

appendix
to chapter

15

The Bank of Canada's Balance Sheet and the Monetary Base

Just as any other bank has a balance sheet that lists its assets and liabilities, so does the Bank of Canada. We examine each of its categories of assets and liabilities because changes in them are an important way the Bank affects the reserve position of banks and manipulates interest rates and the money supply.

Table 1 Balance Sheet of the Bank of Canada (\$ millions, end of 2002)

Assets	Amount	Percent	Liabilities	Amount	Percent
Government of Canada securities			Bank of Canada notes outstanding	41 146.7	93.60
Treasury bills	13 113.1	29.83	Deposits		
Securities maturing within three years	8 571.3	19.50	Government of Canada	534.6	1.22
Securities not maturing within three years	18 648.7	42.42	Chartered banks	1 065.5	2.42
			Other members of the CPA	125.8	0.29
			Other deposits	415.0	0.94
Other investments	2.6	0.01	Securities sold under repurchase agreements		
Advances to members of the CPA	534.9	1.22	Other liabilities	<u>671.2</u>	<u>1.53</u>
Foreign currency assets					
U.S. dollars	674.2	1.53			
Other currencies	4.4	0.01			
Securities purchased under resale agreements	1 904.8	4.33			
Other assets	<u>504.8</u>	<u>1.15</u>			
Total	<u><u>43 958.8</u></u>	<u><u>100.00</u></u>	Total	<u><u>43 958.8</u></u>	<u><u>100.00</u></u>

Source: Bank of Canada Annual Report 2002

Assets

1. *Government of Canada Securities.* These are the Bank's holdings of securities. The total amount of securities is controlled by open market operations (the Bank's purchase and sale of these securities). As shown in Table 1, "Government of Canada Securities" is by far the largest category of assets accounting for over 90% of the balance sheet.
2. *Other investments.* This category mostly includes investments held under short-term foreign currency swap arrangements with the **Exchange Fund Account (EFA)** of the Department of Finance. In particular, as part of its cash-management operations within the Canadian banking system, the Bank of Canada temporarily acquires foreign currency investments from the EFA at the prevailing exchange rate with a commitment to reverse the transaction at the same exchange rate at a future date. Moreover, the Bank of Canada is a participant in two foreign currency swap facilities with foreign central banks—the U.S. Federal Reserve (in the amount of U.S. \$2 billion) and the Banco de Mexico (in the amount of Can \$1 billion).
3. *Advances.* These are loans the Bank of Canada makes to members of the Canadian Payments Association. The Bank of Canada charges the **bank rate** on advances under the Large Value Transfer System (LVTS). The Canadian payments systems are discussed in detail in Chapter 17.
4. *Foreign currency assets.* These include deposits denominated in foreign currencies, which the Bank keeps with domestic and foreign banks and with other central banks. Although these assets are part of Canada's foreign exchange reserves, they must not be confused with the foreign currency assets held by the Exchange Fund Account of the government of Canada.
5. *Securities purchased under resale agreements.* These are **Special Purchase and Resale Agreements (SPRAs)** with primary dealers, a subgroup of government securities distributors, in which the Bank of Canada purchases government of Canada securities with an agreement to sell them back the next business day at a predetermined price. The balance sheet entry "Securities purchased under resale agreements" represents the value receivable by the Bank of Canada upon resale of the securities. As you will see in Chapter 17, the Bank enters into SPRAs at the target rate for the overnight interest rate if overnight funds in the money market are traded above the target rate.

These first five assets are important because they earn interest. Because the liabilities of the Bank generally pay low interest rates, the Bank makes millions of dollars every year—its assets earn income, and its liabilities cost little. Although it returns most of its earnings to the federal government, the Bank does spend some of it on "worthy causes," such as supporting economic research.

6. *All other assets.* These include securities denominated in foreign currencies as well as physical goods such as computers, office equipment, and buildings owned by the Bank of Canada.

Liabilities

1. *Bank of Canada notes outstanding.* The Bank of Canada issues notes (those blue, purple, green, red, and brown pieces of paper in your wallet that say "Bank of Canada

note” at the top). The Bank of Canada notes outstanding is the amount of these notes that is in the hands of the public and the depository institutions. Coins issued by the Canadian Mint are not a liability of the Bank of Canada. The coins and Bank of Canada notes that we use in Canada are collectively known as *currency*.

2. *Reserves*. All the direct clearers have an account at the Bank of Canada in which they hold settlement deposits. Reserves consist of *settlement balances* at the Bank of Canada plus currency that is physically held by banks (called *vault cash* because it is held in bank vaults, cash tills, and automated banking machines).

