# The "Bank" at the Bank of Canada

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- The Bank of Canada, within its Funds Management function, is responsible for providing banking services to specific types of clients, thereby supporting the implementation of Canada's monetary policy framework, the wellfunctioning of the domestic financial system and global financial stability.
- Banking services comprise the provision of bank accounts, securities accounts and safekeeping services, Canadian-dollar payments, settlement services to payment clearing and settlement systems, and fully collateralized loans.
- These services are limited in terms of scope and client base and are currently provided to the Government of Canada, financial market infrastructures, Canadian financial institutions, foreign central banks and official international financial organizations, and a Crown corporation.

As Canada's central bank, the Bank of Canada's principal role is "to promote the economic and financial welfare of Canada," as defined in the Bank of Canada Act. Supporting this overarching objective, the Bank has four main responsibilities: monetary policy; promoting a safe, sound and efficient financial system<sup>1</sup> within Canada and internationally; designing and issuing bank notes; and acting as fiscal agent and banker to the Government of Canada, including managing the public debt programs and foreign exchange reserves.

In support of these functions, the Bank offers banking and securities safekeeping services to specific types of clients. This article describes the range of banking services that the Bank offers and explains why the Bank provides these services.

### **Central Bank Money**

The Bank of Canada is unique in its ability to provide a risk-free settlement asset for Canadian-dollar transactions. Financial transactions can be settled using different forms of money, including deposits held with commercial banks, credit extended by commercial banks, bank notes in circulation and deposits held at the Bank of Canada. While the first two forms involve some

1 The financial system consists of payments systems, financial institutions and financial markets.

 The Bank offers banking and securities safekeeping services to specific types of clients

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credit risk (that of the commercial bank), the latter two options, as direct liabilities of the central bank (i.e., central bank money), can provide risk-free final settlement since the central bank has no risk of default or bankruptcy.<sup>2</sup> As well, the central bank is operationally sound and therefore the provision of its settlement services is assured on a continuous basis. The Bank can also provide liquidity to ensure the completion of the settlement process and thus the smooth functioning of the financial system overall.

The ability to settle payments safely and efficiently is vital to the smooth functioning of the financial system. Bank notes, while useful for retail transactions, cannot provide an efficient means of settling large transactions across financial institutions. To facilitate this activity, the Bank provides services to a limited group of eligible clients where there is a clear financial stability rationale to do so.

## The Bank's Banking Services and Clients

The legal framework for the banking services that the Bank can offer is provided in the Bank of Canada Act and the Payment Clearing and Settlement Act (PCSA). In line with these acts, some of the Bank's clients, such as members of the Canadian Payments Association (CPA) that are direct participants in the payments system, must hold accounts at the Bank. Other clients, such as foreign central banks, choose to do so. The Bank's intention is not to compete with the private sector and, while the Bank earns some revenues from these activities, they are done strictly on a cost-recovery basis. Rather than being guided by a profit motive, the Bank's underlying policy objective is to provide services to promote financial stability.

The banking services that the Bank offers its clients generally comprise the provision of Canadian-dollar overnight deposit accounts, securities accounts and safekeeping services for Canadian-dollar securities, Canadian-dollar payments, settlement services to payment clearing and settlement systems, and fully collateralized loans to specific clients. As described below, the services provided depend on the category of client. These banking services are highly integrated with the systems used by the Bank for the daily implementation of monetary policy in the Canadian economy and the various initiatives and services that support the wellfunctioning of the domestic financial system and global financial stability.<sup>3</sup>

As a central bank, the Bank does not offer retail banking services (such as deposit accounts) to private businesses or individuals. In contrast to most private sector institutions, the Bank performs a relatively small number of transactions, although with a large total value. On average, the Bank processes roughly 600 transactions per day, with a total value of around Can\$30 billion on behalf of itself and over 90 clients worldwide.

The main categories of eligible clients are the following:

- the Government of Canada
- clearing and settlement systems (also known as financial market infrastructures)<sup>4</sup>

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<sup>2</sup> See CPSS (2003) for more information on central bank money.

<sup>3</sup> Examples of this are the Bank's open market operations, such as the securities lending program, and bilateral liquidity swap arrangements with various central banks. See Engert, Gravelle and Howard (2008) for more examples.

<sup>4</sup> For a complete list of the designated systems, see the Bank of Canada website at http://www.bankofcanada.ca/core-functions/financial-system/ oversight-designated-clearing-settlement-systems.

