The Role of Credit Ratings in Managing Credit Risk in Federal Treasury Activities

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The ongoing turbulence in financial markets has been accompanied by growing concern that the use of credit ratings may have encouraged some investors to rely too heavily on ratings as a summary statistic of risk. The Bank of Canada has raised the issue of overreliance on credit ratings through public speeches and in an article in the previous issue of the *Financial System Review* (Zelmer 2007).

Like many other central banks and market participants, the Bank of Canada (the Bank) uses a variety of tools, including credit ratings, in the management of credit risk in its own activities and in those that it carries out for the federal government (the government) as its fiscal agent. This report provides a brief overview of the credit risk management frameworks used by the Bank and the government and how credit ratings are used in these frameworks. As is outlined below, the Bank and the government are careful to avoid placing too much reliance on ratings.

Credit Risk

Credit risk can be defined as the risk that a counterparty may fail to meet its obligations as they come due: that is, the risk of default. In its broadest sense, credit risk also includes the risk of a decline in the market value of investments that may arise from a deterioration in the credit quality of a counterparty. This is known as credit transition risk.

The Bank is exposed to credit risk through its routine advances to members of the Canadian Payments Association (CPA) and through market transactions conducted in the form of purchase and resale agreements (PRAs) and loans of securities. The amount of credit risk borne by the Bank is modest, however, because these transactions are fully collateralized with high-quality securities denominated in Canadian dollars.[1] In the unlikely event of a counterparty default, collateral can be liquidated to offset the credit exposure. The credit quality of collateral is managed through a set of restrictions tied to asset type, credit ratings, and the term to maturity of the securities pledged as collateral.

Credit risk is also evident in activities that the Bank conducts for the government as its fiscal agent. Credit risk arises from the investment of Canada's foreign reserves, held in the Exchange Fund Account (EFA), in financial instruments issued by non-Canadian sovereign governments, their agencies, official international institutions, and major foreign financial institutions. Credit risk is also engendered in the funding of reserves when swap transactions are conducted with major Canadian and foreign banks to transform domestic-currency debt into foreign-currency obligations. And it is present in the government's Canadian-dollar cash balances, which are invested in short-term deposits issued by the major financial institutions operating in Canada.

Credit-risk policies have been established for all of these treasury activities to ensure that credit risk is kept to a minimum. These policies specify the types of transactions that can be conducted, the range of counterparties permitted, minimum credit-quality thresholds, and how credit ratings are used in the assessment of credit risk. More broadly, the policies seek to minimize credit risk by promoting the use of a diversified pool of highly rated counterparties and, where appropriate, collateral frameworks.

1. In December 2007, the Bank of Canada announced its intention to broaden eligible collateral for the Standard Liquidity Facility to include U.S. Treasuries by mid-2008. Details available at <http://www.bankofcanada.ca/en/notices_fmd/2007/not121207a.html>.

Why and How Credit Ratings Are Used

Credit ratings published by the major rating agencies offer important benefits to market participants and public institutions. They provide a commonly recognized source of independent opinions on creditworthiness, which can serve as a useful starting point for assessing the credit quality of counterparties and their financial instruments. The use of credit ratings is also cost-effective, because rating agencies benefit from economies of scale in assessing credit risk. Indeed, agencies rate almost all of the counterparties used in the treasury activities of the Bank and the government. But credit ratings are not flawless indicators of credit risk. Rating agencies have been periodically criticized for, among other things, overreliance on historical information and for being slow to react to new information.

Thus, the Bank and the government use credit ratings in a prudent fashion. For any given credit rating, exposure limits and collateral haircut margins vary across asset classes. For example, the investment limits and collateral haircuts for AAA-rated government securities are more generous than those applicable to similarly rated private sector instruments in recognition of the fact that the former are generally more liquid than the latter. By the same token, the Bank and the government have refrained from investing in, or accepting as collateral, some highly rated structured products, when the assets in question were judged to be incompatible with the objectives governing investment and collateral-management activities.

In selecting which rating agencies to use, the Bank and the government adhere to market practice by using agencies that are widely accepted by private investors in the relevant markets and that have been recognized by the regulators of those markets (e.g., the U.S. Securities and Exchange Commission for markets operating in the United States). Hence, the Bank and the government have chosen to rely on credit ratings published by four rating agencies: Dominion Bond Rating Service (DBRS), Fitch Rating Service, Moody's Investors Service, and Standard & Poor's.

