The Bank of Canada as Lender of Last Resort

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- *The Bank of Canada's lender-of-last-resort role includes the routine provision of liquidity to facilitate settlement in the payments system as well as the provision of liquidity in more exceptional situations.*
- *Following an internal review, the Bank published the policies governing its lender-of-last-resort activities in the* Financial System Review *(December 2004).*
- *The publication of its lender-of-last-resort policies promotes greater transparency and accountability for the Bank in this area.*
- *This article provides an overview of the Bank's lender-of-last-resort role.*

The role of lender of last resort (LLR) is common to central banks around the world; nevertheless, central banks operate under different frameworks in conducting their LLR activities. These differences reflect various country-specific factors, such as historical experience, public policy objectives, the structure of the domestic financial system and the payments system, the prudential supervisory framework, and the laws that govern the central bank and various domestic financial institutions.

In Canada, the Bank of Canada is the ultimate provider of Canadian-dollar liquidity to the financial system. The ability to undertake this function derives from the Bank of Canada Act (BoC Act), which gives the Bank the unique capacity to create Canadian-dollar claims on the central bank and the power to make secured loans or advances to chartered banks and other members of the Canadian Payments Association (CPA).

The Bank of Canada has distinct roles as lender of last resort.

- In its day-to-day operations, the Bank supplies overnight credit on a routine basis through the Standing Liquidity Facility (SLF) to direct participants in the Large Value Transfer System (LVTS). This virtually automatic provision of liquidity provides assurance to all participants in the system that they will be able to cover temporary shortfalls in settlement balances that can arise in the daily settlement of payments. The Bank's SLF arrangement contributes to the safe and efficient operation of the LVTS, which is Canada's systemically important payments system.
- The Bank can provide Emergency Lending Assistance (ELA) to deposit-taking institu-

1. Substantive contributions to this article were made by Jason Andreou, Clyde Goodlet, David Longworth, Carol-Ann Northcott, Sean O'Connor, and Robert Turnbull.

tions (DTIs) that are judged to be solvent and which require more substantial and prolonged credit. ELA is intended to overcome a particular type of market failure associated with DTIs that have a significant share of their liabilities as deposits (fixed-value promises to pay, redeemable at very short notice) and hold assets that are generally illiquid (e.g., commercial loans). DTIs can be vulnerable to sudden, large-scale redemptions of deposits that can lead to insolvency because a DTI's illiquid assets can be sold quickly only at substantial discounts. The purpose of the Bank's ELA is to prevent the failure of a DTI that is illiquid but solvent.

While the Bank's SLF and ELA arrangements are traditional LLR functions, the Bank can also provide liquidity in the following circumstance:

- In the rare situation where the Governor of the Bank of Canada is of the opinion that there is a severe and unusual stress on a financial market or financial system, the BoC Act allows the Bank to be a supplier of liquidity by purchasing a wide variety of securities issued by Canadian or foreign entities, including non-financial firms. The Bank would undertake such transactions for the purpose of promoting the stability of the Canadian financial system.[2]

The Bank of Canada has recently completed a comprehensive review of its LLR activities. Several developments over the past few years motivated this review. These developments include the expansion in 2002 of the types of institutions eligible to become members of the CPA and, thus, able to participate directly in the payments system; new international linkages, in particular, the entry of foreign bank branches into Canada in 1999; greater sensitivity to the potential need by Canadian institutions for foreign currency liquidity (this concern was particularly evident in the lead-up to the year 2000); changes in the supervisory framework for federally regulated financial institutions; and, more generally, the view that it would be timely to examine the Bank's LLR regime in the context of the Bank's role of promoting financial stability.

In this article, the policy framework that guides the Bank of Canada's LLR function is discussed, as are the key issues associated with the Bank's SLF and ELA activities.[3] These include the terms and conditions of both arrangements, access and eligibility provisions, and the Bank's management of ELA lending. This is followed by a discussion of foreign currency ELA. We also consider the relationship between SLF and ELA, and discuss systemic risk and Bank of Canada intervention. We conclude by discussing the potential provision of liquidity to major clearing and settlement systems.

The Bank of Canada's Standing Liquidity Facility

The Bank of Canada provides services to certain payment, clearing, and settlement systems and their participants.[4] As part of its activities as lender of last resort, the Bank supplies liquidity via its SLF to direct participants in the LVTS, which is a real-time, electronic funds-transfer system that processes large-value and time-sensitive payments with finality throughout the day. The LVTS is a systemically important payments system, i.e., a system that because of the size or nature of the payments it processes can trigger or transmit serious shocks across domestic financial systems or markets.[5] The LVTS is owned and operated by the CPA.

Under its SLF arrangements, the Bank provides collateralized overnight loans to direct participants in the LVTS that experience temporary shortfalls in their settlement balances. These routine loans provide participants with a reliable source of liquidity should they need to fund their end-of-day payment obligations. In the absence of the Bank's SLF, it is not clear that alternative arrangements could provide a reliable source of liquidity in all circumstances. And, in those circumstances where alternative arrangements might work, they would be more expensive requiring, for example, that participants hold larger precautionary balances at the central bank. Thus, the Bank's SLF contributes to a payments system that is safe and efficient. In turn, the

2. The Bank of Canada considers LLR activities to be limited to those discussed in the body of this article. However, there are other ways that the Bank can provide liquidity, such as lowering its target for the overnight interest rate, which is the instrument for the implementation of monetary policy.