#### 37 THE "BANK" AT THE BANK OF CANADA BANK OF CANADA REVIEW • SPRING 2015

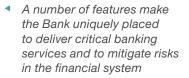
- financial institutions that are direct participants in the Large Value Transfer System (LVTS) and Automated Clearing Settlement System (ACSS), including the large Canadian commercial banks and other members of the CPA<sup>5</sup>
- foreign central banks and official international financial organizations
- the Canada Deposit Insurance Corporation (CDIC), a Crown corporation

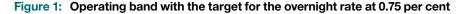
## Rationale for the Provision of Banking Services

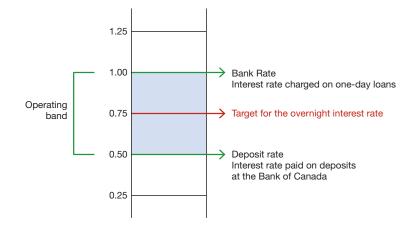
The provision of banking services to members of the CPA that are direct participants in the LVTS facilitates the implementation of monetary policy. The Bank conducts its monetary policy within the LVTS using an *operating band* in which the target for the overnight interest rate is set and reinforced (**Figure 1**). LVTS participants have a settlement account with the Bank, and those that have a short net position in their LVTS account at the end of the business day and are unable to obtain a loan from another direct participant must apply for a collateralized overnight advance from the Bank of Canada, the lender of last resort, under the Standing Liquidity Facility (SLF).<sup>6</sup> The rate of this advance is the Bank Rate, or the top of the band. Any overnight deposits from LVTS participants are remunerated at the deposit rate, or the bottom of the band.<sup>7</sup>

The provision of these banking services to eligible clients also supports the stability and resilience of the Canadian financial system. The Bank has a number of features that make it uniquely placed to deliver critical banking services to clients and to mitigate a range of risks in the financial system.

The first is the elimination of banker risk, which is the risk of loss or diminution in the value of the client's assets held with a financial institution, or the inability to access these assets in a timely manner as a result of the insolvency or failure of the financial institution. For obvious reasons, most clients would like to minimize the extent of banker risk they face. This is particularly true if they hold large, unsecured balances with the financial institution or if a temporary lack of access to funds or assets could cause significant stress







- 5 Information on the LVTS and ACSS can be found on the Canadian Payments Association website at www.cdnpay.ca.
- 6 See Daniel, Engert and Maclean (2004–05) for more information on the Bank's role as lender of last resort.
- 7 The operating band is a simple yet effective tool that creates the incentive for direct participants to lend to and borrow from each other at or near the target rate. See Howard (1998) for more information on the implementation of monetary policy.

in the financial system (for example, in the case of the federal government or a central counterparty).<sup>8</sup> The Bank is the only entity that can fully eliminate banker risk for Canadian-dollar transactions, since it can create Canadiandollar liquidity as required (and therefore can always meet its Canadiandollar obligations) and cannot be declared bankrupt or insolvent.<sup>9</sup>

A second, related, feature is access to a risk-free settlement asset, that is, central bank money. In the case of Canada, this takes the form of either bank notes in circulation or settlement balances held at the Bank of Canada. These balances provide a risk-free means for commercial banks to settle large interbank obligations that arise, for example, from payments made between clients who hold accounts at different commercial banks.

Finally, an account held with the Bank facilitates access for certain clients to some lender-of-last-resort facilities.<sup>10</sup> For example, in its day-to-day operations, the Bank supplies overnight credit on a routine basis through the SLF to direct participants in the LVTS. This credit is extended through the participants' settlement account at the Bank. This virtually automatic extension 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.

Given the benefits of holding an account at the central bank and the fact that it does not compete with commercial banks, the range of services offered and types of customers served are limited, typically by legislation. However, in some cases, the Bank must exercise judgment when deciding whether to offer certain services or accept certain clients. In these cases, the overarching principle is whether the provision of services to the client is required to support domestic or global financial stability.

## **Types of Clients**

Table 1 shows the types of banking services provided to the different categories of clients, including the services the Bank provides to itself. Many of the services performed for clients leverage the processes in place for the Bank's own operations.

