# Statement of Management's Responsibility for Financial Information

Management of Bank of Montreal (the "bank") is responsible for the preparation and presentation of the annual consolidated financial statements, Management's Discussion and Analysis ("MD&A") and all other information in the Annual Report.

The consolidated financial statements have been prepared in accordance with International Financial Reporting Standards ("IFRS") as issued by the International Accounting Standards Board and meet the applicable requirements of the Canadian Securities Administrators ("CSA") and the Securities and Exchange Commission ("SEC") in the United States. The consolidated financial statements also comply with the provisions of the *Bank Act (Canada)* and related regulations, including interpretations of IFRS by our regulator, the Office of the Superintendent of Financial Institutions Canada. The MD&A has been prepared in accordance with the requirements of securities regulators, including National Instrument 51-102 *Continuous Disclosure Obligations* of the CSA.

The consolidated financial statements and information in the MD&A necessarily include amounts based on informed judgments and estimates of the expected effects of current events and transactions with appropriate consideration to materiality. In addition, in preparing the financial information we must interpret the requirements described above, make determinations as to the relevancy of information to be included, and make estimates and assumptions that affect reported information. The MD&A also includes information regarding the impact of current transactions and events, sources of liquidity and capital resources, operating trends, risks and uncertainties. Actual results in the future may differ materially from our present assessment of this information because events and circumstances in the future may not occur as expected.

The financial information presented in the bank's Annual Report is consistent with that in the consolidated financial statements.

In meeting our responsibility for the reliability and timeliness of financial information, we maintain and rely on a comprehensive system of internal controls, including organizational and procedural controls, disclosure controls and procedures, and internal control over financial reporting. Our system of internal controls includes written communication of our policies and procedures governing corporate conduct and risk management; comprehensive business planning; effective segregation of duties; delegation of authority and personal accountability; escalation of relevant information for decisions regarding public disclosure; careful selection and training of personnel; and accounting policies that we regularly update. Our internal controls are designed to provide reasonable assurance that transactions are authorized, assets are safeguarded and proper records are maintained and that we are in compliance with all regulatory requirements. The system of internal controls is further supported by a compliance function, which is designed to ensure that we and our employees comply with securities legislation and conflict of interest rules, and by an internal audit staff, which conducts periodic audits of all aspects of our operations.

As of October 31, 2018, we, as the bank's Chief Executive Officer and Chief Financial Officer, have determined that the bank's internal control over financial reporting is effective. We have certified Bank of Montreal's annual filings with the CSA and with the SEC pursuant to National Instrument 52-109, *Certification of Disclosure in Issuers' Annual and Interim Filings* and the *Securities Exchange Act of 1934*.

In order to provide their audit opinions on our consolidated financial statements and on the bank's internal control over financial reporting, the Shareholders' Auditors audit our system of internal controls over financial reporting and conduct work to the extent that they consider appropriate. Their audit opinion on the bank's internal control over financial reporting as of October 31, 2018 is set forth on page 142.

The Board of Directors, based on recommendations from its Audit and Conduct Review Committee, reviews and approves the financial information contained in the Annual Report, including the MD&A. The Board of Directors and its relevant committees oversee management's responsibilities for the preparation and presentation of financial information, maintenance of appropriate internal controls, compliance with legal and regulatory requirements, management and control of major risk areas, and assessment of significant and related party transactions.

The Audit and Conduct Review Committee, which is comprised entirely of independent directors, is also responsible for selecting the Shareholders' Auditors and reviewing the qualifications, independence and performance of both the Shareholders' Auditors and internal audit. The Shareholders' Auditors and the bank's Chief Auditor have full and free access to the Board of Directors, its Audit and Conduct Review Committee and other relevant committees to discuss audit, financial reporting and related matters.

The Office of the Superintendent of Financial Institutions Canada conducts examinations and inquiries into the affairs of the bank as deemed necessary to ensure that the provisions of the *Bank Act,* with respect to the safety of the depositors, are being duly observed and that the bank is in sound financial condition.

**Darryl White**
Chief Executive Officer

**Thomas E. Flynn**
Chief Financial Officer

Toronto, Canada
December 4, 2018

# Independent Auditors' Report of Registered Public Accounting Firm

## To the Shareholders of Bank of Montreal

***Opinion on the Consolidated Financial Statements***

We have audited the accompanying consolidated financial statements of Bank of Montreal (the "Bank"), which comprise the consolidated balance sheets as at October 31, 2018 and October 31, 2017, the consolidated statements of income, comprehensive income, changes in equity and cash flows for each of the years in the three-year period ended October 31, 2018, and notes, comprising a summary of significant accounting policies and other explanatory information (collectively referred to as the consolidated financial statements).

In our opinion, the consolidated financial statements present fairly, in all material respects, the consolidated financial position of the Bank as at October 31, 2018 and October 31, 2017, and its consolidated financial performance and its consolidated cash flows for each of the years in the three-year period ended October 31, 2018 in accordance with International Financial Reporting Standards as issued by the International Accounting Standards Board.

***Change in Accounting Principle***

Without qualifying our opinion on the consolidated financial statements, we draw attention to Note 1 to the consolidated financial statements, which indicates that the Bank has changed its method of accounting for financial instruments in 2018 due to the adoption of International Financial Reporting Standard 9 *Financial Instruments.*

***Report on Internal Control Over Financial Reporting***

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), the Bank's internal control over financial reporting as of October 31, 2018, based on the criteria established in Internal Control – Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO), and our report dated December 4, 2018 expressed an unqualified (unmodified) opinion on the effectiveness of the Bank's internal control over financial reporting.

***Basis for Opinion***

**A – Management's Responsibility for the Consolidated Financial Statements**

Management is responsible for the preparation and fair presentation of these consolidated financial statements in accordance with International Financial Reporting Standards as issued by the International Accounting Standards Board, and for such internal control as management determines is necessary to enable the preparation of consolidated financial statements that are free from material misstatement, whether due to fraud or error.

**B – Auditors' Responsibility**

Our responsibility is to express an opinion on these consolidated financial statements based on our audits. We conducted our audits in accordance with Canadian generally accepted auditing standards and the standards of the Public Company Accounting Oversight Board (United States) ("PCAOB"). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free from material misstatement, whether due to error or fraud. Those standards also require that we comply with ethical requirements, including independence. We are required to be independent with respect to the Bank in accordance with the ethical requirements that are relevant to our audit of the consolidated financial statements in Canada, the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB. We are a public accounting firm registered with the PCAOB.

An audit includes performing procedures to assess the risks of material misstatements of the consolidated financial statements, whether due to error or fraud, and performing procedures to respond to those risks. Such procedures included obtaining and examining, on a test basis, audit evidence regarding the amounts and disclosures in the consolidated financial statements. The procedures selected depend on our judgment, including the assessment of the risks of material misstatement of the consolidated financial statements, whether due to fraud or error. In making those risk assessments, we consider internal control relevant to the Bank's preparation and fair presentation of the consolidated financial statements in order to design audit procedures that are appropriate in the circumstances.

An audit also includes evaluating the appropriateness of accounting policies and principles used and the reasonableness of accounting estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements.

We believe that the audit evidence we have obtained in our audits is sufficient and appropriate to provide a reasonable basis for our audit opinion.

**Chartered Professional Accountants, Licensed Public Accountants**

We have served as the Bank's auditor since 2004 and as joint auditor for the prior 11 years

December 4, 2018
Toronto, Canada

# Report of Independent Registered Public Accounting Firm

## The Shareholders of Bank of Montreal

**Opinion on Internal Control over Financial Reporting**
We have audited Bank of Montreal (the "Bank")'s internal control over financial reporting as of October 31, 2018, based on the criteria established in *Internal Control – Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission.

In our opinion, the Bank maintained, in all material respects, effective internal control over financial reporting as of October 31, 2018, based on the criteria established in *Internal Control – Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission.

**Report on the Consolidated Financial Statements**
We also have audited, in accordance with Canadian generally accepted auditing standards and the standards of the Public Company Accounting Oversight Board (United States) ("PCAOB"), the consolidated balance sheets of the Bank as at October 31, 2018, and 2017, the related consolidated statements of income, comprehensive income, changes in equity and cash flows for each of the years in the three-year period ended October 31, 2018, and the related notes, comprising a summary of significant accounting policies and other explanatory information (collectively referred to as the "consolidated financial statements") and our report dated December 4, 2018 expressed an unmodified (unqualified) opinion on those consolidated financial statements.

**Basis for Opinion**
The Bank's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management's Annual Report on Disclosure Controls and Procedures and Internal Control Over Financial Reporting, on page 123 of the Management's Discussion and Analysis ("MD&A"). Our responsibility is to express an opinion on the Bank's internal control over financial reporting based on our audit.

We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Bank in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB and in accordance with the ethical requirements that are relevant to our audit of the financial statements in Canada.

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audit also included performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

**Definition and Limitations of Internal Control over Financial Reporting**
A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

**Chartered Professional Accountants, Licensed Public Accountants**
December 4, 2018
Toronto, Canada

# Consolidated Statement of Income

| For the Year Ended October 31 (Canadian $ in millions, except as noted) | 2018 | 2017 | 2016 |
|---|---|---|---|
| **Interest, Dividend and Fee Income** | | | |
| Loans | $ 16,275 | $ 13,564 | $ 12,575 |
| Securities (Note 3) (1) | 2,535 | 1,801 | 1,590 |
| Deposits with banks | 641 | 324 | 223 |
| | 19,451 | 15,689 | 14,388 |
| **Interest Expense** | | | |
| Deposits | 6,080 | 3,894 | 3,036 |
| Subordinated debt | 226 | 155 | 170 |
| Other liabilities | 2,832 | 1,633 | 1,310 |
| | 9,138 | 5,682 | 4,516 |
| **Net Interest Income** | 10,313 | 10,007 | 9,872 |
| **Non-Interest Revenue** | | | |
| Securities commissions and fees | 1,029 | 969 | 924 |
| Deposit and payment service charges | 1,144 | 1,123 | 1,076 |
| Trading revenues | 1,830 | 1,352 | 1,192 |
| Lending fees | 997 | 917 | 859 |
| Card fees | 564 | 479 | 526 |
| Investment management and custodial fees | 1,742 | 1,622 | 1,556 |
| Mutual fund revenues | 1,473 | 1,411 | 1,364 |
| Underwriting and advisory fees | 936 | 1,036 | 820 |
| Securities gains, other than trading (Note 3) | 239 | 171 | 84 |
| Foreign exchange gains, other than trading | 182 | 191 | 162 |
| Insurance revenue | 1,879 | 2,070 | 2,023 |
| Investments in associates and joint ventures | 167 | 386 | 140 |
| Other | 542 | 526 | 489 |
| | 12,724 | 12,253 | 11,215 |
| **Total Revenue** | 23,037 | 22,260 | 21,087 |
| **Provision for Credit Losses** (Notes 1 and 4) | 662 | 746 | 771 |
| **Insurance Claims, Commissions and Changes in Policy Benefit Liabilities** (Note 14) | 1,352 | 1,538 | 1,543 |
| **Non-Interest Expense** | | | |
| Employee compensation (Notes 20 and 21) | 7,459 | 7,467 | 7,382 |
| Premises and equipment (Note 9) | 2,753 | 2,491 | 2,393 |
| Amortization of intangible assets (Note 11) | 503 | 485 | 444 |
| Travel and business development | 673 | 693 | 646 |
| Communications | 282 | 286 | 294 |
| Professional fees | 564 | 563 | 523 |
| Other | 1,379 | 1,345 | 1,359 |
| | 13,613 | 13,330 | 13,041 |
| **Income Before Provision for Income Taxes** | 7,410 | 6,646 | 5,732 |
| Provision for income taxes (Note 22) | 1,960 | 1,296 | 1,101 |
| **Net Income** | $ 5,450 | $ 5,350 | $ 4,631 |
| Attributable to: | | | |
| Bank shareholders | 5,450 | 5,348 | 4,622 |
| Non-controlling interest in subsidiaries | – | 2 | 9 |
| **Net Income** | $ 5,450 | $ 5,350 | $ 4,631 |
| **Earnings Per Share** (Canadian $) (Note 23) | | | |
| Basic | $ 8.19 | $ 7.95 | $ 6.94 |
| Diluted | 8.17 | 7.92 | 6.92 |
| Dividends per common share | 3.78 | 3.56 | 3.40 |

(1) Includes interest income on securities measured at fair value through other comprehensive income and amortized cost, calculated using the effective interest rate method, of $1,284 million for the year ended October 31, 2018.

The accompanying notes are an integral part of these consolidated financial statements.

Certain comparative figures have been reclassified to conform with the current year's presentation.