3. The Bank's specific LLR policies have been posted on its website at <http://www.bankofcanada.ca/en/payments/llr.html>.

4. For descriptions of Canada's two payments systems (the Large Value Transfer System and the Automated Clearing Settlement System), see Dingle (1998) and Northcott (2002).

5. The Payment Clearing and Settlement Act refers to systemic risk as domino or spillover effects where the inability of one financial institution to fulfill its payment obligations in a timely fashion in a clearing and settlement system results in the inability of other financial institutions to fulfill their obligations in that clearing and settlement system or in other systems, or results in the failure of that clearing house or other clearing houses.

LVTS is used by other parts of the Canadian financial system and the economy more generally to make large-value or time-sensitive payments in a safe and efficient manner.

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Canada's other payments system is the Automated Clearing Settlement System (ACSS). The ACSS is also owned and operated by the CPA and is used for payments not handled by the LVTS, such as paper cheques, automated bill payments, and debit-card transactions. With the introduction of next-day settlement in the ACSS in November 2003, the Bank's SLF is no longer required for the normal operation of the ACSS. Under the new system, direct clearers in the ACSS know the amount of their net ACSS settlement positions in the morning after items are entered into the clearing process. Those participants with negative clearing balances make an LVTS payment to their ACSS subaccount at the Bank of Canada; previously, those participants would have taken an ACSS overdraft loan from the Bank.[6]

Terms and conditions of the SLF

The terms and conditions associated with the Bank's SLF are set out in "Bank of Canada Rules Governing Advances to Financial Institutions."[7] The terms and conditions for borrowing under SLF are set so as to encourage LVTS participants to use the interbank market to fund end-of-day payment obligations. The interest rate charged by the Bank on overnight loans (called the Bank Rate) is set at 25 basis points above the Bank's target for the overnight rate, which is the average interest rate that the Bank wants to see in the marketplace for overnight (one-day) loans between financial institutions.[8] This encourages direct participants in the LVTS to reduce any net deficit payment positions by undertaking interbank transactions in the "pre-settlement period" at the end of the LVTS day; in effect, there is a cost incentive for participants to obtain the liquidity that they need from the market, rather than from the central bank. In practice, end-of-day advances extended by the Bank to participants in the LVTS tend to be relatively small.[9]

All loans provided under the Bank's SLF are made on a secured basis. The collateral eligible to secure credit from the SLF is the same as that eligible for intraday credit in the LVTS. These securities are valued at market value less an appropriate margin, or "haircut," to protect the Bank from market risk. This is the risk that the collateral may decline in market value and result in insufficient proceeds to cover the amount loaned in the extremely unlikely event of the borrower failing. The framework that the Bank uses to determine the appropriate margins focuses on broad categories or classes of issuers. These categories are securities issued by the Government of Canada, securities guaranteed by the federal government, provincial bonds, provincial-guaranteed bonds, and private sector debt obligations (further segregated by credit rating). Margins are larger for less-creditworthy categories and longer maturities.[10]

Access to Bank of Canada settlement accounts and the SLF

The CPA's bylaws require direct participants in the LVTS and the ACSS to be members of the CPA and to maintain settlement accounts at the Bank of Canada. Prior to the coming into force of the Canadian Payments Act in 2001,[11] membership in the CPA included all banks operating in Canada, trust and loan companies, credit union centrals and federations of caisses populaires, and other DTIs. At that time, it was the Bank of Canada's practice to provide settlement accounts and, concurrently, access to its SLF arrange-

6. SLF is still available to direct clearers in the ACSS but this would be required only if the LVTS system were unavailable or if a participant were unable to connect to the system. For more information on the introduction of next-day settlement in the ACSS, see Tuer (2003).

7. This document is available on the Bank's website at <http://wwwbankofcanada.ca/en/payments/rules.htm#rules>.

8. The target for the overnight rate, which is at the centre of the Bank's operating band for the overnight rate, is the main instrument used by the Bank to implement monetary policy. For more information, see Howard (1998).

9. In 2004, the Bank provided 72 overnight LVTS advances with an average value of $30 million per advance. Forty-seven of these advances were under $10 million.

10. Currently, margins range from 1 per cent to 15 per cent. The list of eligible collateral and the applicable margins is set out in "Securities Eligible as Collateral under the Bank of Canada Standing Liquidity Facility," which is available on the Bank's website at <http://www.bankofcanada.ca/en/payments/rules.htm#collateral>.

11. The Canadian Payments Act replaced the Canadian Payments Association Act.

ments, to any deposit-taking financial institution that met the CPA's criteria for direct participation in the LVTS or the ACSS.[12] Subsequently, the Canadian Payments Act expanded the types of financial institutions eligible to join the CPA to include life insurance companies, securities dealers, and money market mutual funds. With more diverse types of institutions now eligible for CPA membership, the Bank has re-examined the conditions for providing access to settlement accounts and its SLF arrangements to institutions. (To date, no firm from any class of institution that is newly eligible for CPA membership has applied to become a member of the CPA and, consequently, none has applied to become a direct participant in the LVTS or ACSS.)

The various classes of financial institutions eligible for CPA membership, and therefore able to hold settlement accounts at the Bank, are subject to different bankruptcy laws and regulatory regimes. Accordingly, for some classes of institutions, the Bank probably would not be able to recover funds from any unsecured portion of a loan in the event of default. To reduce this risk, the Bank may therefore use haircuts on collateral that vary for different classes of borrowing institution, or may set different restrictions on the quantities of corporate securities that can be pledged by different classes of institutions.