Ratings from these four agencies are used to assign a credit-quality grade to each counterparty, security issuer, or security issue. Thus, the credit-quality grade essentially represents the consensus of the agency ratings. The number of external credit ratings used depends on rating availability and on the type of activity. Most activities require a minimum of two ratings, and when the rating agencies post different credit ratings, the credit-quality grade is usually based on the second-highest rating in accordance with the standardized credit-risk methodology proposed by Basel II.[2] Moody's and DBRS recently introduced new methodologies for rating commercial banks. These procedures explicitly consider the likelihood of external support (e.g., government or central bank support) in the determination of their ratings for commercial banks. This has led the Bank and the government to review the appropriateness of the official credit ratings for commercial banks from these two agencies and to start using their "stand-alone" ratings for commercial banks instead. (See Box 1 for additional information on DBRS and Moody's new rating methodologies and their implications for the treasury activities of the Bank and the government.) The next three sections describe how ratings are used in treasury activities. Further details can be found on the Bank of Canada and Department of Finance websites.

Management of the Exchange Fund Account

The Exchange Fund Account is the main repository for Canada's foreign reserves. Assets held in the EFA are managed by the Bank on behalf of the government in accordance with investment policies approved by the Minister of Finance. Assets in the EFA are invested mainly in highly rated securities issued by sovereigns, their agencies, and official international institutions. Investments in short-term securities, deposits, commercial paper, and certificates of deposit issued by major foreign institutions are also permitted. Investments in more complex securities, such as those that have embedded options and prepayment risk, structured products, and other asset classes not listed above are prohibited.

The assets in the EFA are managed against a portfolio of dedicated liabilities that are matched in terms of duration and currency. Funding

2. See the treatment of multiple credit ratings in "Credit Risk—the Standardised Approach" in Part 2, Section II.C.2 of: *International Convergence of Capital Measurement and Capital Standards: A Revised Framework*, available at <http://www.bis.org/publ/bcbs107.pdf>.

Box 1

Stand-Alone Ratings

In late 2006 and early 2007, DBRS and Moody's implemented new methodologies for rating commercial banks. The new procedures are based partly on their presumption that, in the event of default, governments (and central banks) would likely stand behind the liabilities of major systemically important commercial banks. As a result, when the new rating methods were unveiled, many commercial banks were given higher credit ratings by DBRS and Moody's.

The methodologies highlight a fundamental issue for governments and central banks. That is, should they rely on credit ratings that are based partly on the presumption that they would come to the aid of systemically important commercial banks? While other market participants may be willing to accept the new rating procedures, from a risk-management perspective, it is inconsistent for the Bank and the government to use ratings that are partly based on their own credit strength and on their presumed willingness to provide support to the banking sector.

As a result, the Bank and the government have decided to rely on the Bank Financial Strength Ratings published by Moody's and on the Intrinsic Assessment ratings published by DBRS when assessing the credit quality of commercial bank counterparties in EFA investment and funding activities.

Such stand-alone ratings are also used in the Standing Liquidity Facility to assess the sponsors of asset-backed commercial paper pledged as collateral. The latter must be sponsored by a deposit-taking institution that is federally or provincially regulated and that has a minimum stand-alone credit rating equivalent to a credit rating of at least A- from at least two rating agencies.

requirements are met primarily through an ongoing program of cross-currency swaps, whereby domestic-currency liabilities are transformed into foreign-currency liabilities in accordance with the swap-management policies approved by the Minister of Finance. The government is exposed to credit risk when swaps increase in market value, because it could experience a loss if swaps had to be replaced following the default of a counterparty.

Credit risk is mitigated in the foreign assets and liabilities by setting limits on credit exposure that foster an appropriate diversification of counterparties and investments. Exposure limits vary across asset classes and according to credit quality within each asset class. Credit ratings published by rating agencies are used to determine: (i) the eligibility of a counterparty and (ii) exposure limits for individual counterparties within each asset class. To be eligible for investment, a counterparty or security issuer must have a minimum credit rating of A- from at least two of the four rating agencies.[3] In practice, however, almost all EFA investments are placed with sovereigns, sovereign agencies, and official international institutions that are rated AAA, while most private sector counterparties are rated at least AA-. Thus, the allowance of exposures rated below AA- is meant to facilitate an orderly reduction in exposures if a counterparty is downgraded below that category. Within each asset class, stronger-rated counterparties receive larger exposure limits than those that have lower ratings. Since credit ratings change periodically, they are continuously monitored, and exposure limits are updated accordingly.