**Darryl White**
Chief Executive Officer

**Jan Babiak**
Chair, Audit and Conduct Review Committee

# Consolidated Statement of Comprehensive Income

| For the Year Ended October 31 (Canadian $ in millions) | 2018 | 2017 | 2016 |
|---|---|---|---|
| **Net Income** | **$ 5,450** | $ 5,350 | $ 4,631 |
| **Other Comprehensive (Loss), net of taxes** (Note 22) | | | |
| Items that may subsequently be reclassified to net income | | | |
| Net change in unrealized gains (losses) on fair value through OCI securities (1) | | | |
| Unrealized (losses) on fair value through OCI debt securities arising during the year (2) | **(251)** | na | na |
| Unrealized gains on available-for-sale securities arising during the year (3) | **na** | 95 | 151 |
| Reclassification to earnings of (gains) in the year (4) | **(65)** | (87) | (28) |
| | **(316)** | 8 | 123 |
| Net change in unrealized (losses) on cash flow hedges | | | |
| (Losses) on derivatives designated as cash flow hedges arising during the year (5) | **(1,228)** | (839) | (26) |
| Reclassification to earnings of losses on derivatives designated as cash flow hedges (6) | **336** | 61 | 10 |
| | **(892)** | (778) | (16) |
| Net gains (losses) on translation of net foreign operations | | | |
| Unrealized gains (losses) on translation of net foreign operations | **417** | (885) | 213 |
| Unrealized gains (losses) on hedges of net foreign operations (7) | **(155)** | 23 | 41 |
| | **262** | (862) | 254 |
| Items that will not be reclassified to net income | | | |
| Gains (losses) on remeasurement of pension and other employee future benefit plans (8) | **261** | 420 | (422) |
| (Losses) on remeasurement of own credit risk on financial liabilities designated at fair value (Note 1) (9) | **(24)** | (148) | (153) |
| | **237** | 272 | (575) |
| **Other Comprehensive (Loss), net of taxes** (Note 22) | **(709)** | (1,360) | (214) |
| **Total Comprehensive Income** | **$ 4,741** | $ 3,990 | $ 4,417 |
| Attributable to: | | | |
| Bank shareholders | **4,741** | 3,988 | 4,408 |
| Non-controlling interest in subsidiaries | **–** | 2 | 9 |
| **Total Comprehensive Income** | **$ 4,741** | $ 3,990 | $ 4,417 |

(1) Fiscal 2017 and prior years represent available-for-sale securities (Note 1).
(2) Net of income tax recovery of $69 million, na and na for the year ended, respectively.
(3) Net of income tax (provision) of na, $(21) million and $(64) million for the year ended, respectively.
(4) Net of income tax provision of $23 million, $36 million and $11 million for the year ended, respectively.
(5) Net of income tax (provision) recovery of $432 million, $322 million and $(4) million for the year ended, respectively.
(6) Net of income tax (recovery) of $(121) million, $(21) million and $(6) million for the year ended, respectively.
(7) Net of income tax (provision) recovery of $56 million, $(8) million and $(10) million for the year ended, respectively.
(8) Net of income tax (provision) recovery of $(111) million, $(157) million and $156 million for the year ended, respectively.
(9) Net of income tax recovery of $6 million, $53 million and $55 million for the year ended, respectively.

na – not applicable due to IFRS 9 adoption.

The accompanying notes are an integral part of these consolidated financial statements.

# Consolidated Balance Sheet

| As at October 31 (Canadian $ in millions) | 2018 | 2017 |
|---|---|---|
| **Assets** | | |
| **Cash and Cash Equivalents** (Note 2) | $ 42,142 | $ 32,599 |
| **Interest Bearing Deposits with Banks** (Note 2) | 8,305 | 6,490 |
| **Securities** (Note 3) | 180,935 | 163,198 |
| **Securities Borrowed or Purchased Under Resale Agreements** (Note 4) | 85,051 | 75,047 |
| **Loans** (Notes 4 and 6) | | |
| Residential mortgages | 119,620 | 115,258 |
| Consumer instalment and other personal | 63,225 | 61,944 |
| Credit cards | 8,329 | 8,071 |
| Business and government | 194,456 | 175,067 |
| | 385,630 | 360,340 |
| Allowance for credit losses (Notes 1 and 4) | (1,639) | (1,833) |
| | 383,991 | 358,507 |
| **Other Assets** | | |
| Derivative instruments (Note 8) | 26,204 | 28,951 |
| Customers' liability under acceptances (Note 12) | 18,585 | 16,546 |
| Premises and equipment (Note 9) | 1,986 | 2,033 |
| Goodwill (Note 11) | 6,373 | 6,244 |
| Intangible assets (Note 11) | 2,272 | 2,159 |
| Current tax assets | 1,515 | 1,371 |
| Deferred tax assets (Note 22) | 2,037 | 2,865 |
| Other (Note 12) | 14,652 | 13,570 |
| | 73,624 | 73,739 |
| **Total Assets** | $ 774,048 | $ 709,580 |
| **Liabilities and Equity** | | |
| **Deposits** (Note 13) | $ 522,051 | $ 479,792 |
| **Other Liabilities** | | |
| Derivative instruments (Note 8) | 24,411 | 27,804 |
| Acceptances (Note 14) | 18,585 | 16,546 |
| Securities sold but not yet purchased (Note 14) | 28,804 | 25,163 |
| Securities lent or sold under repurchase agreements (Note 14) | 66,684 | 55,119 |
| Securitization and structured entities' liabilities (Notes 6 and 7) | 25,051 | 23,054 |
| Current tax liabilities | 50 | 125 |
| Deferred tax liabilities (Note 22) | 74 | 233 |
| Other (Note 14) | 35,829 | 32,361 |
| | 199,488 | 180,405 |
| **Subordinated Debt** (Note 15) | 6,782 | 5,029 |
| **Equity** | | |
| Preferred shares (Note 16) | 4,340 | 4,240 |
| Common shares (Note 16) | 12,929 | 13,032 |
| Contributed surplus | 300 | 307 |
| Retained earnings | 25,856 | 23,709 |
| Accumulated other comprehensive income | 2,302 | 3,066 |
| **Total Equity** | 45,727 | 44,354 |
| **Total Liabilities and Equity** | $ 774,048 | $ 709,580 |

The accompanying notes are an integral part of these consolidated financial statements.

Certain comparative figures have been reclassified to conform with the current year's presentation.

# Consolidated Statement of Changes in Equity

| For the Year Ended October 31 (Canadian $ in millions) | 2018 | 2017 | 2016 |
|---|---|---|---|
| **Preferred Shares** (Note 16) | | | |
| Balance at beginning of year | **$ 4,240** | $ 3,840 | $ 3,240 |
| Issued during the year | **400** | 900 | 600 |
| Redeemed during the year | **(300)** | (500) | – |
| Balance at End of Year | **4,340** | 4,240 | 3,840 |
| **Common Shares** (Note 16) | | | |
| Balance at beginning of year | **13,032** | 12,539 | 12,313 |
| Issued under the Shareholder Dividend Reinvestment and Share Purchase Plan (Note 16) | **–** | 448 | 90 |
| Issued under the Stock Option Plan (Note 16) | **99** | 146 | 136 |
| Repurchased for cancellation (Note 16) | **(202)** | (101) | – |
| Balance at End of Year | **12,929** | 13,032 | 12,539 |
| **Contributed Surplus** | | | |
| Balance at beginning of year | **307** | 294 | 299 |
| Stock option expense, net of options exercised (Note 20) | **(12)** | 6 | (14) |
| Other | **5** | 7 | 9 |
| Balance at End of Year | **300** | 307 | 294 |
| **Retained Earnings** | | | |
| Balance at beginning of year | **23,709** | 21,205 | 18,930 |
| Impact from adopting IFRS 9 (Note 28) | **99** | na | na |
| Net income attributable to bank shareholders | **5,450** | 5,348 | 4,622 |
| Dividends – Preferred shares (Note 16) | **(184)** | (184) | (150) |
| – Common shares (Note 16) | **(2,424)** | (2,312) | (2,191) |
| Share issue expense | **(5)** | (9) | (6) |
| Common shares repurchased for cancellation (Note 16) | **(789)** | (339) | – |
| Balance at End of Year | **25,856** | 23,709 | 21,205 |
| **Accumulated Other Comprehensive Income (Loss) on Fair Value through OCI Securities, net of taxes** (1) | | | |
| Balance at beginning of year | **56** | 48 | (75) |
| Impact from adopting IFRS 9 (Note 28) | **(55)** | na | na |
| Unrealized gains (losses) on fair value through OCI debt securities arising during the year | **(251)** | na | na |
| Unrealized gains on available-for-sale securities arising during the year | **na** | 95 | 151 |
| Reclassification to earnings of (gains) in the year | **(65)** | (87) | (28) |
| Balance at End of Year | **(315)** | 56 | 48 |
| **Accumulated Other Comprehensive Income (Loss) on Cash Flow Hedges, net of taxes** | | | |
| Balance at beginning of year | **(182)** | 596 | 612 |
| (Losses) on derivatives designated as cash flow hedges arising during the year | **(1,228)** | (839) | (26) |
| Reclassification to earnings of losses on derivatives designated as cash flow hedges in the year | **336** | 61 | 10 |
| Balance at End of Year | **(1,074)** | (182) | 596 |
| **Accumulated Other Comprehensive Income on Translation of Net Foreign Operations, net of taxes** | | | |
| Balance at beginning of year | **3,465** | 4,327 | 4,073 |
| Unrealized gains (losses) on translation of net foreign operations | **417** | (885) | 213 |
| Unrealized gains (losses) on hedges of net foreign operations | **(155)** | 23 | 41 |
| Balance at End of Year | **3,727** | 3,465 | 4,327 |
| **Accumulated Other Comprehensive Income (Loss) on Pension and Other Employee Future Benefit Plans, net of taxes** | | | |
| Balance at beginning of year | **(92)** | (512) | (90) |
| Gains (losses) on remeasurement of pension and other employee future benefit plans | **261** | 420 | (422) |
| Balance at End of Year | **169** | (92) | (512) |
| **Accumulated Other Comprehensive Loss on Own Credit Risk on Financial Liabilities Designated at Fair Value, net of taxes** | | | |
| Balance at beginning of year | **(181)** | (33) | 120 |
| (Losses) on remeasurement of own credit risk on financial liabilities designated at fair value (Note 1) | **(24)** | (148) | (153) |
| Balance at End of Year | **(205)** | (181) | (33) |
| **Total Accumulated Other Comprehensive Income** | **2,302** | 3,066 | 4,426 |
| **Total Shareholders' Equity** | **$ 45,727** | $ 44,354 | $ 42,304 |
| **Non-controlling Interest in Subsidiaries** | | | |
| Balance at beginning of year | **–** | 24 | 491 |
| Net income attributable to non-controlling interest | **–** | 2 | 9 |
| Dividends to non-controlling interest | **–** | – | (10) |
| Redemption/purchase of non-controlling interest | **–** | (25) | (450) |
| Other | **–** | (1) | (16) |
| Balance at End of Year | **–** | – | 24 |
| **Total Equity** | **$ 45,727** | $ 44,354 | $ 42,328 |

(1) Fiscal 2017 and prior years represent available-for-sale securities (Note 1).

na – not applicable due to IFRS 9 adoption.

The accompanying notes are an integral part of these consolidated financial statements.

# Consolidated Statement of Cash Flows

| For the Year Ended October 31 (Canadian $ in millions) | 2018 | 2017 | 2016 |
|---|---|---|---|
| **Cash Flows from Operating Activities** | | | |
| Net Income | **$ 5,450** | $ 5,350 | $ 4,631 |
| Adjustments to determine net cash flows provided by (used in) operating activities | | | |
| Provision on securities, other than trading (Note 3) | **14** | 7 | 17 |
| Net (gain) on securities, other than trading (Note 3) | **(253)** | (178) | (101) |
| Net (increase) in trading securities | **(2,650)** | (16,237) | (11,403) |
| Provision for credit losses (Note 4) | **662** | 746 | 771 |
| Change in derivative instruments – (Increase) decrease in derivative asset | **5,287** | 15,544 | (306) |
| – (Decrease) in derivative liability | **(6,699)** | (14,923) | (5,598) |
| Amortization of premises and equipment (Note 9) | **400** | 391 | 384 |
| Amortization of other assets | **224** | 227 | 219 |
| Amortization of intangible assets (Note 11) | **503** | 485 | 444 |
| Net decrease in deferred income tax asset | **834** | 156 | 108 |
| Net increase (decrease) in deferred income tax liability | **2** | (12) | (7) |
| Net (increase) in current income tax asset | **(232)** | (497) | (345) |
| Net increase (decrease) in current income tax liability | **(87)** | 52 | (18) |
| Change in accrued interest – (Increase) in interest receivable | **(366)** | (130) | (81) |
| – Increase in interest payable | **337** | 15 | 64 |
| Changes in other items and accruals, net | **956** | (3,416) | 1,199 |
| Net increase in deposits | **35,261** | 15,409 | 23,385 |
| Net (increase) in loans | **(23,089)** | (6,823) | (23,169) |
| Net increase in securities sold but not yet purchased | **2,004** | 336 | 3,739 |
| Net increase (decrease) in securities lent or sold under repurchase agreements | **452** | 16,535 | (82) |
| Net (increase) decrease in securities borrowed or purchased under resale agreements | **(2,958)** | (10,891) | 2,793 |
| Net increase in securitization and structured entities' liabilities | **1,860** | 762 | 628 |
| Net Cash Provided by (Used in) Operating Activities | **17,912** | 2,908 | (2,728) |
| **Cash Flows from Financing Activities** | | | |
| Net increase (decrease) in liabilities of subsidiaries | **2,203** | (87) | 3,100 |
| Proceeds from issuance of covered bonds (Note 13) | **2,706** | 5,845 | 8,945 |
| Redemption of covered bonds (Note 13) | **(567)** | (2,602) | (2,101) |
| Proceeds from issuance of subordinated debt (Note 15) | **2,685** | 850 | 2,250 |
| Repayment of subordinated debt (Note 15) | **(900)** | (100) | (2,200) |
| Proceeds from issuance of preferred shares (Note 16) | **400** | 900 | 600 |
| Redemption of preferred shares (Note 16) | **(300)** | (500) | – |
| Redemption of capital trust securities | **–** | – | (450) |
| Share issue expense | **(5)** | (9) | (6) |
| Proceeds from issuance of common shares (Note 16) | **88** | 149 | 137 |
| Common shares repurchased for cancellation (Note 16) | **(991)** | (440) | – |
| Cash dividends paid | **(2,582)** | (2,010) | (2,219) |
| Cash dividends paid to non-controlling interest | **–** | – | (10) |
| Net Cash Provided by Financing Activities | **2,737** | 1,996 | 8,046 |
| **Cash Flows from Investing Activities** | | | |
| Net (increase) decrease in interest bearing deposits with banks | **(1,648)** | (2,245) | 3,007 |
| Purchases of securities, other than trading | **(46,749)** | (30,424) | (28,860) |
| Maturities of securities, other than trading | **14,754** | 5,930 | 6,985 |
| Proceeds from sales of securities, other than trading | **23,561** | 24,400 | 16,294 |
| Purchase of non-controlling interest | **–** | (25) | – |
| Premises and equipment – net (purchases) | **(330)** | (301) | (224) |
| Purchased and developed software – net (purchases) | **(556)** | (490) | (387) |
| Acquisitions (Note 10) | **(365)** | – | (12,147) |
| Net Cash (Used in) Investing Activities | **(11,333)** | (3,155) | (15,332) |
| Effect of Exchange Rate Changes on Cash and Cash Equivalents | **227** | (803) | 1,372 |
| Net increase (decrease) in Cash and Cash Equivalents | **9,543** | 946 | (8,642) |
| Cash and Cash Equivalents at Beginning of Year | **32,599** | 31,653 | 40,295 |
| **Cash and Cash Equivalents at End of Year** (Note 2) | **$ 42,142** | $ 32,599 | $ 31,653 |
| **Supplemental Disclosure of Cash Flow Information** | | | |
| Net cash provided by operating activities includes: | | | |
| Interest paid in the year | **$ 8,790** | $ 5,826 | $ 4,561 |
| Income taxes paid in the year | **$ 1,261** | $ 1,338 | $ 1,201 |
| Interest received in the year | **$ 18,867** | $ 15,553 | $ 14,273 |
| Dividends received in the year | **$ 1,277** | $ 1,607 | $ 1,336 |