The Bank decides on a case-by-case basis whether to provide a particular institution access to a settlement account and access to its SLF arrangements. In general, access would be given to an institution that is a member in the CPA on condition that the institution:

- participates directly in the LVTS or the ACSS;
- in the case of ACSS direct clearers, settles all net ACSS positions with LVTS payments credited to its ACSS settlement account at the Bank of Canada;
- provides the Bank with valid and enforceable first-priority security in collateral of a type that is acceptable to the Bank;
- provides acceptable legal documentation to support the Bank's security interest in pledged collateral; and
- accepts the collateral terms and conditions that may be set by the Bank, which take

12. In addition to the need to be a member of the CPA and to maintain a settlement account at the Bank of Canada, other criteria for a financial institution wishing to become a direct participant in the LVTS include having access to the Society for Worldwide Interbank Financial Telecommunication (SWIFT) in Canada, and having the technical capability for its LVTS operations.

Box 1: The Financial Institutions Supervisory Committee

The Financial Institutions Supervisory Committee (FISC) was established in 1987 pursuant to the Office of the Superintendent of Financial Institutions Act (OSFI). Its membership consists of the Superintendent of Financial Institutions (who acts as chair), the Deputy Minister of Finance, the Governor of the Bank of Canada, the chairperson of the Canada Deposit Insurance Corporation (CDIC), and (since 2001) the Commissioner of the Financial Consumer Agency of Canada. The FISC meets regularly to discuss matters related to the supervision of financial institutions. It is also a forum for consultation and information exchange on supervisory matters that have implications for solvency, last-resort lending, and the risk of deposit-insurance payout. The FISC is intended to give the Superintendent, who is responsible for judgments pertaining to the viability and solvency of federal financial institutions, the full benefit of views of the deposit insurer and the lender of last resort when making supervisory decisions.

The FISC also serves as a forum to coordinate strategies of its member agencies when dealing with troubled institutions. According to its terms of reference, the functions of the FISC include:

- exchanging information with regard to the health of financial institutions and to the identification of potential problem situations and assisting the represented agencies to develop and implement strategies for dealing with such matters;
- assessing the impact of unexpected developments in financial markets on the financial conditions of financial institutions; and
- discussing strategies to deal with financial institutions facing serious difficulties, assessing the adequacy of action plans designed to resolve their problems, and exchanging information relevant to progress or lack thereof in handling the situation.

into account varying exposures to credit risk across different types of institutions.

In the case of a foreign bank branch, the Bank would also seek favourable legal opinions regarding the applicability of the laws of its home country to the Bank's ability to establish a valid security interest in collateral that is pledged.

Upon receiving an application for a settlement facility, the Bank would notify the institution's regulator that the institution intends to open a settlement account. For a federally regulated financial institution, it is expected that such notification would be provided as a matter of course through the Financial Institutions Supervisory Committee (FISC). (See Box 1 for a discussion of the FISC.)

The Bank of Canada's Emergency Lending Assistance

The purpose and objectives of ELA

The classical lender-of-last resort doctrine was developed during the nineteenth century. The original concept of LLR concerns the actions taken, often by the central bank, in a period of financial stress in order to preserve the liquidity of the financial system. The most common application of LLR theory involves sudden, unexpected withdrawals by a large number of depositors (i.e., a run) at an individual bank or, more generally, at a deposit-taking institution (DTI). Currently, measures taken by the central bank to address such circumstances are associated with its ELA role.

The rationale for the central bank to supply ELA in such situations is based on the idea that a DTI, because of the nature of its activities, is vulnerable to a sudden loss of depositor confidence. A DTI uses liquid, fixed-value deposits (liabilities) to fund illiquid, longer-term loans (assets). The liquidity and maturity mismatch between the assets and liabilities on its balance sheet is a significant source of the valuable role played by DTIs. In undertaking this activity, a DTI relies on depositors in aggregate to not withdraw more than a fraction of their funds at any given time. However, an institution that loses market confidence can be faced with a run and might be unable to raise replacement funds at or near their usual rates of interest, even though the institution is solvent. This can lead to the insolvency of the institution because a DTI's illiquid assets can be sold quickly only if they are subject to substantial discounts. It is this market failure—a sudden, large-scale withdrawal of liquidity from a solvent DTI—that is addressed by the provision of ELA by the central bank.

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The interbank market, in such situations, may not always function efficiently because interbank participants might have access to incomplete information, with the possibility that doubts could arise about the solvency of an institution that is in fact sound. Additionally, in times of stress, the interbank market may become more cautious. Lenders might be reluctant to take on risks that they would normally accept, as incomplete information leaves them uncertain about the nature of the risks involved in interbank lending. Another situation that can lead to the inefficient functioning of the interbank market occurs when lending institutions become concerned that their own sources of liquidity may be less reliable than usual. In these circumstances, banks may reduce the volume of funds that they lend in the interbank market, setting up a situation of self-fulfilling expectations.