While credit ratings are used to determine counterparty eligibility and to set exposure limits, exposures vary within those limits. Investment and swap transactions are executed based on their specific return and risk characteristics and on the credit outlook for the counterparties or the security issuers. Exposure limits are not often used to their fullest. Moreover, exposures have been kept well below limits when credit assessments by the Bank and the government suggested that uncertainty surrounding the credit quality of a counterparty was higher than normal and was not fully reflected in public credit ratings. Thus, while credit ratings help set the parameters

3. Rating references in this document use the Standard & Poor's ratings scale for illustrative purposes.

of the investment framework, they do not drive the day-to-day investment and funding of the foreign reserves within those parameters.

Management of Receiver General Cash Balances

The management of the government's Canadian-dollar cash balances differs from the investment of the foreign reserves in that the former are placed with counterparties on a short-term basis through a deposit-auction process rather than on the basis of transactions initiated by the Bank on behalf of the government. Consequently, exposure levels are determined by the counterparties themselves, subject to maximum bidding limits. Hence, the determination of the eligibility of participants and the setting of bidding limits must be thorough and transparent so that the rules are understood by all auction participants before the auctions take place. Thus, the option of using internal credit assessments to gauge the credit quality of counterparties and to set counterparty exposure limits is not practical. Instead, credit risk related to Receiver General deposit auctions is mitigated mainly by (i) promoting a diversified set of counterparties through the use of individual bidding limits that are partly linked to credit ratings; (ii) typically limiting the term of deposits to several business days; and (iii) where possible, taking collateral to limit the amount of uncollateralized exposures.

Receiver General cash balances are invested through twice-daily auctions (morning and afternoon). Most of the government's funds are usually auctioned in the morning, for terms that can range up to several business days, and are carried out on a collateralized and uncollateralized basis. Eligible participants include a broad range of counterparties whose bidding limits for uncollateralized funds are based in part on their credit ratings. For example, they are required to have minimum credit ratings of A- from at least two rating agencies, and those with higher ratings receive larger uncollateralized bidding limits. The rules of the auction process are clearly formulated and are publicly available.[4]

4. The rules of the auction process can be found in "Terms and Conditions Governing the Morning Auction of Receiver General Cash Balances" on the Bank of Canada's website at <http://www.bankofcanada.ca/en/auction/rec_general.pdf>.

In contrast, the afternoon auction takes place late in the day, after the government's financial flows for the day have been finalized. Since the auction takes place after the close of the delivery-versus-payment period of the automated securities settlement system (CDSX) operated by the Canadian Depository for Securities Ltd., it is not possible to conduct securities transfers at the same time as cash settlement. Instead, credit risk in this auction is mitigated by restricting access to direct participants in the Large Value Transfer System (LVTS) and by limiting the term of these deposits to overnight. Bidding limits for this auction are based on the size of the institution in the Canadian financial system based on Canadian Payments Association ratios, which represent an institution's share of total Canadian-dollar deposits.

Collateral Management

As mentioned, collateral is also used to protect the Bank and the government against loss from a credit event. In the case of a counterparty default, the proceeds from liquidating collateral can be used to offset exposure from the underlying transaction. The legal agreements in place, which must be signed by each counterparty (or participant) before any transaction occurs, are used to ensure that the Bank or the government obtains a valid, first-priority security interest in the pledged collateral under the applicable law, while establishing, when applicable, thresholds where the Bank or the government have rights to make margin calls for additional collateral as needed. The collateral frameworks of the Bank and the government have been enhanced from time to time, in keeping with good market practice and their own business requirements. With the broadening of eligible securities in recent years, credit ratings have been used to help determine which securities can be pledged under the various collateral frameworks. With the inclusion of securities other than government-guaranteed securities in the eligible collateral pools, the need arose for a transparent mechanism to establish the creditworthiness of collateral so that pledgers understand ahead of time which securities can be pledged as collateral in the Bank's treasury activities and how they will be valued and haircut.

In fiscal-agent activities, non-U.S. and non-Canadian government securities pledged as collateral for EFA securities lending or in support

of Receiver General deposits must adhere to minimum credit-rating thresholds of AA- and A-, respectively. In contrast, only U.S. Treasury, U.S. Agency, and Canadian government securities can be pledged as collateral in support of EFA tri-party repo and swap transactions. In the case of swaps, credit ratings are also used to set predetermined thresholds for margin calls of additional collateral. This mechanical approach is unavoidable since swaps are long-term contracts that must contain explicit contingency plans for credit migration.

For its own activities, the Bank can lend only on a secured basis and thus has collateral frameworks in place to support its operations under the Standing Liquidity Facility (SLF) and in its activities involving securities-lending and purchase and resale agreements.[5] The Bank uses credit ratings, in combination with other mechanisms, to set eligibility requirements for securities and applicable collateral haircuts or margin requirements.