The accompanying notes are an integral part of these consolidated financial statements.

Certain comparative figures have been reclassified to conform with the current year's presentation.

# Note 1: Basis of Presentation

Bank of Montreal ("the bank") is a chartered bank under the *Bank Act (Canada)* and is a public company incorporated in Canada. We are a highly diversified financial services company, providing a broad range of personal and commercial banking, wealth management and investment banking products and services. The bank's head office is at 129 rue Saint-Jacques, Montreal, Quebec. Its executive offices are at 100 King Street West, 1 First Canadian Place, Toronto, Ontario. Our common shares are listed on the Toronto Stock Exchange ("TSX") and the New York Stock Exchange.

We have prepared these consolidated financial statements in accordance with International Financial Reporting Standards ("IFRS") as issued by the International Accounting Standards Board ("IASB"). We also comply with interpretations of IFRS by our regulator, the Office of the Superintendent of Financial Institutions Canada ("OSFI").

Our consolidated financial statements have been prepared on a historic cost basis, except for the revaluation of the following items: assets and liabilities held for trading; financial assets and liabilities measured or designated at fair value through profit or loss ("FVTPL"); financial assets measured or designated at fair value through other comprehensive income ("FVOCI"); financial assets and financial liabilities designated as hedged items in qualifying fair value hedge relationships; cash-settled share-based payment liabilities; defined benefit pension and other employee future benefit liabilities; and insurance-related liabilities.

These consolidated financial statements were authorized for issue by the Board of Directors on December 4, 2018.

## Basis of Consolidation

These consolidated financial statements are inclusive of the financial statements of our subsidiaries as at October 31, 2018. We conduct business through a variety of corporate structures, including subsidiaries, structured entities ("SEs"), associates and joint ventures. Subsidiaries are those entities where we exercise control through our ownership of the majority of the voting shares. We also hold interests in SEs, which we consolidate when we control the SEs. These are more fully described in Note 7. All of the assets, liabilities, revenues and expenses of our subsidiaries and consolidated SEs are included in our consolidated financial statements. All intercompany transactions and balances are eliminated on consolidation.

We hold investments in associates, where we exert significant influence over operating, investing and financing decisions (generally companies in which we own between 20% and 50% of the voting shares). These are accounted for using the equity method. The equity method is also applied to our investments in joint ventures. Joint ventures are those entities where we exercise joint control through an agreement with other shareholders. Under the equity method of accounting, investments are initially recorded at cost, and the carrying amount is increased or decreased to recognize our share of investee net income or loss, including other comprehensive income or loss. Our equity accounted investments are recorded as other securities and our share of the net income or loss is recorded in investments in associates and joint ventures, in our Consolidated Statement of Income. Any other comprehensive income amounts are reflected in the relevant section of our Consolidated Statement of Comprehensive Income. Additional information regarding accounting for other securities is included in Note 3.

Non-controlling interest in subsidiaries is presented in our Consolidated Balance Sheet as a separate component of equity that is distinct from our shareholders' equity. The net income attributable to non-controlling interest in subsidiaries is presented separately in our Consolidated Statement of Income.

## Specific Accounting Policies

To facilitate a better understanding of our consolidated financial statements, we have disclosed our significant accounting policies throughout the following notes with the related financial disclosures by major caption:


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## Translation of Foreign Currencies

We conduct business in a variety of foreign currencies and present our consolidated financial statements in Canadian dollars, which is our functional currency. Monetary assets and liabilities, as well as non-monetary assets and liabilities measured at fair value that are denominated in foreign currencies, are translated into Canadian dollars at the exchange rate in effect at the balance sheet date. Non-monetary assets and liabilities not measured at fair value are translated into Canadian dollars at historical rates. Revenues and expenses denominated in foreign currencies are translated using the average exchange rate for the year.

Unrealized gains and losses arising from translating our net investment in foreign operations into Canadian dollars, net of related hedging activities and applicable income taxes, are included in our Consolidated Statement of Comprehensive Income within net gain (loss) on translation of net foreign operations. When we dispose of a foreign operation such that control, significant influence or joint control is lost, the cumulative amount of the translation gain (loss) and any applicable hedging activities and related income taxes is reclassified to our Consolidated Statement of Income as part of the gain or loss on disposition.

Foreign currency translation gains and losses on equity securities measured at FVOCI that are denominated in foreign currencies are included in accumulated other comprehensive income on FVOCI equity securities, net of taxes, in our Consolidated Statement of Changes in Equity. All other foreign currency translation gains and losses are included in foreign exchange, other than trading, in our Consolidated Statement of Income as they arise.

From time to time, we enter into foreign exchange hedge contracts to reduce our exposure to changes in the value of foreign currencies. Realized and unrealized gains and losses that arise on the mark-to-market of foreign exchange contracts related to economic hedges are included in non-interest revenue in our Consolidated Statement of Income. Changes in the fair value of derivative contracts that qualify as accounting hedges are recorded in our Consolidated Statement of Comprehensive Income within net change in unrealized gains (losses) on derivatives designated as cash flow hedges, with the spot/forward differential (the difference between the foreign currency exchange rate at the inception of the contract and the rate at the end of the contract) recorded in interest income (expense) over the term of the hedge.

## Revenue

*Dividend Income*

Dividend income is recognized when the right to receive payment is established. This is the ex-dividend date for listed equity securities.

*Fee Income*

**Securities commissions and fees** are earned in Wealth Management and Capital Markets on brokerage transactions executed for customers, generally as a fixed fee per share traded, where the commissions and related clearing expense are recognized on trade date. There are also fees based on a percentage of the customer's portfolio holdings that entitle clients to investment advice and a certain number of trades which are recorded over the period to which they relate.

**Deposit and payment service charges** are primarily earned in Personal and Commercial Banking and include monthly account maintenance fees and other activity-based fees earned on deposit and cash management services. Fees are recognized over time or at a point in time, i.e. over the period that account maintenance and cash management services are provided, or when an income-generating activity is performed.

**Card fees** arise in Personal and Commercial Banking and primarily include interchange income, late fees and annual fees. Card fees are recorded when the related services are provided, except for annual fees, which are recorded evenly throughout the year. Interchange income is calculated as a percentage of the transaction amount and/or a fixed price per transaction as established by the payment network and is recognized when the card transaction is settled. Reward costs for certain of our cards are recorded as a reduction in card fees.

**Investment management and custodial fees** are earned in Wealth Management and are based primarily on the balance of assets under management or assets under administration, as at the period end, for investment management, custodial, estate and trustee services provided. Fees are recorded over the period the services are performed.

**Mutual fund revenues** arise in Wealth Management and are earned on fund management services which are primarily calculated and recorded based on a percentage of the fund's net asset value. The fees are recorded over the period the services are performed.

**Underwriting and advisory fees** are earned in Capital Markets and arise from securities offerings in which we act as an underwriter or agent, structuring and administering loan syndications and fees earned from providing merger-and-acquisition services and structuring advice. Underwriting and advisory fees are generally recognized when the services or milestones are completed.

## Leases

We are lessors in both financing leases and operating leases. Leases are classified as financing leases if they transfer substantially all the risks and rewards incidental to ownership of the leased asset to the lessee. Otherwise they are classified as operating leases, as we retain substantially all the risks and rewards of asset ownership.

As lessor in a financing lease, a loan is recognized equal to the investment in the lease, which is calculated as the present value of the minimum payments to be received from the lessee, discounted at the interest rate implicit in the lease, plus any unguaranteed residual value we expect to recover at the end of the lease. Finance lease income is recognized in interest, dividend and fee income, loans, in our Consolidated Statement of Income.

Assets under operating leases are recorded in other assets in our Consolidated Balance Sheet. Rental income is recognized on a straight-line basis over the term of the lease in non-interest revenue, other, in our Consolidated Statement of Income. Depreciation on these assets is recognized on a straight-line basis over the life of the lease in non-interest expense, other, in our Consolidated Statement of Income.

## Assets Held-for-Sale

Non-current non-financial assets classified as held-for-sale are measured at the lower of their carrying amount and fair value less costs to sell and are presented within other assets in our Consolidated Balance Sheet. Subsequent to its initial classification, a non-current asset is no longer depreciated or amortized, and any subsequent write-down in fair value less costs to sell is recognized in non-interest revenue, other, in our Consolidated Statement of Income.

## Changes in Accounting Policies

*Financial Instruments*

Effective November 1, 2017 we adopted IFRS 9 *Financial Instruments* ("IFRS 9"), which replaces IAS 39 *Financial Instruments: Recognition and Measurement* ("IAS 39"). IFRS 9 addresses impairment, classification and measurement, and hedge accounting. The impact to shareholders' equity at November 1, 2017 was an increase of $70 million ($44 million after-tax) related to the impairment requirements of the standard. Prior periods have not been restated. Refer to Note 28, Transition to IFRS 9, for the impact on the opening balance sheet at November 1, 2017 and for accounting policies under IAS 39, which were applicable in prior periods.

*Impairment*

IFRS 9 introduces a new expected credit loss ("ECL") impairment model for all financial assets and certain off-balance sheet loan commitments and guarantees. The new ECL model results in an allowance for credit losses being recorded on financial assets regardless of whether there has been an actual impairment. This differs from our previous approach where the allowance recorded on performing loans was designed to capture only incurred losses whether or not they have been specifically identified.

The ECL model requires the recognition of credit losses based on up to 12 months of expected losses for performing loans (Stage 1) and the recognition of lifetime expected losses on performing loans that have experienced a significant increase in credit risk since origination (Stage 2).

The determination of a significant increase in credit risk takes into account many different factors and will vary by product and risk segment. The main factors considered in making this determination are relative changes in probability-weighted probability of default since origination and certain other criteria such as 30-day past due and watchlist status. The allowance for assets in Stage 2 will be higher than for those in Stage 1 as a result of the longer time horizon associated with this stage. Stage 3 requires the recognition of lifetime losses for all credit impaired assets.

IFRS 9 requires consideration of past events, current market conditions and reasonable supportable information about future economic conditions, in determining whether there has been a significant increase in credit risk and in calculating the amount of expected losses. The standard also requires future economic conditions be based on an unbiased, probability-weighted assessment of possible future outcomes.

In considering the lifetime of an instrument, IFRS 9 generally requires the use of the contractual period, including pre-payment, extension and other options. For revolving instruments, such as credit cards, that may not have a defined contractual period, lifetime is based on historical behaviour.

*Classification and Measurement*

Debt instruments, including loans, are classified based on both our business model for managing the assets and the contractual cash flow characteristics of the assets. Debt instruments are measured at fair value through profit or loss ("FVTPL") unless certain conditions are met that permit measurement at either fair value through other comprehensive income ("FVOCI") or amortized cost.

FVOCI is permitted where debt instruments are held with the objective of selling the assets or collecting contractual cash flows and those cash flows represent solely payments of principal and interest. These securities may be sold in response to or in anticipation of changes in interest rates and resulting prepayment risk, changes in credit risk, changes in foreign currency risk, changes in funding sources or terms, or to meet liquidity needs. Changes in fair value are recorded in other comprehensive income; gains or losses on disposal and impairment losses are recorded in our Consolidated Statement of Income.