Some classes of financial institutions that are not DTIs issue deposit-like instruments and other claims. As a practical matter, the challenge is judging the point at which these instruments are a sufficiently important source of funding, and assets are sufficiently illiquid, such that these classes of institutions would be considered vulnerable to the kind of market failure described above. More generally, for a number of reasons, it is also increasingly unlikely that DTIs will experience this kind of market failure. (The Bank has used ELA only rarely—it has not provided ELA to any institution since the mid-1980s; see Box 2.) For example, assets of DTIs are becoming more liquid with increased opportunities for securitizing or selling loans on secondary markets. Changes in the regulatory environment at the federal level have also decreased the probability of a run occurring. These changes include the establishment of a clear mandate for the Office of the Superintendent of Financial Institutions (OSFI) that focuses on

Box 2: Some Episodes of Bank of Canada ELA

Historically, very few chartered banks in Canada have experienced liquidity crises. The first case in recent times of a bank receiving liquidity support from the central bank occurred in 1977, when the Bank of Canada advanced funds to the Unity Bank of Canada (UB), a relatively small chartered bank. The UB had experienced problem loans, and large creditors withdrew funds when they became aware of the bank's financial problems. The Bank of Canada provided ELA over a three-month period and, in the event, the UB amalgamated with the Provincial Bank of Canada. (In 1979, the Provincial Bank merged with the Bank Canadian National to become the National Bank of Canada.)

Another episode involving more prolonged ELA from the Bank of Canada occurred in 1985 and involved the Canadian Commercial Bank (CCB) and the Northland Bank (NB), two small regional banks whose financial condition had been deteriorating.[1] The Bank provided ELA for approximately six months, until September 1985, when the Inspector General of Banks (the bank supervisor at that time) advised that in his opinion the banks could no longer be considered viable operations, and the Department of Finance announced that both the CCB and the NB were to be wound-up and liquidated. The amount of the Bank's loans reached a peak of more than $1.3 billion to the CCB and more than $500 million to the NB.

In the aftermath of the CCB and NB failures, there was a loss of confidence in some other small banks, in particular, the Bank of British Columbia, the Continental Bank of Canada, and the Mercantile Bank of Canada. The Bank of Canada acted as lender of last resort and provided ELA of more than $5 billion to these institutions. The liquidity support from the central bank provided time for various market solutions and alternative arrangements to be explored, with the result that the Mercantile Bank merged with the National Bank of Canada, the Hong Kong Bank of Canada purchased most of the assets and assumed the bulk of the liabilities of the Bank of British Columbia, and Lloyd's Bank of Canada bought a substantial portion of the assets and assumed most of the liabilities of the Continental Bank.

1. The Bank's involvement with the CCB initially began in January 1983, when a security agreement between the Bank and the CCB was arranged for the possible provision of liquidity support. In the event, the CCB did not borrow from the Bank under the terms of that agreement, which was terminated in October 1983.

protecting the interests of depositors and other creditors, and giving OSFI and the CDIC the authority and obligation to act promptly with regard to troubled institutions.

Terms and conditions of ELA

The terms and conditions attached to ELA serve a dual function: they provide the Bank with protection against credit and legal risks in situations where such risks may be greater than normal; and they promote the view that the Bank is the lender of last resort, rather than the lender of preferred resort, thus dealing in part with concerns about moral hazard. (See Box 3 for a discussion of moral hazard.) In other words, institutions should not draw on ELA for routine liquidity management. While specific terms and conditions attached to ELA would be contained in the individual loan agreement established between the Bank and the borrowing institution, the following describes the general considerations that would apply.

The terms and conditions attached to ELA . . . promote the view that the Bank is the lender of last resort, rather than the lender of preferred resort.

Term to maturity: Under the BoC Act, the Bank is permitted to provide loans with a term to maturity not exceeding six months. The loans can be renewed for further periods, up to six months each. In practice, it would be expected that an ELA loan agreement between the Bank and the borrowing institution would provide for a one-day revolving facility in which the Bank would have the discretion to decline to make any further one-day loans.

Rate of interest: Under the BoC Act, the minimum interest rate that the Bank can charge on ELA is the Bank Rate. While the Bank has discretion to charge a higher interest rate if it sees fit, in its limited experience with ELA situations, the Bank has charged the Bank Rate.

Collateral: Under its statutes, the Bank is required to lend on a secured basis. The Bank is willing to take a broader range of collateral for ELA than it accepts for credit under the SLF. In practice, it would be expected that the borrowing institution would use its holdings of marketable securities to obtain liquidity from the private sector before approaching the Bank for ELA. If appropriate, the Bank could provide ELA loans on the pledge or hypothecation of assets that are not subject to as precise a valuation as are readily marketable securities. For example, the Bank may provide loans against the security of the Canadian-dollar non-mortgage loan portfolio of the institution, which can make up a significant portion of the institution's assets.[13] Because the composition of a loan portfolio changes over time and the valuation of individual loans is subject to fluctuation, the Bank would likely take as security a floating charge against the institution's loan portfolio. The provision of ELA loans initially would likely constitute only a small fraction of the assessed value of the institution's loan portfolio but could rise over

13. Under the law, mortgages are considered to be a conveyance of "real property," which the Bank cannot take as collateral. In cases where the primary assets available to an institution to secure Bank lending are mortgages, the security interest would have to be structured as an assignment of the mortgage receivables only, and not as an assignment of the mortgages themselves.

Box 3: Moral Hazard

Moral hazard with regard to LLR occurs when an act or public policy reduces market discipline and provides incentives to DTIs to take excessive risks. In the case of the provision of ELA, moral hazard arises because such policies can encourage institutions that potentially have access to such advances from the central bank to be less cautious in managing their liquidity positions. Market discipline is reduced because unsecured creditors may also expect the central bank to provide these institutions with sufficient liquidity to pay their liabilities as they come due. Because unsecured creditors may be confident that they will be able to withdraw their funds from these institutions without incurring any losses, they will not monitor these institutions as closely as they might otherwise.