3. *Government of Canada deposits*. The government keeps deposits at the Bank of Canada, against which it writes all its cheques. The government also maintains deposit accounts with direct clearers. The maintenance of these government accounts with the Bank of Canada and the direct clearers gives the Bank of Canada an additional instrument of monetary control, called *government deposit transfers*.

4. *Securities sold under repurchase agreements*. These are **Sale and Repurchase Agreements (SRAs)** with primary dealers, in which the Bank of Canada sells government of Canada securities (Treasury bills and bonds) with an agreement to buy them back the next business day at a predetermined price. The balance sheet entry “Securities sold under repurchase agreements” represents the value payable by the Bank of Canada upon repurchase of the securities. As you will see in Chapter 17, the Bank of Canada enters into SRAs at the target rate for the overnight interest rate if overnight funds in the money market are traded below the target rate.

5. *All other liabilities*. This item includes the deposits with the Bank of Canada owned by foreign governments, foreign central banks, and international agencies (such as the World Bank and the United Nations). It also includes all the remaining Bank of Canada liabilities not included elsewhere on the balance sheet.

Monetary Base

The first and third liabilities on the balance sheet, Bank of Canada notes outstanding and bank settlement balances, are often referred to as the *monetary liabilities* of the Bank of Canada. When we add to these liabilities the amount of coins in the hands of the public and depository institutions, we get a construct called the *monetary base*. The monetary base is an important part of the money supply, because increases in it will lead to a multiple increase in the money supply (everything else being constant). This is why the monetary base is also called *high-powered money*. The monetary base *MB* is expressed as:

$$\begin{aligned} MB &= (\text{Bank of Canada notes outstanding}) + (\text{Settlement balances}) + \\ &\quad (\text{Coins outstanding}) \\ &= C + R \end{aligned}$$

where *C* denotes currency in circulation (coins and Bank of Canada notes held by the public) and *R* denotes bank reserves (vault cash plus settlement balances).

The items on the right-hand side of this equation indicate how the base is used and are called the *uses of the base*. Unfortunately, this equation does not tell us the factors that determine the base (the *sources of the base*), but the Bank of Canada balance sheet in Table 1 comes to the rescue because it has the property that the total assets on

the left-hand side must equal the total liabilities on the right-hand side. Because the “Bank of Canada notes outstanding” and “settlement balances” items in the uses of the base are Bank of Canada liabilities, the “assets equals liabilities” property of the Bank of Canada sheet enables us to solve for these items in terms of the Bank of Canada balance sheet items that are included in the sources of the base: Specifically, Bank of Canada notes outstanding and bank settlement balances equal the sum of all the Bank of Canada assets minus all the other Bank of Canada liabilities:

$$\left(\begin{array}{c} \text{Bank of Canada} \\ \text{notes outstanding} \end{array} \right) + \left(\begin{array}{c} \text{Settlement} \\ \text{balances} \end{array} \right) = \left(\begin{array}{c} \text{Securities} \\ \text{and investments} \end{array} \right) + \text{Advances} \\ + \text{Foreign assets} + \text{SPRAs} - \text{Government deposits} - \text{SRAs} + \text{Other assets (net)}$$

The two balance sheet items related to other assets and other liabilities have been collected into one term called Other assets (net), defined as “All other assets” minus “All other liabilities.” This is a technical item, affecting the monetary base, but is not an instrument of monetary control. Substituting all the right-hand-side items in the equation for “Bank of Canada notes outstanding + Settlement balances” in the uses of the base equation, we obtain the following expression describing the sources of the monetary base:

$$MB = \text{Securities and investments} + \text{Advances} + \text{Foreign assets} + \text{SPRAs} + \text{Other assets (net)} + \text{Coins outstanding} - \text{Government deposits} - \text{SRAs} \quad (1)$$

Accounting logic has led us to a useful equation that clearly identifies the eight factors affecting the monetary base listed in Table 2. As Equation 1 and Table 2 depict, increases in the first six factors increase the monetary base, and increases in the last two factors reduce the monetary base.

SUMMARY Table 2 Factors Affecting the Monetary Base

Factor	Change in Factor	Change in Monetary Base
Factors That Increase the Monetary Base		
1. Securities and investments	↑	↑
2. Advances to members of the CPA	↑	↑
3. Foreign currency assets	↑	↑
4. Securities purchased under resale agreements (SPRAs)	↑	↑
5. Other assets (net)	↑	↑
6. Currency outstanding	↑	↑
Factors That Decrease the Monetary Base		
7. Government deposits with the Bank of Canada	↑	↓
8. Securities sold under repurchase agreements (SRAs)	↑	↓