Amortized cost is permitted where debt instruments are held with the objective of collecting contractual cash flows and those cash flows represent solely payments of principal and interest. Gains or losses on disposal and impairment losses are recorded in our Consolidated Statement of Income.

For both FVOCI and amortized cost instruments, premiums, discounts and transaction costs are amortized over the term of the instrument on an effective yield basis as an adjustment to interest income.

Equity instruments are measured at FVTPL unless we elect to measure at FVOCI, in which case gains and losses are never recognized in income.

As permitted by IFRS 9, in fiscal 2015, we have early adopted the provisions relating to the recognition of changes in own credit risk for financial liabilities designated at FVTPL.

Additional information regarding changes in own credit risk is included in Notes 13 and 14.

*Hedge Accounting*

IFRS 9 introduced a new hedge accounting model that expands the scope of hedged items and risks eligible for hedge accounting and aligns hedge accounting more closely with risk management. The new model no longer specifies quantitative measures for effectiveness testing and does not permit hedge de-designation. IFRS 9 includes a policy choice that allows us to continue to apply the existing hedge accounting rules, which we have elected to use. However, as required by the standard, we adopted the new hedge accounting disclosures. Refer to Note 8.

## Use of Estimates and Judgments

The preparation of the consolidated financial statements requires management to use estimates and assumptions that affect the carrying amounts of certain assets and liabilities, certain amounts reported in net income and other related disclosures.

The most significant assets and liabilities for which we must make estimates include allowance for credit losses; financial instruments measured at fair value; pension and other employee future benefits; impairment of securities; income taxes and deferred taxes; goodwill and intangible assets; insurance-related liabilities; and provisions. We make judgments in assessing whether substantially all risks and rewards have been transferred in respect of transfers of financial assets and whether we control SEs, as discussed in Notes 6 and 7, respectively. If actual results were to differ from the estimates, the impact would be recorded in future periods.

We have established detailed policies and control procedures that are intended to ensure these judgments are well controlled, independently reviewed and consistently applied from period to period. We believe that our estimates of the value of our assets and liabilities are appropriate.

*Allowance for Credit Losses*

The expected credit loss model requires the recognition of credit losses based on up to 12 months of expected losses for performing loans and the recognition of lifetime losses on performing loans that have experienced a significant increase in credit risk since origination.

The determination of a significant increase in credit risk takes into account many different factors and varies by product and risk segment. The main factors considered in making this determination are relative changes in probability of default since origination, and certain other criteria, such as 30-day past due and watchlist status. The assessment of a significant increase in credit risk requires experienced credit judgment.

In determining whether there has been a significant increase in credit risk and in calculating the amount of expected credit losses, we must rely on estimates and exercise judgment regarding matters for which the ultimate outcome is unknown. These judgments include changes in circumstances that may cause future assessments of credit risk to be materially different from current assessments, which could require an increase or decrease in the allowance for credit losses.

The calculation of expected credit losses includes the explicit incorporation of forecasts of future economic conditions. We have developed models incorporating specific macroeconomic variables that are relevant to each portfolio. Key economic variables for our retail portfolios include primary operating markets of Canada, the United States and regional markets where considered significant. Forecasts are developed internally by our

Economics group, considering external data and our view of future economic conditions. We exercise experienced credit judgment to incorporate multiple economic forecasts which are probability-weighted in the determination of the final expected credit loss. The allowance is sensitive to changes in both economic forecasts and the probability weight assigned to each forecast scenario.

Additional information regarding the allowance for credit losses is included in Notes 4 and 28.

*Financial Instruments Measured at Fair Value*

Fair value measurement techniques are used to value various financial assets and financial liabilities and are used in performing impairment testing on certain non-financial assets. Detailed discussions of our fair value measurement techniques are included in Note 17.

*Pension and Other Employee Future Benefits*

Our pension and other employee future benefits expense is calculated by our independent actuaries using assumptions determined by management. If actual experience were to differ from the assumptions used, we would recognize this difference in other comprehensive income.

Pension and other employee future benefits expense, plan assets and defined benefit obligations are also sensitive to changes in discount rates. We determine discount rates for all of our plans using high-quality AA rated corporate bond yields with terms matching the plans' specific cash flows.

Additional information regarding our accounting for pension and other employee future benefits is included in Note 21.

*Impairment of Securities*

We review other securities at each quarter-end reporting period to identify and evaluate investments that show indications of possible impairment. For these equity securities, a significant or prolonged decline in the fair value of a security below its cost is objective evidence of impairment.

Debt securities measured at amortized cost or FVOCI are assessed for impairment using the expected credit loss model. For securities determined to have low credit risk, the allowance for credit losses is measured at a 12 month expected credit loss.

Additional information regarding our accounting for debt securities measured at amortized cost or FVOCI and other securities, allowance for credit losses and the determination of fair value is included in Notes 3 and 17.

*Income Taxes and Deferred Tax Assets*

The provision for income taxes is calculated based on the expected tax treatment of transactions recorded in either our Consolidated Statement of Income or Consolidated Statement of Changes in Equity. In determining the provision for income taxes, we interpret tax legislation, case law and administrative positions in numerous jurisdictions and, based on our judgment, record our estimate of the amount required to settle tax obligations. We also make assumptions about the expected timing of the reversal of deferred tax assets and liabilities. If our interpretations differ from those of taxing authorities or if the timing of reversals is not as expected, our provision for income taxes could increase or decrease in future periods. The amount of any such increase or decrease cannot be reasonably estimated.

Deferred tax assets are recognized only when it is probable that sufficient taxable profit will be available in future periods against which deductible temporary differences may be utilized. We are required to assess whether it is probable that our deferred income tax assets will be realized prior to expiration and, based on all the available evidence, determine if any portion of our deferred income tax assets should not be recognized. The factors used to assess the probability of realization are our past experience of income and capital gains, our forecast of future net income before taxes, and the period remaining before the expiration of tax loss carryforwards. Changes in our assessment of these factors could increase or decrease our provision for income taxes in future periods.

Additional information regarding our accounting for income taxes is included in Note 22.

*Goodwill and Intangible Assets*

For the purpose of impairment testing, goodwill is allocated to our groups of cash-generating units ("CGUs"), which represent the lowest level within the bank at which goodwill is monitored for internal management purposes. Impairment testing is performed at least annually, by comparing the carrying values and the recoverable amounts of the CGUs to which goodwill has been allocated to determine whether the recoverable amount of each group is greater than its carrying value. If the carrying value of the group were to exceed its recoverable amount, an impairment calculation would be performed. The recoverable amount of a CGU is the higher of its fair value less costs to sell and the value in use.

In determining fair value less costs to sell, we employ a discounted cash flow model consistent with those used when we acquire businesses. This model is dependent on assumptions related to revenue growth, discount rates, synergies achieved on acquisition and the availability of comparable acquisition data. Changes in any of these assumptions would affect the determination of fair value for each of the business units in a different manner. Management must exercise judgment and make assumptions in determining fair value less costs to sell, and differences in judgment and assumptions could affect the determination of fair value and any resulting impairment write-down.

Intangible assets with a definite life are amortized to income on either a straight-line or an accelerated basis over a period not exceeding 15 years, depending on the nature of the asset. We test definite-life intangible assets for impairment when circumstances indicate the carrying value may not be recoverable. Indefinite-life intangible assets are tested annually for impairment. If any intangible assets are determined to be impaired, we write them down to their recoverable amount, the higher of value in use and fair value less costs to sell, when this is less than the carrying value.

Additional information regarding goodwill and intangible assets is included in Note 11.

*Insurance-Related Liabilities*

Insurance claims and policy benefit liabilities represent current claims and estimates of future insurance policy benefit liabilities. Liabilities for life insurance contracts are determined using the Canadian Asset Liability Method, which incorporates best-estimate assumptions for mortality, morbidity, policy lapses, surrenders, future investment yields, policy dividends, administration costs and margins for adverse deviation. These assumptions are reviewed at least annually and updated to reflect actual experience and market conditions. The most significant impact on the valuation of a liability would result from a change in the assumption for future investment yields.

Additional information regarding insurance-related liabilities is included in Note 14.

*Provisions*
The bank and its subsidiaries are involved in various legal actions in the ordinary course of business.

Provisions are recorded at the best estimate of the amounts required to settle any obligations related to these legal actions as at the balance sheet date, taking into account the risks and uncertainties associated with the obligation. Factors considered in making the assessment include: a case-by-case assessment of specific facts and circumstances, our past experience and the opinions of legal experts. Management and external experts are involved in estimating any provisions. The actual costs of resolving these claims may be substantially higher or lower than the amounts of the provisions.

Additional information regarding provisions is included in Note 24.

*Transfer of Financial Assets and Consolidation of Structured Entities*
We enter into transactions in which we transfer assets, typically mortgage loans and credit cards, to a structured entity or third party to obtain alternate sources of funding. We assess whether substantially all of the risks and rewards of the loans have been transferred to determine if they qualify for derecognition. Since we continue to be exposed to substantially all of the repayment, interest rate and/or credit risk associated with the securitized loans, they do not qualify for derecognition. We continue to recognize the loans and the related cash proceeds as secured financings in our Consolidated Balance Sheet.

For securitization vehicles sponsored by the bank, the vehicles typically have limited decision-making authority. The structure of these vehicles limits the activities they can undertake, the types of assets they can hold and how activities are funded. We control and consolidate these vehicles when we have the key decision-making powers necessary to obtain the majority of the benefits of their activities.

For certain investments in limited partnerships, we exercise judgment in determining whether we control an entity. Based on an assessment of our interests and rights, we have determined that we do not control certain entities, even though we may have an ownership interest greater than 50%. This may be the case when we are not the general partner in an arrangement and the general partner's rights most significantly affect the returns of the entity. Additionally, we have determined that we control certain entities despite having an ownership interest less than 50%. This may be the case when we are the general partner in an arrangement and the general partner's rights most significantly affect the returns of the entity.

Transferred assets are discussed in greater detail in Note 6 and structured entities are discussed in greater detail in Notes 7 and 20.

## Future Changes in IFRS

*Revenue*
In May 2014, the IASB issued IFRS 15 *Revenue from Contracts with Customers* ("IFRS 15"), which replaces the existing standards for revenue recognition. The new standard establishes a framework for the recognition and measurement of revenues generated from contracts with customers, providing a principles-based approach for revenue recognition, and introduces the concept of recognizing revenue for performance obligations as they are satisfied. Revenues outside of the scope of IFRS 15 include interest and dividend income, trading revenues, securities gains/losses, insurance revenues, investments in associates and joint ventures and lease income. The standard also requires additional disclosures about the nature, amount, timing and uncertainty of revenues and cash flows arising from transactions with our customers.

In April 2016, the IASB issued clarifications to IFRS 15, which provided additional clarity on revenue recognition related to identifying performance obligations, application guidance on principal versus agent and licences of intellectual property.

The primary impact of IFRS 15 will be the reclassification of amounts within the Consolidated Statement of Income. Loyalty rewards and cash promotion costs on cards currently recorded in non-interest expense will be presented as a reduction in non-interest revenue. Reimbursement of certain expenses incurred on behalf of customers currently recorded as a reduction in non-interest expense will be recorded in non-interest revenue. In addition, there will be minimal impacts to net income as a result of no longer discounting our loyalty rewards costs and the amortization of costs to obtain card customers, which are currently expensed as incurred.

On transition to IFRS 15 on November 1, 2018, we can either restate prior periods as if we had always applied IFRS 15 or alternatively, we can recognize the cumulative effect of any changes resulting from our adoption of IFRS 15 in opening retained earnings with no comparison for prior years. We have elected to restate prior periods.

The impact of adopting IFRS 15 in 2018 and 2017 would have been a decrease in non-interest revenue of $132 million and $153 million, a decrease in non-interest expense of $136 million and $138 million, and an increase in net income of $3 million and a decrease in net income of $11 million, in our Consolidated Statement of Income, respectively. The impact in our Consolidated Balance Sheet as at October 31, 2018 and 2017 is not significant.

*Share-based Payment*
In June 2016, the IASB issued amendments to IFRS 2 *Share-based Payment* ("IFRS 2") in relation to the classification and measurement of share-based payment transactions. The amendments will not have a significant impact on our consolidated financial statements. The amendments are effective for our fiscal year beginning November 1, 2018.

*Leases*
In January 2016, the IASB issued IFRS 16 *Leases* ("IFRS 16"), which provides guidance for leases whereby lessees will recognize a liability for the present value of future lease liabilities and record a corresponding asset on the balance sheet for most leases. There are minimal changes to lessor accounting. IFRS 16 is effective for our fiscal year beginning November 1, 2019.

In order to meet the requirements of IFRS 16, we have established an enterprise-wide project and are currently assessing the impact of the standard on our future financial results. The main impact identified to date is the requirement to record real estate leases on balance sheet. Currently, most of our real estate leases are classified as operating leases, whereby we record lease expense over the term of the lease with no asset or liability recorded on the balance sheet other than any related leasehold improvements. Under IFRS 16, we will recognize a right-of-use asset and a lease liability on the balance sheet. There will be no significant impact on our lessor businesses.

When we adopt IFRS 16, we can either recognize the cumulative effect of any changes resulting from our adoption of IFRS 16 in opening retained earnings with no comparison for prior years or alternatively, we can restate prior periods as if we had always applied IFRS 16. We are assessing our transition approach as part of our project.

