolios. Because this auction facility accepted these largely non-marketable, illiquid assets as collateral, participants in the LVTS were able to use their marketable, liquid collateral elsewhere. This loan facility was used to make liquidity available to individual financial institutions that may have had difficulties managing their balance sheets but whose problems were not serious enough to warrant Emergency Lending Assistance.

Later, in February 2009, the term PRA for money market instruments was broadened to provide liquidity to participants in Canadian private sector bond markets as well. Correspondingly, the list of securities accepted as collateral was broadened to include investment-grade corporate bonds.

In designing the term loan facility and the term PRA for private sector instruments, the Bank was guided by the fourth principle, which recommends minimizing market distortions. The facilities use an auction mechanism to allocate liquidity so that the price of liquidity is determined competitively by participants, rather than by the Bank. Both the term PRA facility for private sector instruments and the term loan facility were designed as backstop facilities with appropriate minimum bid rates, which provided the Bank with a natural means to exit from them when market sources of liquidity became a more cost-effective alternative for potential participants. In addition, the facilities were designed to preserve the existing market structures. Finally, intervention was aimed at mitigating liquidity risk that, in the Bank's judgment, was not in line with fundamentals; it did not attempt to alter credit risk.

The fifth principle, that we mitigate the moral hazard of our interventions, served and continues to serve as a guide at all levels of our liquidity program. The Bank of Canada took several precautions to mitigate the creation of perverse incentives that could adversely influence market behaviour. As I noted earlier, the Bank intervened only in response to specific, extraordinary episodes of heightened liquidity pressures. Moreover, the liquidity

¹⁴ The Bank also expanded its reciprocal currency swap arrangement with the U.S. Federal Reserve, in order to be able to provide up to \$30 billion of U.S.-dollar funding to domestic financial institutions, if necessary. (Such a need never arose in Canada, nor was it expected to.) The swap arrangement was part of coordinated central bank actions designed to address elevated pressures in U.S.-dollar short-term funding markets. Last month, it was announced that the swap arrangement has expired since it is no longer needed, given the improvements in financial market functioning in the past year. This decision respected the principle that measures be commensurate with the severity – or decline in severity – of the problem.

¹⁵ These were accepted at a collateral-to-portfolio value of 60 per cent.

facilities were introduced as temporary measures in order to reduce the incentives for participants to change their behaviour. The Bank has been working closely with the federal Department of Finance, the Office of the Superintendent of Financial Institutions (OSFI), and other domestic bodies to monitor the liquidity conditions of markets and financial institutions, as well as the liquidity risk management of major financial institutions. In addition, the Bank monitors the results of each liquidity operation. Finally, where applicable, the pricing of new facilities was constructed to preserve incentives to transact in private sector markets.

Liquidity facilities: the present

By the spring of last year, as financial market conditions continued to improve, participation in our liquidity operations diminished, indicating that the need for the Bank's support would likely be declining. Indeed, the amount of liquidity support had peaked at \$41 billion in December 2008. (It is currently some \$23 billion.)

It is important to note that at its April 2009 fixed announcement date, the Bank announced that it would introduce 6-month and 12-month PRAs with a minimum bid rate of 25 basis points and a maximum bid rate of 50 basis points to reinforce its conditional commitment to maintain its target for the overnight rate at the effective lower bound of 1/4 per cent until the end of June 2010. This was a new use for its term PRA facility.

At the end of June, prospective sunset dates for all of the Bank's extraordinary liquidity operations were announced. It is important to note that just as they served to guide the creation of our extraordinary liquidity facilities, the set of five principles was used to guide the winding down of these facilities, particularly principles (ii) and (iii), that interventions be commensurate with the severity of the problem and that the right tool be provided for the job.