In its role as lender of last resort, the Bank routinely provides liquidity to facilitate settlement in the payments system through the SLF by providing collateralized overnight loans to participants in the LVTS. The Bank establishes the list of assets acceptable for pledging as collateral and provides valuations of pledged securities. The latter are valued on a daily basis at current market prices less an appropriate haircut to protect the Bank against unexpected fluctuations in their market value. The Bank determines the appropriate haircuts based on its own analysis of the market and the liquidity risks of the securities in question.[6] In particular, the Bank has found it useful to establish haircuts that vary depending on asset class, tenor, and credit quality of the security.[7] Credit ratings play a dual role in this process. First, they are used to help determine the minimum acceptable credit quality of a security. Second, they are used, in combination with other indicators of market and liquidity risk, to determine haircut levels for acceptable securities. In practice, haircuts are larger for lower-rated assets and for those with longer maturities, since the prices of these securities tend to exhibit greater volatility, and their markets tend to be less liquid.[8] There are, however, other safeguards in place to mitigate collateral risk: pledgers may not pledge their own securities; and, in the case of private sector securities pledged as collateral under the SLF, pledgers cannot pledge more than 20 per cent of the securities of related issuers to promote a diversified pool of private sector securities pledged as collateral.

The Bank also uses a collateral framework to mitigate credit risk in its own market operations. These are conducted in the form of PRAs and loans of its own holdings of Government of Canada securities. Through its PRAs, the Bank offers to temporarily purchase specific securities from designated counterparties with an agreement to sell them back at a predetermined price and date. Under its securities-lending program, the Bank makes its Government of Canada securities available through a tender process when there are indications that those securities are unavailable or trading at an unusually high premium in the market. Only primary dealers are eligible to participate in these activities, however, since they are the main market makers in the markets for Government of Canada securities, and thus have the strongest need for access to funding and securities from the Bank to help promote the liquidity of those markets. Thus, credit ratings are not used to determine who can access those facilities. Instead, they are used only to set eligibility and haircut requirements for securities pledged as collateral.

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5. Terms and conditions of these programs are set out in the document "Securities Eligible as Collateral under the Bank of Canada Standing Liquidity Facility" <http://www.bankofcanada.ca/en/financial/securities.pdf> and "The Bank of Canada Securities-Lending Program: Terms and Conditions" <http://www.bankofcanada.ca/en/notices_fmd/2003/terms_en0403.pdf>.
6. A haircut is a percentage that is subtracted from the market value of the assets that are being pledged as collateral. The size of the haircut reflects the market and liquidity risks associated with the assets.
7. Securities acceptable as collateral for SLF loans are also eligible for intraday credit in the LVTS.
8. For example, a haircut of 1.5 per cent is applied to a security issued by the Government of Canada with a 5-year term, while a haircut of 7.5 per cent is applied to any asset-backed commercial paper (ABCP) pledged as collateral. In the case of ABCP pledged as collateral, the pledger cannot be the sponsor or financial services agent for the ABCP program, nor can the pledger be the provider of liquidity support to the program.

Conclusion

The need for a more sophisticated approach to managing credit risk in the treasury activities of the Bank and the government has grown over time. Credit risk in these activities was traditionally managed by restricting the list of eligible counterparties to a small set of institutions and by accepting only government-guaranteed securities as collateral. However, a more comprehensive and transparent framework for managing credit risk became necessary as the list of eligible counterparties and collateral expanded over time. This naturally led to the use of credit ratings published by external rating agencies to help assess the credit quality of counterparties and of the securities pledged as collateral.

Credit-rating agencies provide a well-recognized opinion on creditworthiness for a wide range of counterparties and financial instruments. Many investors have found it cost-effective to rely on their opinions because rating agencies benefit from economies of scale in assessing credit risk. These benefits have led many central banks and market participants to use credit ratings to help determine counterparty eligibility requirements and to set credit-exposure limits.

The Bank and the government use a variety of techniques to assess and manage credit risk, including rating-based frameworks in which judgment is applied. For example, they seek to transact with a wide range of counterparties and to minimize uncollateralized credit exposures. Furthermore, in the case of the Exchange Fund Account, exposures have been kept well below limit when the Bank and the government believe that the uncertainty surrounding the credit opinion is higher than normal and not fully reflected in public credit ratings. Thus, while external credit ratings are embedded in many facets of the treasury activities of the Bank and the government, they are not accorded undue weight as a summary statistic of risk. Credit ratings are only one of many tools used to manage credit risk in these activities.

References

Zelmer, M. 2007. "Reforming the Credit-Rating Process." Bank of Canada *Financial System Review* (December): 51–57.