*Insurance Contracts*
In May 2017, the IASB issued IFRS 17 *Insurance Contracts* ("IFRS 17"), which provides a comprehensive approach to accounting for all types of insurance contracts and will replace the existing IFRS 4 *Insurance Contracts*. In November 2018, the IASB tentatively decided to defer the effective date of IFRS 17 by one year, which would change the anticipated effective date for the bank to November 1, 2022. We will continue to closely monitor the ongoing discussions at the IASB. We are currently assessing the impact of the standard on our future financial results.

*Conceptual Framework*
In March 2018, the IASB issued the revised Conceptual Framework ("Framework"), which sets out the fundamental concepts for financial reporting to ensure consistency in standard-setting decisions and that similar transactions are treated in a similar way, so as to provide useful information to users of financial statements. The revised Framework, which is effective for our fiscal year beginning November 1, 2020, will inform future standard-setting decisions but does not impact existing IFRS. We do not expect the Framework to have a significant impact on our accounting policies.

## Note 2: Cash and Interest Bearing Deposits with Banks

| (Canadian $ in millions) | **2018** | 2017 |
|---|---|---|
| Cash and deposits with banks (1) | **40,738** | 30,002 |
| Cheques and other items in transit, net | **1,404** | 2,597 |
| Total cash and cash equivalents | **42,142** | 32,599 |

(1) Includes deposits with the Bank of Canada, the U.S. Federal Reserve and other central banks.

### Cheques and Other Items in Transit, Net
Cheques and other items in transit are recorded at cost and represent the net position of the uncleared cheques and other items in transit between us and other banks.

### Cash Restrictions
Certain of our foreign operations are required to maintain reserves or minimum balances with central banks in their respective countries of operation, totalling $1,655 million as at October 31, 2018 ($1,435 million in 2017).

### Interest Bearing Deposits with Banks
Deposits with banks are recorded at amortized cost and include acceptances we have purchased that were issued by other banks. Interest income earned on these deposits is recorded on an accrual basis.

## Note 3: Securities

Securities are divided into six types, each with a different purpose and accounting treatment. The types of securities we hold are as follows:

**Trading securities** are securities purchased for resale over a short period of time. Trading securities are recorded at fair value through profit or loss. Transaction costs and changes in fair value are recorded in our Consolidated Statement of Income in trading revenues.

**Fair value through profit or loss securities** are measured at fair value with changes in fair value and related transaction costs recorded in our Consolidated Statement of Income in securities gains and losses, other than trading, except as noted below. This category includes the following:

*Securities Designated at FVTPL*
In order to qualify for this designation, the security must have reliably measurable fair values and the designation eliminates or significantly reduces the inconsistent treatment that would otherwise arise from measuring the gains and losses on a different basis. Securities must be designated on initial recognition, and the designation is irrevocable. If these securities were not designated at FVTPL, they would be accounted for as either FVOCI or amortized cost.

We designate certain securities held by our insurance subsidiaries that support our insurance liabilities at fair value through profit or loss since the actuarial calculation of insurance liabilities is based on the fair value of the investments supporting them. This designation aligns the accounting result with the way the portfolio is managed on a fair value basis. The change in fair value of the securities is recorded in non-interest revenue, insurance revenue and the change in fair value of the liabilities is recorded in insurance claims, commissions and changes in policy benefit liabilities. The fair value of these investments as at October 31, 2018 of $8,783 million ($8,465 million as at October 31, 2017) is recorded in securities in our Consolidated Balance Sheet. The impact of recording these investments at fair value through profit or loss was a decrease of $372 million in non-interest revenue, insurance revenue, for the year ended October 31, 2018 (increase of $39 million for the year ended October 31, 2017).

*Securities Mandatorily Measured at FVTPL*
Securities managed on a fair value basis, but not held for trading, or debt securities whose cash flows do not represent solely payments of principal and interest and equity securities not held for trading are classified as FVTPL.

**Debt securities measured at amortized cost** are debt securities purchased with the objective of collecting contractual cash flows and those cash flows represent solely payments of principal and interest. These securities are initially recorded at fair value plus transaction costs and subsequently measured at amortized cost using the effective interest method. Impairment losses (recoveries) are recorded in our Consolidated Statement of Income in securities gains, other than trading. Interest income earned and amortization of premiums, discounts and transaction costs are recorded in our Consolidated Statement of Income in interest, dividend and fee income, securities.

**Debt securities measured at FVOCI** are debt securities purchased with the objective of both collecting contractual cash flows and selling the securities. The securities' cash flows represent solely payments of principal and interest. These securities may be sold in response to or in anticipation of changes in interest rates and resulting prepayment risk, changes in credit risk, changes in foreign currency risk, changes in funding sources or terms, or to meet liquidity needs.

Debt securities measured at FVOCI are initially recorded at fair value plus transaction costs. They are subsequently measured at fair value, with unrealized gains and losses recorded in our Consolidated Statement of Comprehensive Income until the security is sold or impaired. Gains and losses on disposal and impairment losses (recoveries) are recorded in our Consolidated Statement of Income in non-interest revenue, securities gains, other than trading. Interest income earned is recorded in our Consolidated Statement of Income in interest, dividend and fee income, securities using the effective interest method.

**Equity securities measured at FVOCI** are equity securities where we have elected to record changes in the fair value of the instrument in other comprehensive income as opposed to fair value through profit or loss. Gains or losses recorded on these instruments will never be recognized in profit or loss. Equity securities measured at FVOCI are not subject to an impairment assessment.

**Other securities** are investments in associates and joint ventures where we exert significant influence over operating, investing and financing decisions (generally companies in which we own between 20% and 50% of the voting shares). These are accounted for using the equity method of accounting. Our share of the net income or loss is recorded in investments in associates and joint ventures in our Consolidated Statement of Income. Any other comprehensive income amounts are reflected in the relevant section of our Consolidated Statement of Comprehensive Income.

We account for all of our securities transactions using settlement date accounting in our Consolidated Balance Sheet. Changes in fair value between the trade date and settlement date are recorded in net income, except for those related to securities measured at FVOCI, which are recorded in other comprehensive income.

## Impairment Review

Debt securities classified as amortized cost or FVOCI are assessed for impairment using the ECL model, with the exception of securities determined to have low credit risk where the allowance for credit losses is measured at a 12 month expected credit loss. A financial asset is considered to have low credit risk if the financial asset has a low risk of default, the borrower has a strong capacity to meet its contractual cash flow obligations in the near term and adverse changes in economic and business conditions in the longer term may, but will not necessarily, reduce the ability of the borrower to fulfill its contractual cash flow obligations.

## Classification of Securities

Our securities are classified as at October 31, 2018 under IFRS 9 and as at October 31, 2017 under IAS 39 as follows:

| (Canadian $ in millions) | **2018** | 2017 |
|---|---|---|
| Trading | **99,697** | 99,069 |
| FVTPL (1) | **11,611** | na |
| FVOCI - Debt and Equity (2) | **62,440** | na |
| Available-for-sale | **na** | 54,075 |
| Amortized cost (3) | **6,485** | na |
| Held-to-maturity | **na** | 9,094 |
| Other | **702** | 960 |
| | **180,935** | 163,198 |

(1) Comprised of $2,828 million mandatorily measured at fair value and $8,783 million designated at fair value.
(2) Includes allowances for credit losses on FVOCI debt securities of $2 million (na at October 31, 2017).
(3) Net of allowances for credit losses of $1 million (na at October 31, 2017).

na – not applicable due to IFRS 9 adoption.

## Fair Value Measurement

For traded securities, quoted market value is considered to be fair value. Quoted market value is based on bid prices. For securities where market quotes are not available, we use estimation techniques to determine fair value. A discussion of fair value measurement is included in Note 17.

## Classified under IFRS 9

| (Canadian $ in millions, except as noted) | Term to maturity | | | | | 2018 |
|---|---|---|---|---|---|---|
| | Within 1 year | 1 to 3 years | 3 to 5 years | 5 to 10 years | Over 10 years | Total |
| **Trading Securities** | | | | | | |
| Issued or guaranteed by: | | | | | | |
| Canadian federal government | 4,103 | 2,195 | 2,038 | 1,077 | 907 | 10,320 |
| Canadian provincial and municipal governments | 1,293 | 2,029 | 1,235 | 1,355 | 2,790 | 8,702 |
| U.S. federal government | 2,684 | 2,835 | 1,260 | 1,895 | 843 | 9,517 |
| U.S. states, municipalities and agencies | 756 | 135 | 29 | 114 | 182 | 1,216 |
| Other governments | 485 | 557 | 330 | 40 | – | 1,412 |
| NHA MBS, U.S. agency MBS and CMO (1) | 382 | 497 | 477 | 346 | 7,482 | 9,184 |
| Corporate debt | 2,635 | 1,821 | 1,295 | 1,413 | 2,034 | 9,198 |
| Loans | 14 | 82 | 55 | 48 | – | 199 |
| Corporate equity | – | – | – | – | 49,949 | 49,949 |
| Total trading securities | 12,352 | 10,151 | 6,719 | 6,288 | 64,187 | 99,697 |
| **FVTPL Securities** | | | | | | |
| Issued or guaranteed by: | | | | | | |
| Canadian federal government | 328 | – | 4 | 2 | 97 | 431 |
| Canadian provincial and municipal governments | – | 23 | 5 | 22 | 896 | 946 |
| U.S. federal government | 69 | – | – | – | – | 69 |
| NHA MBS, U.S. agency MBS and CMO (1) | – | 3 | 4 | – | – | 7 |
| Corporate debt | 616 | 56 | 125 | 692 | 5,331 | 6,820 |
| Corporate equity | – | – | – | – | 3,338 | 3,338 |
| Total FVTPL securities | 1,013 | 82 | 138 | 716 | 9,662 | 11,611 |
| **FVOCI Securities** | | | | | | |
| Issued or guaranteed by: | | | | | | |
| Canadian federal government | | | | | | |
| Amortized cost | 6,600 | 4,036 | 1,711 | 537 | – | 12,884 |
| Fair value | 6,592 | 4,006 | 1,688 | 519 | – | 12,805 |
| Yield (%) | 1.52 | 1.58 | 2.09 | 2.14 | – | 1.64 |
| Canadian provincial and municipal governments | | | | | | |
| Amortized cost | 3,200 | 1,229 | 1,742 | 713 | 12 | 6,896 |
| Fair value | 3,204 | 1,227 | 1,726 | 693 | 12 | 6,862 |
| Yield (%) | 1.36 | 1.81 | 2.67 | 2.59 | 3.58 | 1.90 |
| U.S. federal government | | | | | | |
| Amortized cost | 462 | 1,604 | 7,116 | 8,221 | – | 17,403 |
| Fair value | 454 | 1,595 | 6,858 | 7,916 | – | 16,823 |
| Yield (%) | 2.39 | 2.61 | 1.98 | 2.35 | – | 2.22 |
| U.S. states, municipalities and agencies | | | | | | |
| Amortized cost | 356 | 684 | 542 | 1,177 | 935 | 3,694 |
| Fair value | 355 | 678 | 540 | 1,158 | 924 | 3,655 |
| Yield (%) | 1.69 | 2.07 | 2.59 | 2.59 | 2.66 | 2.42 |
| Other governments | | | | | | |
| Amortized cost | 1,193 | 1,187 | 2,135 | 303 | – | 4,818 |
| Fair value | 1,192 | 1,183 | 2,113 | 302 | – | 4,790 |
| Yield (%) | 1.82 | 2.21 | 2.74 | 2.87 | – | 2.39 |
| NHA MBS (1) | | | | | | |
| Amortized cost | 306 | 62 | 2,014 | – | – | 2,382 |
| Fair value | 310 | 62 | 1,998 | – | – | 2,370 |
| Yield (%) | 1.95 | 1.32 | 2.00 | – | – | 1.98 |
| U.S. agency MBS and CMO (1) | | | | | | |
| Amortized cost | – | 13 | 109 | 1,819 | 9,870 | 11,811 |
| Fair value | – | 13 | 106 | 1,761 | 9,437 | 11,317 |
| Yield (%) | – | 2.31 | 2.50 | 2.51 | 2.29 | 2.33 |
| Corporate debt | | | | | | |
| Amortized cost | 672 | 1,992 | 569 | 509 | 41 | 3,783 |
| Fair value | 671 | 1,980 | 566 | 498 | 41 | 3,756 |
| Yield (%) | 1.45 | 2.86 | 2.87 | 3.24 | 4.02 | 2.67 |
| Corporate equity | | | | | | |
| Amortized cost | – | – | – | – | 62 | 62 |
| Fair value | – | – | – | – | 62 | 62 |
| Yield (%) | – | – | – | – | – | – |
| Total cost or amortized cost | 12,789 | 10,807 | 15,938 | 13,279 | 10,920 | 63,733 |
| Total fair value | 12,778 | 10,744 | 15,595 | 12,847 | 10,476 | 62,440 |
| Yield (%) | 1.55 | 2.09 | 2.23 | 2.44 | 2.32 | 2.13 |
| **Amortized Cost Securities** | | | | | | |
| Issued or guaranteed by: | | | | | | |
| Canadian provincial and municipal governments | | | | | | |
| Amortized cost | 230 | 280 | 143 | 179 | – | 832 |
| Fair value | 230 | 282 | 145 | 184 | – | 841 |
| Other governments | | | | | | |
| Amortized cost | – | 3 | 7 | – | – | 10 |
| Fair value | – | 3 | 7 | – | – | 10 |
| NHA MBS, U.S. agency MBS and CMO (1) | | | | | | |
| Amortized cost | 171 | 452 | – | 1,884 | 3,045 | 5,552 |
| Fair value | 171 | 454 | – | 1,808 | 2,913 | 5,346 |
| Corporate debt | | | | | | |
| Amortized cost | 1 | 10 | 10 | 5 | 65 | 91 |
| Fair value | 1 | 10 | 10 | 5 | 65 | 91 |
| Total cost or amortized cost | 402 | 745 | 160 | 2,068 | 3,110 | 6,485 |
| Total fair value | 402 | 749 | 162 | 1,997 | 2,978 | 6,288 |
| **Other Securities** | | | | | | |
| Carrying value | – | – | – | – | 702 | 702 |
| Total carrying value or amortized cost of securities | 26,556 | 21,785 | 22,955 | 22,351 | 88,581 | 182,228 |
| Total value of securities | 26,545 | 21,722 | 22,612 | 21,919 | 88,137 | 180,935 |
| **Total by Currency** (in Canadian $ equivalent) | | | | | | |
| Canadian dollar | 18,091 | 12,284 | 9,782 | 5,475 | 37,135 | 82,767 |
| U.S. dollar | 7,799 | 9,423 | 12,718 | 16,404 | 49,922 | 96,266 |
| Other currencies | 655 | 15 | 112 | 40 | 1,080 | 1,902 |
| Total securities | 26,545 | 21,722 | 22,612 | 21,919 | 88,137 | 180,935 |