	Canadian-dollar overnight deposit accounts	Securities accounts and safekeeping services	Canadian-dollar payments executed via LVTS	Settlement of securities transactions in CDSX	Settlement accounts and services	Lender of last resort
Bank of Canada	Х	Х	х	Х		
Government of Canada	Х	Х	Х	Х		х <sup>а</sup>
Financial market infrastructures	Х		Х		Х	
Direct participants in the Large Value Transfer System and the Automated Clearing Settlement System			x		Х	xb
Members of the Canadian Payments Association						xb
Foreign central banks	Х	Х	Х	Х		
Crown corporation	Х	Х	Х	Х		

a. Refer to the Bank of Canada Act

b. Daniel, Engert and Maclean (2004-05)

8 Central counterparties mitigate and manage counterparty risk in a market by standing between the original counterparties and guaranteeing they will meet their obligations. See Fontaine, Pérez Saiz and Slive (2012).

9 The Bank of Canada Act specifies that the Bank can be wound up only by order of Parliament.

10 Having an account at the Bank does not automatically entail access to any of the Bank's liquidity facilities. It merely facilitates access.

### Government of Canada

The Bank's principal and largest client is the Government of Canada. The provision of banking services to the government supports financial stability by eliminating the banker risk that the government would otherwise face if these services were provided by a commercial bank. Reducing banker risk is important, given the large size of deposits and the critical role that the federal government plays within the financial system. Other reasons to support this role of the Bank are confidentiality and the elimination of conflicts of interest that could arise if one commercial bank had access to information not available to other financial institutions.

The banking services are provided to the Receiver General for Canada, which manages the operations of the federal treasury and issues and accepts payments on behalf of the government. As fiscal agent for the government, the Bank deposits receipts into and executes payments from the bank account for the Consolidated Revenue Fund (CRF) held at the Bank.<sup>11</sup> The Bank also works closely with the government to ensure that the government maintains sufficient funds in the CRF to meet its daily payment obligations.

The banking services provided by the Bank to the Receiver General have evolved. The Bank has moved away from retail activities, such as the daily clearing and reconciliation of Government items, to focus on processing net payments to and from commercial banks. With this move, the Receiver General began to rely on "concentrator accounts" for its various revenue programs. Concentrator accounts were established at commercial banks for several Government programs to collect payments from the public (such as income tax and commodity tax payments for the Canada Revenue Agency). Bulk payments related to specific programs are transferred on a daily basis using LVTS from the commercial banks to the Bank for deposit to the CRF account.

The Receiver General also relies on a bulk transfer process for the redemption and settlement of its retail items, including Canada Savings Bonds (CSBs) and government cheques. In this process, financial institutions make payments on behalf of the government to their clients who cash in or redeem their CSBs or cheques issued by the government. Financial institutions that are participants in the ACSS then claim lump sums to recover these payments.<sup>12</sup> The Bank processes these claims daily and makes the reimbursement payments from the CRF to the eligible financial institutions via the LVTS.

Other changes to how the Receiver General operates have been introduced. A major initiative, announced in the 2011 federal budget, was the creation of the Prudential Liquidity Fund (PLF), which safeguards the ability of the Receiver General to meet payment obligations in situations where normal access to funding markets may be disrupted or delayed. A portion of the PLF is held as a Can\$20 billion deposit with the Bank.

Finally, as fiscal agent, the Bank manages the government's issuance of Canadian-dollar debt securities in CDSX, the central securities depository and securities settlement system operated by the Canadian Depository for The provision of banking services to the Government of Canada supports financial stability by eliminating the banker risk that the government would otherwise face if these services were provided by a commercial bank

<sup>11</sup> The CRF is defined as the aggregate of all public monies that are on deposit at the credit of the Receiver General for Canada. See the Public Accounts of Canada 2014 at http://www.tpsgc-pwgsc.gc.ca/recgen/cpc-pac/2014/pdf/2014-vol1-eng.pdf.

<sup>12</sup> For more information, see the Automated Clearing Settlement System (ACSS) Rules and Standards, Section G, at https://www.cdnpay.ca/imis15/eng/Act\_Rules/Automated\_Clearing\_Settlement\_System\_ ACSS\_Rules/eng/rul/Automated\_Clearing\_Settlement\_System\_ACSS\_Rules.aspx#G.