Moral hazard can be controlled by promoting market discipline through the creation of appropriate incentives for institutions and investors, and establishing a strong prudential supervisory framework, including provisions for the management of liquidity risk. As well, policy-makers need to be careful not to extend the scope of their actions beyond what is necessary to achieve clear public policy objectives. The terms and conditions associated with the Bank of Canada's ELA are intended to reinforce the fact that the Bank is the lender of last resort, rather than the lender of preferred resort. Also, institutions have an incentive to avoid using ELA because they would be subject to heightened supervisory attention, and there could also be negative reputational effects from such borrowing.

One particular concern is that an insolvent institution might try to obtain ELA to buy time to develop a high-risk strategy ("a gamble for resurrection"). Thus, it is the Bank's policy to provide ELA only to those institutions that are judged to be solvent. The Bank relies primarily on OSFI to provide a judgment on solvency.

The regulatory and supervisory framework administered by OSFI is important in controlling moral hazard. The supervisory process focuses on having financial institutions implement policies and procedures that prudently manage risks. In addition, OSFI's mandate emphasizes the importance of early intervention in the affairs of troubled institutions. In this regard, OSFI and the CDIC have developed the "Guide to Intervention for Federal Financial Institutions."[1] The guide provides a framework for responding effectively to circumstances that could threaten the solvency of a financial institution. With a formal process for early intervention and early resolution, there is greater likelihood of averting costly failures by discouraging institutions from taking excessive risks and by promptly dealing with troubled financial institutions.

1. The guide is available on the OSFI website at <http://www.osfi-bsif.gc.ca/eng/documents/practices/pages/index.asp?id=1995>, and on the CDIC website at <http://www.cdic.ca/?id=26>.

time, subject to an upper limit that the Bank would set, which would depend on the nature of the portfolio.

Eligibility criteria for ELA

The Bank's ELA and SLF have different objectives, and it therefore follows that different types of financial institutions would be eligible for each of these arrangements. In addition, the risks faced by the Bank are greater under ELA than under SLF. In the case of SLF, access is a routine part of an institution's operations in the payments system; there is no presumption of a protracted liquidity problem or solvency risk; and the loans are secured by high-quality, liquid assets. In contrast, ELA situations are complex; they are typically characterized by protracted liquidity problems; there are solvency concerns evidenced by the inability of the financial institution to raise the needed funds from the private sector; and the collateral used to secure ELA is typically illiquid and difficult to value.

As a result of the significant risk inherent in ELA situations, the following considerations are important for the Bank:

- ELA is used to address a particular market failure, described above, that can occur because of the liquidity and maturity differences between the assets and liabilities held by certain types of financial institutions in their normal course of business. The Bank provides ELA only to classes of institutions that are vulnerable to this market failure.
- The availability of ELA should not encourage excessive risk-taking by financial institutions. To minimize moral-hazard concerns and to avoid impairing the interests of unsecured creditors of the institution, it is the Bank's policy to provide ELA only to those institutions that are judged to be solvent. ELA does not—and could not—correct the capital problems of an insolvent institution: while ELA enables an institution to pay its liabilities as they come due, it does not create new capital for an insolvent institution, and thus it does not remedy the negative net worth of an institution. Any decision to make a capital injection in an insolvent firm would be a matter for private investors or, in extremely rare circumstances, public authorities. Therefore, as part of the Bank's due diligence, it is important for the Bank to have timely and accurate judgments on solvency for any institution requesting or using ELA. The Bank relies primarily on the institution's prudential supervisor to provide judgments on solvency.
- Since the Bank relies primarily on prudential supervisors for judgments on solvency and, if necessary, for remedial measures and collaboration on work-out strategies, a sound supervisory framework is critical for ELA decisions and ELA management. Such a framework would include a clear supervisory mandate, adequate supervisory authority, and a program of early intervention in troubled institutions. In the absence of such a framework, and without information-sharing protocols and a close working relationship between the Bank and the supervisory agency, it would be difficult for the Bank to obtain timely and accurate judgments on solvency. Finally, a strong supervisory framework mitigates incentives for supervisors to delay dealing with a problem institution; such forbearance could shift risks to the Bank.
- The BoC Act requires the Bank to lend on a secured basis, and the Bank endeavours to minimize its exposure to loss in the event of default by the borrowing financial institution. Thus, it is important for the Bank to have a valid first-priority security interest in any collateral pledged to support ELA.