## Classified under IAS 39

| (Canadian $ in millions, except as noted) | | | Term to maturity | | | 2017 |
|---|---|---|---|---|---|---|
| | Within 1 year | 1 to 3 years | 3 to 5 years | 5 to 10 years | Over 10 years | Total |
| **Trading Securities** | | | | | | |
| Issued or guaranteed by: | | | | | | |
| Canadian federal government | 4,862 | 1,527 | 2,021 | 1,313 | 1,104 | 10,827 |
| Canadian provincial and municipal governments | 812 | 1,343 | 714 | 1,991 | 2,467 | 7,327 |
| U.S. federal government | 1,332 | 1,758 | 2,000 | 1,906 | 2,477 | 9,473 |
| U.S. states, municipalities and agencies | 642 | 222 | 86 | 100 | 1,081 | 2,131 |
| Other governments | 85 | 438 | 266 | 34 | – | 823 |
| NHA MBS, U.S. agency MBS and CMO (1) | 147 | 571 | 203 | 8 | 2 | 931 |
| Corporate debt | 1,298 | 1,375 | 795 | 1,281 | 7,014 | 11,763 |
| Loans | – | 28 | 7 | 118 | – | 153 |
| Corporate equity | – | – | – | – | 55,641 | 55,641 |
| Total trading securities | 9,178 | 7,262 | 6,092 | 6,751 | 69,786 | 99,069 |
| **Available-for-Sale Securities** | | | | | | |
| Issued or guaranteed by: | | | | | | |
| Canadian federal government | | | | | | |
| Amortized cost | 5,585 | 1,764 | 1,266 | 597 | – | 9,212 |
| Fair value | 5,578 | 1,749 | 1,262 | 591 | – | 9,180 |
| Yield (%) | 0.66 | 1.48 | 1.46 | 1.57 | – | 0.99 |
| Canadian provincial and municipal governments | | | | | | |
| Amortized cost | 1,157 | 265 | 1,293 | 860 | 38 | 3,613 |
| Fair value | 1,156 | 266 | 1,310 | 855 | 40 | 3,627 |
| Yield (%) | 0.85 | 1.45 | 2.24 | 2.32 | 3.27 | 1.77 |
| U.S. federal government | | | | | | |
| Amortized cost | 15 | – | 3,128 | 11,338 | – | 14,481 |
| Fair value | 17 | – | 3,115 | 11,137 | – | 14,269 |
| Yield (%) | 0.88 | – | 1.81 | 1.80 | – | 1.80 |
| U.S. states, municipalities and agencies | | | | | | |
| Amortized cost | 370 | 563 | 463 | 1,329 | 1,333 | 4,058 |
| Fair value | 370 | 566 | 467 | 1,357 | 1,336 | 4,096 |
| Yield (%) | 1.63 | 1.78 | 2.26 | 2.40 | 1.71 | 2.00 |
| Other governments | | | | | | |
| Amortized cost | 1,592 | 1,231 | 725 | 19 | – | 3,567 |
| Fair value | 1,593 | 1,225 | 722 | 18 | – | 3,558 |
| Yield (%) | 1.44 | 1.34 | 1.52 | 2.72 | – | 1.43 |
| NHA MBS (1) | | | | | | |
| Amortized cost | 255 | 1,143 | 1,059 | – | – | 2,457 |
| Fair value | 262 | 1,141 | 1,052 | – | – | 2,455 |
| Yield (%) | 2.05 | 1.83 | 1.56 | – | – | 1.74 |
| U.S. agency MBS and CMO – U.S. (1) | | | | | | |
| Amortized cost | 1 | 20 | 62 | 658 | 10,161 | 10,902 |
| Fair value | 1 | 19 | 62 | 659 | 10,020 | 10,761 |
| Yield (%) | 1.83 | 3.12 | 2.25 | 2.31 | 1.97 | 1.99 |
| Corporate debt | | | | | | |
| Amortized cost | 995 | 2,082 | 737 | 607 | 93 | 4,514 |
| Fair value | 997 | 2,080 | 734 | 619 | 95 | 4,525 |
| Yield (%) | 0.75 | 2.08 | 2.48 | 3.08 | 3.64 | 2.02 |
| Corporate equity | | | | | | |
| Amortized cost | – | – | – | – | 1,499 | 1,499 |
| Fair value | – | – | – | – | 1,604 | 1,604 |
| Yield (%) | – | – | – | – | 2.37 | 2.37 |
| Total cost or amortized cost | 9,970 | 7,068 | 8,733 | 15,408 | 13,124 | 54,303 |
| Total fair value | 9,974 | 7,046 | 8,724 | 15,236 | 13,095 | 54,075 |
| Yield (%) | 0.89 | 1.72 | 1.85 | 1.95 | 2.00 | 1.72 |
| **Held-to-Maturity Securities** | | | | | | |
| Issued or guaranteed by: | | | | | | |
| Canadian federal government | | | | | | |
| Amortized cost | 1,855 | – | – | – | – | 1,855 |
| Fair value | 1,857 | – | – | – | – | 1,857 |
| Canadian provincial and municipal governments | | | | | | |
| Amortized cost | 735 | 510 | – | 322 | – | 1,567 |
| Fair value | 737 | 512 | – | 341 | – | 1,590 |
| NHA MBS, U.S. agency MBS and CMO (1) | | | | | | |
| Amortized cost | 191 | 485 | 364 | 999 | 3,633 | 5,672 |
| Fair value | 191 | 486 | 366 | 997 | 3,609 | 5,649 |
| Total cost or amortized cost | 2,781 | 995 | 364 | 1,321 | 3,633 | 9,094 |
| Total fair value | 2,785 | 998 | 366 | 1,338 | 3,609 | 9,096 |
| **Other Securities** | | | | | | |
| Carrying value | 7 | 21 | 13 | 38 | 881 | 960 |
| Total carrying value or amortized cost of securities | 21,936 | 15,346 | 15,202 | 23,518 | 87,424 | 163,426 |
| Total value of securities | 21,940 | 15,324 | 15,193 | 23,346 | 87,395 | 163,198 |
| **Total by Currency** (in Canadian $ equivalent) | | | | | | |
| Canadian dollar | 16,959 | 8,546 | 7,222 | 6,235 | 41,261 | 80,223 |
| U.S. dollar | 3,948 | 6,662 | 7,916 | 17,087 | 44,384 | 79,997 |
| Other currencies | 1,033 | 116 | 55 | 24 | 1,750 | 2,978 |
| Total securities | 21,940 | 15,324 | 15,193 | 23,346 | 87,395 | 163,198 |

(1) These amounts are supported by insured mortgages or issued by U.S. agencies and government-sponsored enterprises. NHA refers to the National Housing Act, MBS refers to mortgage-backed securities and CMO refers to collateralized mortgage obligations.

Yields in the tables above are calculated using the cost of the security and the contractual interest rate associated with each security, adjusted for any amortization of premiums and discounts. Tax effects are not taken into consideration. The term to maturity included in the table above is based on the contractual maturity date of the security. Actual maturities could differ, as issuers may have the right to call or prepay obligations. Equity securities with no maturity date are included in the over 10 years category.

## Unrealized Gains and Losses

The following table summarizes the unrealized gains and losses on FVOCI securities as at October 31, 2018 under IFRS 9 and the unrealized gains and losses on available-for-sale securities as at October 31, 2017 under IAS 39.

| (Canadian $ in millions) | | | | 2018 | | | | 2017 |
|---|---|---|---|---|---|---|---|---|
| | **Amortized cost** | **Gross unrealized gains** | **Gross unrealized losses** | **Fair value** | Amortized cost | Gross unrealized gains | Gross unrealized losses | Fair value |
| Issued or guaranteed by: | | | | | | | | |
| Canadian federal government | **12,884** | **1** | **80** | **12,805** | 9,212 | 6 | 38 | 9,180 |
| Canadian provincial and municipal governments | **6,896** | **8** | **42** | **6,862** | 3,613 | 29 | 15 | 3,627 |
| U.S. federal government | **17,403** | **4** | **584** | **16,823** | 14,481 | 12 | 224 | 14,269 |
| U.S. states, municipalities and agencies | **3,694** | **16** | **55** | **3,655** | 4,058 | 43 | 5 | 4,096 |
| Other governments | **4,818** | **2** | **30** | **4,790** | 3,567 | 3 | 12 | 3,558 |
| NHA MBS | **2,382** | **6** | **18** | **2,370** | 2,457 | 9 | 11 | 2,455 |
| U.S. agency MBS and CMO | **11,811** | **2** | **496** | **11,317** | 10,902 | 6 | 147 | 10,761 |
| Corporate debt | **3,783** | **6** | **33** | **3,756** | 4,514 | 23 | 12 | 4,525 |
| Corporate equity | **62** | **–** | **–** | **62** | 1,499 | 121 | 16 | 1,604 |
| Total | **63,733** | **45** | **1,338** | **62,440** | 54,303 | 252 | 480 | 54,075 |

Unrealized gains (losses) may be offset by related (losses) gains on hedge contracts.

## Interest, Dividend and Fee Income

Interest, dividend and fee income has been included in our consolidated financial statements as follows, excluding other securities and trading securities. Related income for trading securities is included in Note 17 Trading-Related Revenue.

| (Canadian $ in millions) | **2018** | 2017 | 2016 |
|---|---|---|---|
| FVTPL | **16** | na | na |
| FVOCI | **1,118** | na | na |
| Amortized cost | **172** | na | na |
| Available-for-sale securities | **na** | 662 | 509 |
| Held-to-maturity securities | **na** | 150 | 143 |
| Total | **1,306** | 812 | 652 |

na – not applicable due to IFRS 9 adoption.
Certain comparative figures have been reclassified to conform with the current year's presentation.

## Non-Interest Revenue

Net gains and losses from securities, excluding net realized and unrealized gains on trading securities, have been included in our Consolidated Statement of Income as follows:

| (Canadian $ in millions) | **2018** | 2017 | 2016 |
|---|---|---|---|
| **Non-Interest Revenue** | | | |
| FVTPL securities | **106** | na | na |
| FVOCI securities (1) | | | |
| Gross realized gains | **363** | 228 | 59 |
| Gross realized (losses) | **(216)** | (99) | (16) |
| Unrealized gains on investments reclassified from available-for-sale to other | **na** | – | 7 |
| Other securities, net realized and unrealized gains | **–** | 49 | 51 |
| Impairment write-downs | **(14)** | (7) | (17) |
| Securities gains, other than trading (2) | **239** | 171 | 84 |

(1) Realized gains (losses) are net of unrealized gains (losses) on related hedge contracts. Fiscal 2017 and prior years represent available-for-sale securities (Note 1).
(2) The following amounts of income related to our insurance operations were included in non-interest revenue, insurance revenue, in our Consolidated Statement of Income: Interest, dividend and fee income of $354 million for the year ended October 31, 2018 ($325 million in 2017); and securities gains, other than trading, of $1 million for the year ended October 31, 2018 ($nil in 2017).
Unrealized gains and losses on trading securities are included in trading-related revenue in Note 17.
na – not applicable due to IFRS 9 adoption.

# Note 4: Loans and Allowance for Credit Losses

Loans are initially measured at fair value plus directly attributable costs, and are subsequently measured at amortized cost using the effective interest method. The effective interest method allocates interest income over the expected term of the loan by applying the effective interest rate to the carrying amount of the loan. The effective interest rate is defined as the rate that exactly discounts estimated future cash receipts through the expected term of the loan to the net carrying amount of the loan. Under the effective interest method, the amount recognized in interest, dividend and fee income, loans, varies over the term of the loan based on the principal outstanding. The treatment of interest income for impaired loans is described below.

## Securities Borrowed or Purchased Under Resale Agreements

Securities borrowed or purchased under resale agreements represent the amounts we will receive as a result of our commitment to return or resell securities that we have borrowed or purchased, back to the original lender or seller, on a specified date at a specified price. We account for these instruments as if they were loans.