At the end of July, the Bank lowered its pre-announced minimum amounts for the regular term PRA auctions as well as for the term PRA for private sector instruments and the term loan facility. At the end of October, the term loan facility and the term PRA facility for private sector instruments were terminated. The frequency of regular term PRA auctions was reduced from weekly to biweekly and, subsequently, to monthly. At the beginning of this month, we began to reduce the eligibility of non-mortgage loans as collateral for the Standing Liquidity Facility from 100 per cent to 20 per cent.¹⁶

The financial crisis has subsided, and financial conditions have improved significantly over the past ten months, both globally and in Canada. Through the crisis, the Bank's regular term PRA facility was used heavily and appears to have contributed to reduced market stress and a return to well-functioning money markets. In contrast, there was relatively little demand or need for funding from the term PRA facility for money market instruments, the term PRA facility for private sector instruments, and the term loan facility, which were all designed as backstops. That said, the presence of these facilities – including the latter two until the end of October 2009 – helped to mitigate uncertainty among market participants about the availability of liquidity.

Future: dealing with moral hazard and the provision of liquidity

I would now like to return to the issue of moral hazard. Recall that our fifth principle is the mitigation of the moral hazard associated with our interventions. Having gone through a financial crisis, we can be even more clear on how to do this. How can we *minimize* the potential that our actions provide incentives to market players to take increased risks?

¹⁶ This process will be complete by 1 April 2010.

There are three basic things a central bank can do to mitigate the moral hazard associated with its crisis interventions: (i) limit crisis intervention to significant systemic events, as we have done; (ii) encourage infrastructure development and regulatory reform that make the financial system more resilient to systemic shocks, thereby reducing the frequency and repetition of patterns leading to systemic events; and (iii) maintain a flexible intervention strategy that can deal with specific types of systemic problems as they evolve. This flexibility, which acknowledges the inherent uncertainty surrounding the timing and magnitude of systemic crises, means that individual system participants will not know in advance how to transfer risk to the central bank at artificially low prices.¹⁷ The use of auctions to price and distribute liquidity can be helpful in this regard.

I'd like to expand on the second element, making the financial system more resilient to shocks. To reduce the probability of a crisis, there are actions that can be taken by the central bank and by the prudential supervisor. The actions that the Bank of Canada has taken or is taking include:

- Encouraging and overseeing the implementation of liquidity-generating infrastructure, such as a central counterparty for repo trades, that help market participants self-insure against idiosyncratic shocks;¹⁸
- Maintaining standing facilities – our Standing Liquidity Facility and Emergency Lending Assistance – with either penalty rates or with stigma even in non-crisis times, which allow key institutions to determine when to approach the Bank as the lender of last resort for funds.¹⁹ This could stop large idiosyncratic shocks from cascading into systemic events;^{20, 21} and,
- Monitoring financial institution liquidity against tighter criteria (together with OSFI).

On the part of prudential supervisors, the following are actions that are under way or have been proposed and that can also help make the financial system more resilient and thus mitigate moral hazard:

- Establishing standards that encourage financial institutions to maintain sufficient liquidity to deal with the idiosyncratic or small systemic shocks they can expect to face and to have policies for sound liquidity management practices in place;²²

¹⁷ This is consistent with the advice developed in 2008, except for the element of co-insurance, which was considered to be a possible measure in the first iteration of the principles guiding the Bank's extraordinary liquidity interventions. The concept of co-insurance has been replaced by the idea that financial institutions self-insure against idiosyncratic shocks and that the central bank provides insurance only for systemic liquidity shocks. This change should be more effective in limiting moral hazard because it focuses more on containing the cause of moral hazard.

¹⁸ Other examples include standardized transparent securitization and through-the-cycle margining.

¹⁹ The Standing Liquidity Facility has a penalty rate (Bank Rate) and the Emergency Lending Assistance has stigma.

²⁰ Allowing key institutions to determine when to borrow from the central bank would reduce information collection and monitoring costs for the central bank, while the penalty rate and stigma would control the moral hazard associated with inappropriate use of the facility.

²¹ The terms and conditions of the Bank's collateral policy, including the size of haircuts, can also help to contain moral hazard.

²² The Basel Committee on Banking Supervision's press release of 17 December 2009 entitled, "Consultative proposals to strengthen the resilience of the banking sector announced by the Basel Committee" covers the introduction of "a global minimum liquidity standard for internationally active banks." See also C. A. Northcott and M. Zelmer, "Liquidity Standards in a Macroprudential Context," Bank of Canada *Financial System Review* (December 2009): 35–40; and "International framework for liquidity risk measurement, standards and monitoring," a consultative document issued by the Bank for International Settlements, December 2009.