Securities Limited.<sup>13</sup> The Bank is responsible for the issuance, interest payments and redemption of government debt securities. Funds are transferred accordingly between the CRF account held at the Bank and CDSX to cover interest and maturity payments or deposit proceeds of issuances.<sup>14</sup>

#### Financial market infrastructures and LVTS direct participants

Financial market infrastructures (FMIs) include payment systems, central counterparties, central securities depositories and securities settlement systems. Since they play a critical role in supporting the stability of the financial system—virtually all financial transactions are cleared and settled through them—it is crucial for FMIs to adopt appropriate risk-management controls to reduce credit risk and ensure that they will continue to operate safely in times of severe market stress.

The Bank generally limits the provision of services to those FMIs that are designated as "systemically important;"<sup>15</sup> that is, they have the potential to pose systemic risk, whereby the failure of one participant to meet its obligation in the system causes another participant to fail to meet its obligation and could, therefore, disrupt the entire system.<sup>16</sup> The Bank oversees those FMIs that have been designated as systemically important by the Governor according to the PCSA. The Bank provides Canadian-dollar payment, settlement and collateral services to these FMIs and, by doing so, contributes to the reduction of risk in the overall system.<sup>17</sup>

Each day, FMIs typically receive large amounts of funds from their direct participants for settlement of their obligations. For FMIs that are systemically important, these funds are collected from the direct participants and held at the Bank in a single bank account (known as a concentration or settlement account). The corresponding outgoing payments are then made from the settlement account to those direct participants that are in a receiving position. The account is brought to a zero balance at the end of each day, as the payments received equal the payments paid out. The banking services the Bank provides allow this settlement process to be executed with central bank money, thereby eliminating the banker risk that would otherwise exist if settlement was executed with a commercial bank. This is in line with the Principles for Financial Market Infrastructures, which state that an FMI should "conduct its money settlements in central bank money where practical and available, to avoid credit and liquidity risks" (CPSS-IOSCO 2012).

13 Information on CDSX can be found on the Bank's website at http://www.bankofcanada.ca/corefunctions/financial-system/oversight-designated-clearing-settlement-systems/clearing-and-settlementsystems/#securities or on The Canadian Depository for Securities Limited's website at www.cds.ca.

14 The Bank also provides non-Canadian-dollar services to the Government. These services are part of the Exchange Fund Account (EFA). The foreign currency accounts for the EFA are held at various central banks, not at the Bank of Canada. However, the Bank acts as fiscal agent in managing the EFA and in executing the investment transactions. More information on the EFA can be found on the Department of Finance website at www.fin.gc.ca.

- 15 For more information on the Bank's oversight of systemically important FMIs, see http://www.bankofcanada.ca/core-functions/financial-system/ oversight-designated-clearing-settlement-systems.
- 16 FMIs may also be designated as posing payment system risk if problems within them could disrupt the ability of individuals or businesses to make payments or undermine confidence in the national payments system as a whole.
- 17 This business area has expanded in recent years with the addition of two newly designated systemically important FMIs: Canadian Derivatives Clearing Corporation in 2012 and LCH.Clearnet Limited's SwapClear Service in 2013. The other FMIs designated as systemically important, for which the Bank provides payment and settlement services, are the LVTS, CDSX and the Continuous Link Settlement Bank (CLS). Embree and Miller (this issue) provide a discussion of the governance and regulation of the Canadian payments system, including the Bank's oversight role.

The Bank provides Canadiandollar payment, settlement and collateral services to systemically important financial market infrastructures and, by doing so, contributes to the reduction of risk in the overall system The settlement of the LVTS is achieved by transferring the end-of-day net positions into the settlement accounts held at the Bank for each of the direct participants and onto the books of the Bank. In addition to providing settlement services, the Bank is also involved in managing the collateral pledged by the direct participants of the system in support of their LVTS payments and any advances by the Bank under the SLF. The Bank holds the securities pledged as collateral in CDSX. As a lender of last resort, the Bank provides fully collateralized advances to participants that are in a short LVTS position at the end of the day and are experiencing a temporary deficiency in liquidity. These activities support the implementation of monetary policy within the LVTS.

## Foreign central banks and official international financial organizations

The Bank offers banking and securities safekeeping services to foreign central banks and official international financial organizations that hold Canadian-dollar assets. These institutions hold Canadian-dollar assets for the following main reasons:

- as reserves, to provide foreign currency liquidity in the event that market intervention is called upon to protect the external value of the domestic currency;
- as reserves for the provision of foreign currency liquidity to domestic financial institutions if access to capital markets were temporarily lost or delayed;<sup>18</sup> or
- as an operating account, where the funds are used to pay various expenses (bank-to-bank transfers, embassy-related expenses, pension payments, etc.).