## Lending Fees

Lending fees arise in Personal and Commercial Banking and Capital Markets. The accounting treatment for lending fees varies depending on the transaction. Some loan origination, restructuring and renegotiation fees are recorded as interest income over the term of the loan, while other lending fees are taken into income at the time of loan origination. Commitment fees are calculated as a percentage of the facility balance at the end

of the period. The fees are recorded as interest income over the term of the loan, unless we believe the loan commitment will not be used. In the latter case, commitment fees are recorded as lending fees earned over the commitment period. Loan syndication fees are payable and included in lending fees at the time the syndication is completed, unless the yield on any loans we retain is less than that of other comparable lenders involved in the financing. In the latter case, an appropriate portion of the syndication fee is recorded as interest income over the term of the loan.

## Impaired Loans

We classify a loan as impaired when one or more loss events have occurred, such as bankruptcy, default or delinquency. Generally, consumer loans in both Canada and the U.S. are classified as impaired when payment is contractually 90 days past due, or one year past due for residential mortgages if guaranteed by the Government of Canada. Credit card loans are immediately written off when principal or interest payments are 180 days past due, and are not reported as impaired. In Canada, consumer instalment loans, other personal loans and some small business loans are normally written off when they are one year past due. In the U.S., all consumer loans are generally written off when they are 180 days past due, except for non-real estate term loans, which are generally written off when they are 120 days past due. For the purpose of measuring the amount to be written off, the determination of the recoverable amount includes an estimate of future recoveries.

Corporate and commercial loans are classified as impaired when we determine there is no longer reasonable assurance that principal or interest will be collected in their entirety on a timely basis. Generally, we consider corporate and commercial loans to be impaired when payments are 90 days past due. Corporate and commercial loans are written off following a review on an individual loan basis that confirms all recovery attempts have been exhausted.

A loan will be reclassified to performing status when we determine that there is reasonable assurance of full and timely repayment of interest and principal in accordance with the terms and conditions of the loan, and that none of the criteria for classification of the loan as impaired continue to apply.

Loans are in default when the borrower is unlikely to pay its credit obligations in full without recourse by the bank, such as realizing security, or when the borrower's payments are past due more than 90 days (180 days for credit card loans). Overdrafts are considered to be past due once the customer has breached an advised limit or been advised of a limit smaller than currently outstanding or, in the case of retail overdrafts, has not brought the overdraft down to a $nil balance within a specified time period.

Our average gross impaired loans were $2,115 million for the year ended October 31, 2018 ($2,248 million in 2017). Our average impaired loans, net of the specific allowance, were $1,706 million for the year ended October 31, 2018 ($1,838 million in 2017).

Once a loan is identified as impaired, we continue to recognize interest income based on the original effective interest rate on the loan amount net of its related allowance. In the periods following the recognition of impairment, adjustments to the allowance for these loans reflecting the time value of money are recognized and presented as interest income. Interest income on impaired loans of $67 million was recognized for the year ended October 31, 2018 ($75 million in 2017 and $74 million in 2016).

During the year ended October 31, 2018, we recorded a net gain of $4 million before tax ($28 million in 2017 and $5 million in 2016) on the sale of impaired and written-off loans.

## Allowance for Credit Losses ("ACL")

The allowance for credit losses recorded in our Consolidated Balance Sheet is maintained at a level that we consider adequate to absorb credit-related losses on our loans and other credit instruments. The allowance for credit losses amounted to $1,870 million as at October 31, 2018, of which $1,639 million was recorded in loans and $231 million was recorded in other liabilities in our Consolidated Balance Sheet.

*Allowance on Performing Loans*

We maintain an allowance in order to cover impairment in the existing portfolio for loans that have not yet been individually identified as impaired. Our approach to establishing and maintaining the allowance on performing loans is based on the requirements of IFRS, considering guidelines issued by OSFI.

Under the IFRS 9 ECL methodology, an allowance is recorded for expected credit losses on financial assets regardless of whether there has been an actual impairment. We recognize a loss allowance at an amount equal to 12 month expected credit losses, if the credit risk at the reporting date has not increased significantly since initial recognition (Stage 1). We will record expected credit losses over the remaining life of performing financial assets which are considered to have experienced a significant increase in credit risk (Stage 2).

The determination of a significant increase in credit risk takes into account many different factors and varies by product and risk segment. The main factors considered in making this determination are relative changes in probability-weighted probability of default since origination and certain other criteria, such as 30-day past due and watchlist status.

For each exposure, ECL is a function of the probability of default ("PD"), exposure at default ("EAD") and loss given default ("LGD"), with the timing of the loss also considered, and is estimated by incorporating forward-looking economic information and through the use of experienced credit judgment to reflect factors not captured in ECL models.

PD represents the likelihood that a loan will not be repaid and will go into default in either a 12 month horizon for Stage 1 or a lifetime horizon for Stage 2. The PD for each individual instrument is modelled based on historical data and is estimated based on current market conditions and reasonable and supportable information about future economic conditions.

EAD is modelled on historical data and represents an estimate of the outstanding amount of credit exposure at the time a default may occur. For off-balance sheet and undrawn amounts, EAD includes an estimate of any further amounts to be drawn at the time of default.

LGD is the amount that may not be recovered in the event of default and is modelled based on historical data and reasonable and supportable information about future economic conditions, where appropriate. LGD takes into consideration the amount and quality of any collateral held.

We consider past events, current market conditions and reasonable forward-looking supportable information about future economic conditions in calculating the amount of expected losses. In assessing information about possible future economic conditions, we utilize multiple economic scenarios including our base case, which represents, in our view, the most probable outcome, as well as benign and adverse forecasts, all of which are developed by our Economics group. Key economic variables used in the determination of the allowance for credit losses reflect the geographic diversity of our portfolios, where appropriate.

In considering the lifetime of a loan, the contractual period of the loan, including prepayment, extension and other options, is generally used. For revolving instruments, such as credit cards, which may not have a defined contractual period, the lifetime is based on historical behaviour.

Our ECL methodology also requires the use of experienced credit judgment to incorporate the estimated impact of factors that are not captured in the modelled ECL results.

*Allowance on Impaired Loans*
We maintain an allowance on individually identified impaired loans (Stage 3) of $370 million on our gross impaired loans of $1,936 million, to reduce their carrying value to an expected recoverable amount of $1,566 million as at October 31, 2018 ($1,827 million as at October 31, 2017). We review our loans on an ongoing basis to assess whether any loans should be classified as impaired and whether an allowance or write-off should be recorded (excluding credit card loans, which are classified as impaired and written off when principal or interest payments are 180 days past due). The review of individually significant problem loans is conducted at least quarterly by the account managers, each of whom assesses the ultimate collectability and estimated recoveries for a specific loan based on all events and conditions that are relevant to the loan. This assessment is then reviewed and approved by an independent credit officer.

**Individually Significant Impaired Loans**
To determine the amount we expect to recover from an individually significant impaired loan, we use the value of the estimated future cash flows discounted at the loan's original effective interest rate. The determination of estimated future cash flows of a collateralized impaired loan reflects the expected realization of the underlying security, net of expected costs and any amounts legally required to be paid to the borrower. Security can vary by type of loan and may include cash, securities, real estate properties, accounts receivable, guarantees, inventory or other capital assets.

**Individually Insignificant Impaired Loans**
Residential mortgages, consumer instalment and other personal loans are individually insignificant and may be individually assessed or collectively assessed for losses at the time of impairment, taking into account historical loss experience and expectations of future economic conditions. Collectively assessed loans are grouped together by similar risk characteristics, such as type of instrument, geographic location, industry, type of collateral and term to maturity.

*Loans Credit Risk Exposure*

The following table sets out our credit risk exposure for all loans carried at amortized cost or FVTPL as at October 31, 2018. Stage 1 represents those performing loans carried with a 12 month expected credit loss, Stage 2 represents those performing loans carried with a lifetime expected credit loss, and Stage 3 represents those loans with a lifetime credit loss that are credit impaired.

| (Canadian $ in millions) | | | | 2018 |
|---|---|---|---|---|
| | Stage 1 | Stage 2 | Stage 3 | Total |
| **Loans: Residential mortgages** | | | | |
| Exceptionally low | – | – | – | – |
| Very low | 76,314 | 125 | – | 76,439 |
| Low | 18,975 | 2,479 | – | 21,454 |
| Medium | 12,621 | 3,765 | – | 16,386 |
| High | 90 | 445 | – | 535 |
| Not rated | 4,250 | 181 | – | 4,431 |
| Impaired | – | – | 375 | 375 |
| Allowance for credit losses | 20 | 37 | 19 | 76 |
| Carrying amount | 112,230 | 6,958 | 356 | 119,544 |
| **Loans: Consumer instalment and other personal** | | | | |
| Exceptionally low | 20,236 | 20 | – | 20,256 |
| Very low | 13,364 | 222 | – | 13,586 |
| Low | 12,581 | 364 | – | 12,945 |
| Medium | 7,707 | 4,153 | – | 11,860 |
| High | 127 | 1,657 | – | 1,784 |
| Not rated | 2,105 | 168 | – | 2,273 |
| Impaired | – | – | 521 | 521 |
| Allowance for credit losses | 83 | 312 | 143 | 538 |
| Carrying amount | 56,037 | 6,272 | 378 | 62,687 |
| **Loans: Credit cards** | | | | |
| Exceptionally low | 2,403 | 4 | – | 2,407 |
| Very low | 1,140 | 11 | – | 1,151 |
| Low | 943 | 107 | – | 1,050 |
| Medium | 1,742 | 874 | – | 2,616 |
| High | 108 | 428 | – | 536 |
| Not rated | 568 | 1 | – | 569 |
| Impaired | – | – | – | – |
| Allowance for credit losses | 39 | 191 | – | 230 |
| Carrying amount | 6,865 | 1,234 | – | 8,099 |
| **Loans: Business and government** (1) | | | | |
| Acceptable | | | | |
| Investment grade | 109,774 | 2,148 | – | 111,922 |
| Sub-investment grade | 88,348 | 7,308 | – | 95,656 |
| Watchlist | – | 4,423 | – | 4,423 |
| Impaired | – | – | 1,040 | 1,040 |
| Allowance for credit losses | 232 | 355 | 208 | 795 |
| Carrying amount | 197,890 | 13,524 | 832 | 212,246 |
| **Commitments and financial guarantee contracts** | | | | |
| Acceptable | | | | |
| Investment grade | 116,108 | 1,722 | – | 117,830 |
| Sub-investment grade | 44,895 | 3,426 | – | 48,321 |
| Watchlist | – | 1,650 | – | 1,650 |
| Impaired | – | – | 242 | 242 |
| Allowance for credit losses | 108 | 96 | 27 | 231 |
| Carrying amount | 160,895 | 6,702 | 215 | 167,812 |

(1) Includes customers' liability under acceptances.

The following table shows the continuity in the loss allowance by each product type as at October 31, 2018.

(Canadian $ in millions)

| For the twelve months ended | Stage 1 | Stage 2 | Stage 3 | Total |
|---|---|---|---|---|
| **Loans: Residential mortgages** | | | | |
| Balance as at November 1, 2017 | **16** | **34** | **49** | **99** |
| Transfer to Stage 1 | **34** | **(31)** | **(3)** | **–** |
| Transfer to Stage 2 | **(1)** | **7** | **(6)** | **–** |
| Transfer to Stage 3 | **–** | **(9)** | **9** | **–** |
| Net remeasurement of loss allowance | **(37)** | **42** | **19** | **24** |
| Loan originations | **10** | **–** | **–** | **10** |
| Derecognitions and maturities | **(2)** | **(6)** | **–** | **(8)** |
| Total provision for credit losses ("PCL") (1) | **4** | **3** | **19** | **26** |
| Write-offs | **–** | **–** | **(20)** | **(20)** |
| Recoveries of previous write-offs | **–** | **–** | **7** | **7** |
| Foreign exchange and other | **–** | **1** | **(11)** | **(10)** |
| Balance as at October 31, 2018 | **20** | **38** | **44** | **102** |
| **Loans: Consumer instalment and other personal** | | | | |
| Balance as at November 1, 2017 | **76** | **357** | **137** | **570** |
| Transfer to Stage 1 | **214** | **(200)** | **(14)** | **–** |
| Transfer to Stage 2 | **(22)** | **105** | **(83)** | **–** |
| Transfer to Stage 3 | **(4)** | **(162)** | **166** | **–** |
| Net remeasurement of loss allowance | **(196)** | **272** | **162** | **238** |
| Loan originations | **39** | **–** | **–** | **39** |
| Derecognitions and maturities | **(18)** | **(50)** | **–** | **(68)** |
| Total PCL (1) | **13** | **(35)** | **231** | **209** |
| Write-offs | **–** | **–** | **(301)** | **(301)** |
| Recoveries of previous write-offs | **–** | **–** | **92** | **92** |
| Foreign exchange and other | **1** | **4** | **(15)** | **(10)** |
| Balance as at October 31, 2018 | **90** | **326** | **144** | **560** |
| **Loans: Credit cards** | | | | |
| Balance as at November 1, 2017 | **83** | **254** | **–** | **337** |
| Transfer to Stage 1 | **177** | **(177)** | **–** | **–** |
| Transfer to Stage 2 | **(37)** | **37** | **–** | **–** |
| Transfer to Stage 3 | **(1)** | **(195)** | **196** | **–** |
| Net remeasurement of loss allowance | **(164)** | **342** | **20** | **198** |
| Loan originations | **19** | **–** | **–** | **19** |
| Derecognitions and maturities | **(3)** | **(42)** | **–** | **(45)** |
| Total PCL (1) | **(9)** | **(35)** | **216** | **172** |
| Write-offs | **–** | **–** | **(319)** | **(319)** |
| Recoveries of previous write-offs | **–** | **–** | **103** | **103** |
| Balance as at October 31, 2018 | **74** | **219** | **–** | **293** |
| **Loans: Business and government** | | | | |
| Balance as at November 1, 2017 | **268** | **410** | **234** | **912** |
| Transfer to Stage 1 | **136** | **(128)** | **(8)** | **–** |
| Transfer to Stage 2 | **(31)** | **66** | **(35)** | **–** |
| Transfer to Stage 3 | **(1)** | **(61)** | **62** | **–** |
| Net remeasurement of loss allowance | **(155)** | **203** | **215** | **263** |
| Loan originations | **163** | **–** | **–** | **163** |
| Derecognitions and maturities | **(80)** | **(86)** | **–** | **(166)** |
| Model changes | **(7)** | **(3)** | **–** | **(10)** |
| Total PCL (1) | **25** | **(9)** | **234** | **250** |
| Write-offs | **–** | **–** | **(297)** | **(297)** |
| Recoveries of previous write-offs | **–** | **–** | **59** | **59** |
| Foreign exchange and other | **5** | **7** | **(21)** | **(9)** |
| Balance as at October 31, 2018 | **298** | **408** | **209** | **915** |
| Total as at October 31, 2018 | **482** | **991** | **397** | **1,870** |
| Comprised of: Loans | **374** | **895** | **370** | **1,639** |
| Other credit instruments (2) | **108** | **96** | **27** | **231** |

(1) Excludes provision for credit losses on other assets of $5 million.