- Strengthening capital regulations to ensure that risk is appropriately mitigated without imposing an excess regulatory burden on financial institutions or generating additional moral hazard from “not allowed to fail” policies;²³
- Ensuring that there are meaningful consequences to financial institution stakeholders who have responsibility for mitigating risk when mitigation strategies fail by, among other things, having a clear and transparent resolution mechanism and “living wills,” which can allow institutions to fail or to be quickly restructured;^{24, 25} and,
- Requiring the use of contingent capital or convertible capital instruments, perhaps in the form of a specific type of subordinated debt, to help ensure loss absorbency and thus reduce the likelihood of failure of a systemically important institution.²⁶

These are also the building blocks that can be used to reduce the probability of a crisis. The goal is to reach a destination where financial institutions, markets, and infrastructure play critical – and complementary – roles to support long-term economic prosperity.

As we move forward, it is important that financial system participants do not believe that our intervention in times of crisis implies a willingness to intervene in normal times. It is also important that we retain considerable flexibility about when and how to intervene in the next crisis to fulfill our mandate to be liquidity lender of last resort to the financial system in the event of a systemic shock.

For the Bank, the primary facilities used during the crisis, the term PRA and the term loan facility, should continue to be a part of the Bank’s toolkit, as is our Emergency Lending Assistance. In a crisis with a shortage of good quality collateral, the Bank would also consider a term securities lending facility to exchange good collateral for lower quality collateral – at the appropriate price – in order to support the functioning of core funding markets. Given potential changes to core market infrastructure (the implementation of central counterparties, for example), further study will also be important to determine the appropriate tools to address future liquidity issues.

²³ The Basel Committee on Banking Supervision press release of 17 December 2009 covers “raising the quality, consistency and transparency of the capital base” and “strengthening the risk coverage of the capital framework.”

²⁴ The Financial Stability Board (FSB) is working on “a package of measures to address the “too big to fail” problems associated with systemically important financial institutions,” which includes “improving the capacity to undertake an orderly resolution of a failing firm,” including one that operates cross-border. See the FSB press release of 9 January 2010 entitled, “Financial Stability Board meets on the financial reform agenda.”

²⁵ Canada has clear and transparent resolution mechanisms for federally regulated, deposit-taking financial institutions, which are periodically reviewed and enhanced as needed. For example, the Canada Deposit Insurance Corporation (CDIC) has long had powers to restructure and resolve troubled deposit-taking institutions, and in 1996 federal legislation was amended to give the Superintendent of Financial Institutions the authority to temporarily take control of an institution, and if necessary, request a winding-up order, subject to certain prescribed conditions and approval of the Minister of Finance. More recently, CDIC was granted the authority in 2008 to establish bridge banks to facilitate the restructuring of federally-regulated deposit-taking institutions.

²⁶ The BCBS press release of 11 January 2010 entitled, “Group of Central Bank Governors and Heads of Supervision reinforces Basel Committee reform package,” announces that the “Basel Committee is reviewing the role that contingent capital and convertible capital instruments could play in the regulatory capital framework.” See also “Considerations along the Path to Financial Regulatory Reform,” remarks by Superintendent Julie Dickson, Office of the Superintendent of Financial Institutions, 28 October 2009.

Conclusion

To conclude, the principles developed as the crisis began have served the Bank and, more importantly, the financial system well. Throughout the crisis, the Bank has been innovative and nimble.²⁷ In this period of winding down our temporary facilities, we are acting deliberately and thoughtfully, for example, by providing advance notice and by only gradually reducing both the amounts and frequencies of the auctions. We will continue to act in this manner as we move to reinforce the stability and resilience of the financial system – and, both in the near and longer term, we will continue to employ these principles to guide our actions.

²⁷ An example is allowing LVTS participants to assign their non-mortgage loan portfolios as eligible collateral for LVTS and SLF purposes, a practice that we have indicated will be partially kept in place going forward.