There are a number of reasons why a central bank would offer banking and safekeeping services to foreign central banks and why these institutions look to other central banks for the provision of these services. Central banks offer these services to each other and are therefore clients of one another. This reciprocity allows the central banks to form strong relationships and networks, which can facilitate collaboration to support global financial stability, as seen during the financial crisis. The provision of banking and safekeeping services can also contribute to the smooth functioning and liquidity of domestic financial markets, since it can facilitate the ability of foreign central banks to actively trade their securities portfolios. Another benefit is the acquisition of market intelligence by the central bank providing the services.

The primary appeal for the client is the elimination of banker risk. The foreign central bank is able to trade safely in foreign markets. Another benefit to the client is the confidentiality of the holdings and transactions within the central bank. Some central bank clients of the Bank of Canada also leverage their relationship with the Bank to allow the use of Canadian securities by their counterparties as collateral, supporting their own monetary policy operations.

Traditionally, foreign reserves have been primarily held in five currencies: the U.S. dollar, the euro, the Japanese yen, the British pound and the Swiss franc. However, by the end of 2012, the amount of reserves invested in the Canadian dollar had grown significantly. Recognizing this growth, in  The reciprocity of providing services to each other allows central banks to form strong relationships and networks, which can facilitate collaboration to support global financial stability 2013, the International Monetary Fund (IMF) began to separately identify the Canadian dollar (as well as the Australian dollar) in its regular reporting of reserve holdings.<sup>19</sup> According to IMF data, as of the end of the second quarter of 2014, the Canadian dollar was the seventh most widely held reserve currency.

The amount of Canadian-dollar securities held in safekeeping by the Bank for foreign central bank clients has grown significantly in recent years. Approximately 80 per cent of the securities held by central bank clients are Government of Canada debt securities; the remainder are mostly debt instruments issued by Crown corporations and provincial governments. These assets are held in a safekeeping capacity and are not part of the Bank's balance sheet.

The Bank offers two types of accounts to its foreign central bank clients: Canadian-dollar cash accounts (currently there are over 70 central bank and official international financial organization clients) and securities safekeeping accounts (for over 30 central bank clients currently).

The cash accounts are overnight deposit accounts (the Bank does not offer term deposits). The banking services offered include executing, on behalf of the client, Canadian-dollar payments through the LVTS. The Bank does not permit client accounts to go into overdraft, and it does not offer any intraday credit facility. Clients must ensure that sufficient funds are available in their accounts to cover their transactions.

With respect to safekeeping services, the Bank offers securities accounts that are linked to CDSX. Bank of Canada clients are permitted to hold only Canadian-dollar-denominated securities in their securities account.<sup>20</sup> The safekeeping services involve holding the client's Canadian-dollar securities portfolio electronically within internal Bank systems and within CDSX, settling within CDSX the client's trades to buy or sell securities, and distributing funds from interest payments or maturities of the securities.

The increased interest in the Bank's banking and safekeeping services has resulted in the need to review certain aspects of the services offered and the level of automation of the processes. Although the Bank offers a relatively limited range of services, it is reviewing them to determine whether additional services should be implemented in response to increased demand from its clients. For example, increased automation recently allowed the removal of the Bank's restriction on the volume of client trading activity. Given the large size of Government of Canada debt securities held with the Bank on behalf of its central bank clients, allowing clients to actively trade their portfolio is expected to support the smooth functioning of Canadian markets, especially the repo markets.

The Bank also offers gold safekeeping services to foreign central banks and official international financial institutions. These services are quite limited and could be qualified as "deep storage," meaning the gold is stored and is not expected to be traded by the client.<sup>21</sup>

20 The securities must be able to be delivered through CDSX.

 Although the Bank offers a relatively limited range of services, it is reviewing them to determine whether additional services should be implemented in response to increased demand from its clients

<sup>19</sup> See the IMF news release at http://www.imf.org/external/np/sec/pr/2013/pr13236.htm.

<sup>21</sup> The government sold a portion of gold coins held at the Bank for the EFA through the Royal Canadian Mint in 2012. See http://www.mint.ca/store/news/a-national-treasure-resurfaces-as-the-royal-canadian-mint-offers-rare-opportunity-to-own-canadas-first-gold-coins-crafted-with-pride-from-19121914-17400003?cat=News+releases&nld=700002&parentnld=600004&nodeGroup=About +the+Mint.