Implications regarding eligibility for ELA

The above considerations have the following implications for the eligibility of various classes of institutions for ELA:

- Federally incorporated banks (including foreign bank subsidiaries) and federally incorporated trust and loan corporations would be eligible for ELA.[14] These firms are susceptible to the relevant market failure referred to above. The Bank can be confident of receiving timely and accurate information regarding the solvency of these institutions from the federal supervisor. And the federal supervisory regime provides a reliable means to establish remedial

14. In the case of trust companies, the "in-trust" nature of the assets held by such a firm means that ELA could be provided only through a loan secured by company assets, or through an outright purchase of assets associated with provisions to sell the assets back to the trust company at predetermined prices.

measures and to implement work-out strategies. The CDIC can also act as a provider of liquidity to its member institutions (both federal and provincial) through purchases of assets, and loans or advances (with or without security).[15]

- Insurance companies, mutual funds, and investment dealers would not be eligible for ELA, since they do not issue deposits and hold a significant share of their assets in illiquid, hard-to-value claims. However, see the section on "Systemic Risk and Bank of Canada Intervention."
- Credit union locals and caisses populaires would not generally be eligible for ELA. In most cases, these institutions have access to provincial centrals, the Corporation de Fonds de Sécurité de la Confédération Desjardins (CFSCD), or the Credit Union Central of Canada (CUCC) for liquidity assistance. As well, very few credit union locals or caisses populaires are members of the CPA.
- In the case of an extraordinary, widespread event that would have significant, adverse consequences for a provincial credit union / caisse populaire system, the Bank would consider providing ELA through the CUCC, a provincial central, the Caisse centrale Desjardins, or the Fédération des caisses Desjardins, as appropriate, provided that legal arrangements satisfactory to the Bank were established by these entities.[16]
- With regard to foreign bank branches, in a prospective ELA situation, it could be difficult to receive timely and accurate information on solvency from foreign supervisors, and to successfully manage the conflicts in incentives faced by the relevant supervisors when interacting with the Bank in such cases. There can also be legal complications and risks with regard to establishing a security interest for the Bank in some of the assets of these institutions in an ELA situation. Accordingly, foreign bank branches would not normally be eligible for ELA. Nevertheless, in very exceptional circumstances where the home central bank was unable to lend for a day or two for operational reasons (e.g., if it was a statutory holiday in the country of the home central bank), the Bank of Canada could provide interim lending for a very brief period, typically against collateral that would be eligible for credit through the SLF.

The above discussion sets out various conditions for the provision of Bank of Canada ELA. Other central banks, for a variety of reasons, operate under different frameworks in conducting their lender-of-last-resort function. For a brief discussion of some of these differences, see Box 4.

The management of ELA with respect to financial institutions subject to federal regulation would be in close collaboration with OSFI and other members of the Financial Institutions Supervisory Committee.

Managing ELA

The management of ELA with respect to financial institutions subject to federal regulation would be in close collaboration with OSFI and other members of the FISC. In the event that ELA is provided to an institution, the Bank would immediately confirm such lending with the FISC. The FISC would serve as the primary forum for the exchange of information and coordination of strategies of member agencies regarding an institution receiving ELA. When providing ELA, the Bank would request the FISC, or a subcommittee of the FISC, to meet at least weekly to consider the situation. An institution using ELA would be required to provide a business plan to OSFI that outlined remedial measures to rectify its liquidity problems, and to provide increased reporting (data and other information) on its evolving situation. In addition, the FISC would coordinate con-

15. CDIC's capacity to provide liquidity support is limited by its own funds and its borrowing. CDIC has authority to borrow funds from the capital markets or from the Consolidated Revenue Fund, subject to ministerial approval. The total amount of such borrowings cannot exceed $6 billion.

16. Such lending could require the establishment of particular legal mechanisms to allow the Bank to take a security interest in the assets of a credit union or caisse populaire. (See, for example, footnote 13.) It could also require a process of rehypothecation of the collateral to the provincial central, the CUCC, or Caisse centrale Desjardins. These arrangements can be complex and costly to set up. The Bank is prepared to work with relevant institutions to prepare the legal groundwork for such arrangements.

Box 4: Some Differences in the Frameworks That Govern Lender-of-Last-Resort Activities

As mentioned in the introduction to this article, central banks, for a variety of reasons, operate under different frameworks in conducting their lender-of-last-resort functions. One difference concerns the context in which the central bank will provide ELA. For example, the Bank of Canada will provide liquidity support to an institution if it is judged to be solvent, if it meets the criteria for eligibility for ELA, and if it complies with the terms and conditions for ELA (e.g., supplies sufficient collateral of an acceptable type). The rationale for providing ELA in such situations is to prevent the failure of a deposit-taking institution that is illiquid but solvent. Some other central banks condition ELA on different factors, such as the existence of systemic risk.[1]

Another aspect of the LLR framework that can differ among central banks is the degree of transparency and accountability that surrounds ELA. In this regard, the Bank of Canada has chosen to publish its ELA policies,[2] whereas some other central banks have chosen not to publish their policies so as to create some uncertainty as to when or whether the central bank might undertake ELA interventions. Central banks also differ on the use of risk-capital support: it is the Bank of Canada's view that capital injections in an insolvent firm are not a matter for LLR.[3]

Ultimately, it is the responsibility of the authorities to choose a framework that governs the central bank's LLR function so as to best achieve clear public policy objectives.

1. For instance, when acting as lender of last resort, the Swiss National Bank can provide emergency liquidity assistance for one or more domestic banks on the basis of the following conditions: the bank or group of banks requiring credit must be of systemic importance for the stability of the financial system; the bank requiring credit must be solvent; and sufficient collateral must be provided at all times to cover liquidity assistance. A bank or group of banks is of systemic importance if its inability to pay would seriously impair the functioning of the Swiss financial system or major parts thereof and have a negative impact on the economy. (See "Guidelines of the Swiss National Bank (SNB) on Monetary Policy Instruments," Swiss National Bank, 30 April 2004, p. 9, available on the Swiss National Bank website at http://129.35.233.49/d/download/geldpol_instr_e.pdf.)