### Crown corporation

A new category of clients emerged with the announcement in the 2014 federal budget that the Bank will provide banking and custodial services to the Canada Deposit Insurance Corporation (CDIC). The Bank has the authority to provide these services specifically to the CDIC as a result of amendments to the Bank of Canada Act.

The Bank provides cash accounts and securities safekeeping accounts to the CDIC, similar to the services it provides to foreign central bank clients, to eliminate banker risk and support the stability of the Canadian financial system. The CDIC maintains a securities portfolio to provide liquidity for different purposes, including in the event that it is called upon to provide deposit insurance to account holders of a member financial institution that has failed. To ensure that the assets of the portfolio could be easily and discretely accessed if required, the decision was made to transfer them to be held in custody by the Bank. Similar to the banking services provided to foreign central banks, the Bank, on behalf of the CDIC, executes payments in the LVTS and settles purchases and sales of securities in CDSX.

## Other Systems Settled by the Bank

### Automated Clearing Settlement System

The ACSS is Canada's main retail payment clearing system, owned and operated by the CPA and in place since 1984. It is the system through which the vast majority of low-value payment items (e.g., cheques and electronic payments such as automated banking machine withdrawals and direct deposits) are cleared in Canada.

Financial institutions that are direct participants in the ACSS have a settlement account at the Bank. Net positions are settled daily, with participants that are in a negative position funding their shortfall by depositing funds to their settlement accounts via LVTS payments. Once all the shortfall positions are covered, these funds are transferred to participants that are net long as a deposit in their settlement account. The deposit amount is then paid out to the participant via an LVTS payment. The sum of funds received from the participants in a short position equals the sum of all the funds paid out to the participants in a long position.

### Note Exchange System

The Bank is the sole supplier of bank notes.<sup>22</sup> Each day, financial institutions across the country buy and sell bank notes from the Bank to maintain their inventory at the desired level and return bank notes that are unfit for circulation. Financial institutions must pay for the bank notes they request and receive a payment from the Bank for bank notes they return. These transactions are tracked by the Note Exchange System, and payments are settled daily with the Bank via the LVTS. To ensure that the assets of the Canada Deposit Insurance Corporation's securities portfolio could be easily and discretely accessed if required, the decision was made to transfer them to be held in custody by the Bank

## Conclusion

The banking services offered by the Bank are limited in terms of both scope and client base, as set out in the Bank of Canada Act and the PCSA. The services are offered in Canadian dollars only and leverage the processes in place for the Bank's own operations. They are well integrated with the Bank's monetary policy framework and are a key function in supporting the Bank's role as the country's central bank. The limited group of clients receiving these services comprises the Government of Canada, financial market infrastructures, Canadian financial institutions, foreign central banks and official foreign financial institutions, and a Crown corporation.

The provision of banking services to CPA members that are direct participants in the LVTS facilitates the implementation of monetary policy, while the broader range of banking services offered supports financial stability. The provision of banking services has evolved over time and continues to grow, driven in part by the increasing demand for the Canadian dollar as a reserve currency and as the Bank contributes further to domestic and global financial stability.

## Literature Cited

- Committee on Payment and Settlement Systems (CPSS). 2003. "The Role of Central Bank Money in Payment Systems." Bank for International Settlements, August.
- Committee on Payment and Settlement Systems and the Technical Committee of the International Organization of Securities Commissions (CPSS-IOSCO). 2012. "Principles for Financial Market Infrastructures." Bank for International Settlements, April.
- Daniel, F., W. Engert and D. Maclean. 2004–05. "The Bank of Canada as Lender of Last Resort." *Bank of Canada Review* (Winter): 3–16.
- Engert, W., T. Gravelle and D. Howard. 2008. "The Implementation of Monetary Policy in Canada." Bank of Canada Discussion Paper No. 2008-9.
- Fontaine, J.-S., H. Pérez Saiz and J. Slive. 2012. "Access, Competition and Risk in Centrally Cleared Markets." *Bank of Canada Review* (Autumn): 14–22.
- Howard, D. 1998. "A Primer on the Implementation of Monetary Policy in the LVTS Environment." *Bank of Canada Review* (Autumn): 57–66.
- Pomorski, L., F. Rivadeneyra and E. Wolfe. 2014. "The Canadian Dollar as a Reserve Currency." *Bank of Canada Review* (Spring): 1–11.