2. Sweden's central bank is an example of another central bank that has made public its policies regarding LLR. (See "The Riksbank's Role as Lender of Last Resort," *Financial Stability Report* 2/2003, Sveriges Riksbank.)

3. Several of' these types of issues are discussed in "Lender of Last Resort: A Review of the Literature," by X. Freixas et al., *Financial Stability Review,* November 1999, Bank of England.

tingency planning, including possible private sector solutions, as well as alternative work-out arrangements. While the repayment of SLF loans is routine, terminating ELA is likely to be more complicated. If all goes well, the management of ELA would focus on normalizing the institution's position in the market, or facilitating a merger of the institution, such that ELA could be expeditiously withdrawn.

The Bank has established internal procedures to manage ELA to promote accountability for decision-making and good governance. The following are the main features of the Bank's ELA management procedures:

- The Bank's Financial System Committee (FSC)[17] would meet immediately and then at least weekly to review any ongoing ELA, formally reconsider the borrowing institution's solvency and the appropriateness of continuing to provide ELA, as well as the limits on lending to the institution.
- If it was felt necessary, the Bank could hire a third-party agent to perform an examination of the financial condition of the institution.
- The ELA loan agreements between the Bank and the borrowing institution would create a one-day, revolving facility in which the Bank would have discretion to decline to make any further one-day loans. This would allow the Bank to readily cease ELA if it judged that the borrowing institution was insolvent, or that the available collateral to support ELA was at a higher risk of being inadequate.
- The Bank would cease ELA when this was judged by the Bank to be appropriate, most

17. The FSC comprises the members of the Bank's Governing Council, the General Counsel/Corporate Secretary, the Regulatory Policy Adviser, and the Chief of the Communications Department.

notably, when the institution was judged by the Bank to be insolvent, on the basis of information received from OSFI and possibly from third-party agents, or when available collateral was inadequate to support further ELA.

- If the Bank became aware of a borrowing institution's insolvency or pending insolvency, it would refrain from taking any new collateral as security for outstanding advances made when the institution was still solvent. At the same time, the FISC would be working to implement an orderly work-out.

Foreign currency ELA

For some Canadian financial institutions, foreign currency liquidity is important. This is illustrated by the fact that assets and liabilities denominated in foreign currency represent about 40 per cent, respectively, of Canadian banks' aggregate assets and liabilities on their balance sheet, with a very large proportion of this denominated in U.S. dollars. This reflects the importance of Canada's trade activities, and the presence of Canadian banks in the global economy. Canadian banks have often sought growth opportunities outside the country, particularly in the United States, and some Canadian banks have adopted business strategies that focus on North America.

For the Bank, providing liquidity support in a foreign currency is considerably more difficult than providing Canadian-dollar ELA: while the Bank can create liquidity in Canadian dollars, it cannot do so in foreign currencies. This reinforces the importance for Canadian financial institutions to have in place a sound framework for the management of foreign currency liquidity risks, and to establish reliable arrangements for private sector liquidity support in foreign currencies relevant to their business. Such liquidity arrangements should provide adequate diversification in the potential sources of foreign currency liquidity funding as well as contingency planning. In addition, where possible, Canadian financial institutions should arrange access through foreign central banks to liquidity facilities in those currencies important to their business.

Provided that the institution qualified for ELA, the Bank could lend Canadian dollars on a collateralized basis to the illiquid institution which, in turn, could purchase the needed foreign currency in the market with those Canadian dollars.

The Relationship Between SLF and ELA

The Bank's SLF is used to address a temporary maldistribution of liquidity among direct participants in the payments system. In contrast, the Bank's ELA deals with fundamental and potentially persistent liquidity problems where the institution is denied liquidity by market participants, typically because of credit concerns. In practice, it might not always be immediately known to the central bank whether an institution requesting SLF loans needs the liquidity for its payment activities or whether the institution is experiencing liquidity problems of a more persistent nature. Indeed, for reputational reasons, it might be expected that a troubled institution would initially use SLF on a frequent or repeated basis, rather than request ELA from the central bank. Thus, it is important for the Bank, as well as the supervisory authority, to know whether an institution is using SLF as a substitute for ELA, and whether the institution is being denied access to market liquidity for reasons related to solvency concerns, for example.

The Bank would rely on various signs to indicate whether an institution is using SLF as a substitute for ELA:

- The Bank's market intelligence might detect that the institution is being forced to pay higher interest rate spreads to raise funds in the money market.
- There might be a steady increase in the amount of the institution's SLF borrowing, indicating that the institution could be experiencing a net outflow of deposits and the withdrawal of funds by creditors. The amount borrowed under the SLF by the institution could also increase significantly relative to the size of its balance sheet.
- There could be a noticeable reduction in the bilateral credit lines granted to the institution in the LVTS. This could indicate that market participants are reducing their potential exposure to the institution because of credit concerns.
- The institution could have difficulty providing sufficient collateral that is eligible for the Bank's SLF. If the institution ran out of eligible collateral for SLF, it would be forced to request ELA, which can be secured by a broader range of assets.

OSFI is also an important source of information in determining whether an institution is using SLF as a substitute for ELA. In the course of monitoring and examining the institution, OSFI could discover that the financial health of the institution has deteriorated and that the risk of protracted liquidity problems has increased. OSFI is responsible for sharing this type of information with the FISC.

In the event that the Bank identifies a situation where a financial institution is making use of SLF for ELA-type borrowing, the following would apply:

- If the institution were considered to be eligible for ELA, the Bank would initiate internal processes for managing ELA activity, would require the institution to sign additional ELA legal documentation, and would request that appropriate actions be conducted at the FISC.
- For other LVTS participants that are not considered to be eligible for ELA, upon identifying ELA-type borrowing, the Bank would indicate to the financial institution that additional borrowing based on a broader range of collateral would not be granted, and the Bank would contact the institution's regulator. The Bank would deny access to additional liquidity once the institution had exhausted its SLF-eligible collateral.

Systemic Risk and Bank of Canada Intervention

In 1997, an amendment was made to the BoC Act (paragraph 18 (g.1)) such that "if the Governor is of the opinion that there is a severe or unusual stress on a financial market or financial system," the Bank can purchase a wide variety of securities issued by Canadian or foreign entities, including non-financial firms. The BoC Act specifies that such transactions are "for the purpose of promoting the stability of the

Box 5: Bank of Canada Liquidity Operations

Some authors consider all means of liquidity provision by central banks at times of stress to be part of the role of lender of last resort. The Bank of Canada considers LLR activities to be limited to those discussed in the body of this article. However, there are several other ways in which the Bank can provide liquidity, including in situations of stress. The following are the typical ways these operations are implemented:

- Most importantly, the Bank can lower its target rate for the overnight interest rate, which is the instrument for the implementation of monetary policy decisions.
- If the overnight rate is generally trading above the target rate, the Bank can intervene with Special Purchase and Resale Agreements (SPRAs), commonly referred to as "repos," which add funds to the system, and so encourage the overnight rate towards the target rate.[1]
- The Bank can increase the level of excess settlement balances on deposit in the LVTS to support the smooth operation of the system. (For example, this is typically done at, and near, month-ends.) Adjustments to the level of excess settlement balances were undertaken following the terrorist attacks on the United States on 11 September 2001, in response to a temporary increase in the demand for settlement-balance holdings. The Bank increased the level of excess settlement balances in the LVTS to $1 billion from the typical $50 million. This reassured financial institutions that even if they did not receive their expected payment inflows, they would still have access to needed funds. As part of this action, the Bank also offered to carry out SPRAs with primary dealers at the overnight rate.
- In times of heightened financial stress, the Bank can also reinforce its actions through public statements that indicate that the Bank stands ready to ensure the availability of sufficient liquidity in the financial system to meet fully any increase in demand and to support the smooth functioning of the Canadian financial system.

1. If the overnight rate is generally trading below the target rate, the Bank can intervene with Sale and Repurchase Agreements (SRAs), commonly referred to as "reverses," which withdraw funds from the system, and so encourage the overnight rate towards the target rate.

Canadian financial system." In effect, the Bank can use this authority to provide liquidity to a broad range of financial and non-financial institutions when the Governor of the Bank judges that such transactions are justified to safeguard the safety and soundness of Canada's financial system. This does not include more general liquidity provided through the Bank's monetary policy actions or at times of stress in the financial system (see Box 5).

To promote transparency and accountability, if the Bank undertakes such transactions, Section 19 of the BoC Act requires the Bank to publish a notice in the *Canada Gazette* stating that "the Governor has formed an opinion that there is a severe and unusual stress on a financial market or financial system. The notice is to be published as soon as the Governor is of the opinion that its publication will not materially contribute to the stress to which the notice relates." In addition, the Bank would be expected to fully disclose and justify these transactions in its public statements, including its *Annual Report*.

If problems in a financial institution not eligible for ELA under the above policy (but a CPA member) could, in the Bank's judgment, lead to severe and unusual stress on a financial market or financial system, then the Bank may choose to make a liquidity loan instead of making purchases or undertaking repos under paragraph 18 (g.1).

The powers given to the Bank under paragraph 18 (g.1) of the BoC Act are intended to be used only in very exceptional circumstances. The Bank has never entered into any transactions under this provision of the BoC Act.

Clearing and Settlement Systems

In the event that an LVTS participant defaults, the Bank of Canada could be obliged (under LVTS bylaws) to knowingly lend to an insolvent institution, on the basis of collateral pledged earlier.[18] More specifically, the Bank would be obliged to lend to the defaulting institution on the day of failure against previously pledged collateral to settle that member's obligations to other participants in the LVTS, and so protect against systemic risk.

In the extremely unlikely event of the failure of more than one LVTS participant on the same day during LVTS operating hours, where the sum of the exposures of the failed participants exceeds the value of all the collateral pledged in the system, the Bank of Canada guarantees settlement of the LVTS.[19] In this event, the Bank could be obliged to lend to a failed institution, on a partially unsecured basis, to ensure settlement of the LVTS and so protect against systemic risk.

As noted, the likelihood of this scenario is extremely remote, and the fact that participants pledge collateral sufficient to cover the single largest possible default provides a large element of co-insurance (a deductible) that provides strong incentives for LVTS participants to manage their risks prudently in the system.

Finally, under the provisions of the Payment Clearing and Settlement Act, the Bank of Canada has the power to make liquidity loans to the clearinghouse or central counterparty of a clearing and settlement system designated for oversight by the Bank.

18. To secure potential payment obligations, LVTS participants pledge in advance sufficient collateral to cover the single largest possible settlement obligation.

19. The Bank provides such a guarantee to ensure certainty of settlement of the LVTS in all possible circumstances. For more on these and related points, see Goodlet (1997, 2001).

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