(2) Recorded in other liabilities on the Consolidated Balance Sheet.

Notes

The following table shows the continuity of our allowance for credit losses under IAS 39 as at October 31, 2017:

| (Canadian $ in millions) | Residential mortgages | | Credit card, consumer instalment and other personal loans | | Business and government loans | | Total | |
|---|---|---|---|---|---|---|---|---|
| | 2017 | 2016 | 2017 | 2016 | 2017 | 2016 | 2017 | 2016 |
| Impairment allowances (specific ACL), beginning of year | 59 | 69 | 123 | 113 | 250 | 210 | 432 | 392 |
| Amounts written off | (27) | (38) | (631) | (616) | (296) | (349) | (954) | (1,003) |
| Recoveries of amounts written off in previous years | 16 | 16 | 199 | 173 | 50 | 154 | 265 | 343 |
| Charge to income statement (specific PCL) | 11 | 24 | 464 | 478 | 347 | 269 | 822 | 771 |
| Foreign exchange and other movements | (10) | (12) | (18) | (25) | (117) | (34) | (145) | (71) |
| Specific ACL, end of year | 49 | 59 | 137 | 123 | 234 | 250 | 420 | 432 |
| Collective ACL, beginning of year | 71 | 111 | 596 | 714 | 1,015 | 835 | 1,682 | 1,660 |
| Charge (recovery) to income statement (collective PCL) | (1) | (42) | (6) | (120) | (69) | 162 | (76) | – |
| Foreign exchange and other movements | (1) | 2 | (4) | 2 | (25) | 18 | (30) | 22 |
| Collective ACL, end of year | 69 | 71 | 586 | 596 | 921 | 1,015 | 1,576 | 1,682 |
| Total ACL | 118 | 130 | 723 | 719 | 1,155 | 1,265 | 1,996 | 2,114 |
| Comprised of: Loans | 93 | 104 | 722 | 719 | 1,018 | 1,102 | 1,833 | 1,925 |
| Other credit instruments (1) | 25 | 26 | 1 | – | 137 | 163 | 163 | 189 |

(1) The total specific and collective allowances related to other credit instruments are included in other liabilities.

Certain comparative figures have been reclassified to conform with the current year's presentation.

Significant changes in the gross balances, including originations, maturities and repayments in the normal course of operations, impact the allowance for credit losses.

Loans and allowance for credit losses by geographic region as at October 31, 2018 under IFRS 9 and as at October 31, 2017 under IAS 39 are as follows:

| (Canadian $ in millions) | | | | 2018 | | | | 2017 |
|---|---|---|---|---|---|---|---|---|
| | **Gross amount** | **Allowance on impaired loans** (2) | **Allowance on performing loans** (3) | **Net amount** | Gross amount | Specific allowance (2) | Collective allowance (3) | Net amount |
| By geographic region: (1) | | | | | | | | |
| Canada | **244,837** | **189** | **689** | **243,959** | 233,672 | 212 | 799 | 232,661 |
| United States | **131,247** | **181** | **574** | **130,492** | 115,029 | 161 | 641 | 114,227 |
| Other countries | **9,546** | **–** | **6** | **9,540** | 11,639 | 20 | – | 11,619 |
| Total | **385,630** | **370** | **1,269** | **383,991** | 360,340 | 393 | 1,440 | 358,507 |

(1) Geographic region is based upon the country of ultimate risk.
(2) Excludes allowance for credit losses on impaired loans of $27 million for other credit instruments, which is included in other liabilities ($27 million in 2017).
(3) Excludes allowance for credit losses on performing loans of $204 million for other credit instruments, which is included in other liabilities ($136 million in 2017).

Certain comparative figures have been reclassified to conform with the current year's presentation.

Impaired loans, including the related allowances, as at October 31, 2018 under IFRS 9 and as at October 31, 2017 under IAS 39 are as follows:

| (Canadian $ in millions) | Gross impaired amount (1) | | **Allowance on impaired loans** (3) | Specific allowance (3) | **Net** | Net impaired amount |
|---|---|---|---|---|---|---|
| | **2018** | 2017 | **2018** | 2017 | **2018** | 2017 |
| Residential mortgages | **375** | 391 | **19** | 24 | **356** | 367 |
| Consumer instalment and other personal loans | **521** | 556 | **143** | 136 | **378** | 420 |
| Business and government loans | **1,040** | 1,273 | **208** | 233 | **832** | 1,040 |
| Total | **1,936** | 2,220 | **370** | 393 | **1,566** | 1,827 |
| By geographic region: (2) | | | | | | |
| Canada | **735** | 793 | **189** | 212 | **546** | 581 |
| United States | **1,201** | 1,377 | **181** | 161 | **1,020** | 1,216 |
| Other countries | **–** | 50 | **–** | 20 | **–** | 30 |
| Total | **1,936** | 2,220 | **370** | 393 | **1,566** | 1,827 |

(1) Excludes purchased credit impaired loans.
(2) Geographic region is based upon the country of ultimate risk.
(3) Excludes allowance for credit losses on impaired loans of $27 million for other credit instruments, which is included in other liabilities ($27 million in 2017).

Fully secured loans with amounts past due between 90 and 180 days that we have not classified as impaired totalled $49 million and $62 million as at October 31, 2018 and 2017, respectively.

Certain comparative figures have been reclassified to conform with the current year's presentation.

## Loans Past Due Not Impaired

Loans that are past due but not classified as impaired are loans where our customers have failed to make payments when contractually due, but for which we expect the full amount of principal and interest payments to be collected, or which are held at fair value. The following table presents loans that are past due but not classified as impaired as at October 31, 2018 and 2017.

| (Canadian $ in millions) | 1 to 29 days | | 30 to 89 days | | 90 days or more | | Total | |
|---|---|---|---|---|---|---|---|---|
| | **2018** | 2017 | **2018** | 2017 | **2018** | 2017 | **2018** | 2017 |
| Residential mortgages (1) | **660** | 649 | **513** | 438 | **21** | 19 | **1,194** | 1,106 |
| Credit card, consumer instalment and other personal loans | **1,431** | 1,480 | **415** | 466 | **88** | 94 | **1,934** | 2,040 |
| Business and government loans | **611** | 589 | **268** | 297 | **55** | 72 | **934** | 958 |
| Total | **2,702** | 2,718 | **1,196** | 1,201 | **164** | 185 | **4,062** | 4,104 |

(1) The percentage of loans 90 days or more past due but not impaired that were guaranteed by the Government of Canada is 66% for 2018 and 67% for 2017.

## ECL Sensitivity and Key Economic Variables

The allowance for performing loans is sensitive to changes in both economic forecasts and the probability-weight assigned to each forecast scenario. Many of the factors have a high degree of interdependency although there is no single factor to which loan impairment allowances as a whole are sensitive.

If we assumed a 100% base case economic forecast and included the impact of loan migration by restaging, with other assumptions held constant including the application of experienced credit judgment, the allowance for performing loans would be approximately $1,250 million as at October 31, 2018 compared to the reported allowance for performing loans of $1,473 million.

If we assumed a 100% adverse economic forecast and included the impact of loan migration by restaging, with other assumptions held constant including the application of experienced credit judgment, the allowance for performing loans would be approximately $2,650 million as at October 31, 2018, compared to the reported allowance for performing loans of $1,473 million.

Actual results in a recession will differ as our portfolio will change through time due to migration, growth, risk mitigation actions and other factors. In addition, our allowance will reflect the three economic scenarios used in assessing the allowance with weightings attached to adverse and benign scenarios often unequally weighted and the weightings will change through time.

The following table shows the key economic variables we use to estimate our allowance on performing loans during the forecast period. The values shown represent the end of period national average values for the first 12 months and then the national average for the remaining horizon. While the values disclosed below are national variables, in our underlying models we use regional variables where considered appropriate.

| | **Benign scenario** | | **Base scenario** | | **Adverse scenario** | |
|---|---|---|---|---|---|---|
| As at October 31, 2018 | **First 12 months** | **Remaining horizon** (1) | **First 12 months** | **Remaining horizon** (1) | **First 12 months** | **Remaining horizon** (1) |
| Real gross domestic product (2) | | | | | | |
| Canada | **3.1%** | **2.4%** | **1.8%** | **1.6%** | **(3.2)%** | **0.8%** |
| U.S. | **2.9%** | **1.9%** | **2.4%** | **1.6%** | **(2.9)%** | **0.9%** |
| Corporate BBB 10-year spread | | | | | | |
| Canada | **2.0%** | **2.1%** | **2.3%** | **2.3%** | **4.7%** | **3.9%** |
| U.S. | **1.8%** | **2.0%** | **2.2%** | **2.3%** | **4.3%** | **3.5%** |
| Unemployment rates | | | | | | |
| Canada | **5.4%** | **5.2%** | **5.6%** | **5.6%** | **9.3%** | **9.3%** |
| U.S. | **3.2%** | **3.1%** | **3.6%** | **3.7%** | **6.7%** | **6.8%** |
| Housing Price Index | | | | | | |
| Canada (3) | **2.4%** | **2.6%** | **1.4%** | **1.8%** | **(12.8)%** | **(3.2)%** |
| U.S. (4) | **5.1%** | **4.3%** | **3.6%** | **3.0%** | **(7.3)%** | **(1.2)%** |

(1) The remaining forecast period is two years.
(2) Real gross domestic product is based on year over year growth.
(3) In Canada, we use the HPI Benchmark Composite.
(4) In the U.S., we use the National Case-Shiller House Price Index.

The ECL approach requires the recognition of credit losses based on up to 12 months of expected losses for performing loans (Stage 1) and the recognition of lifetime expected losses on performing loans that have experienced a significant increase in credit risk since origination (Stage 2). Under our current probability-weighted scenarios, if all our performing loans were in Stage 1, our models would generate an allowance for performing loans of approximately $1,000 million compared to the reported allowance for performing loans of $1,473 million.

## Renegotiated Loans

From time to time we modify the contractual terms of a loan due to the poor financial condition of the borrower. We assess renegotiated loans for impairment consistent with our existing policies for impairment. When renegotiation leads to significant concessions being granted, and the concessions are for economic or legal reasons related to the borrower's financial difficulty that we would not otherwise consider, the loan is classified as impaired. We consider one or a combination of the following to be significant concessions: (1) a reduction of the stated interest rate, (2) an extension of the maturity date or dates at a stated interest rate lower than the current market rate for a new loan with similar terms, or (3) forgiveness of principal or accrued interest.

Renegotiated loans are permitted to remain in performing status if the modifications are not considered to be significant, or are returned to performing status when none of the criteria for classification as impaired continue to apply.

The carrying value of our renegotiated loans was $1,129 million as at October 31, 2018 ($1,064 million in 2017). Renegotiated loans of $541 million were classified as performing during the year ended October 31, 2018 ($509 million in 2017). Renegotiated loans of $53 million were written off in the year ended October 31, 2018 ($36 million in 2017).

## Foreclosed Assets

Property or other assets that we receive from borrowers to satisfy their loan commitments are classified as either held for use or held for sale according to management's intention and are recorded at their carrying amount.

During the year ended October 31, 2018, we foreclosed on impaired loans and received $117 million of real estate properties that we classified as held for sale ($62 million in 2017).

As at October 31, 2018, real estate properties held for sale totalled $58 million ($55 million in 2017). These properties are disposed of when considered appropriate. During the year ended October 31, 2018, we recorded an impairment loss of $10 million on real estate properties classified as held for sale ($10 million in 2017 and $18 million in 2016).

### Write-offs Subject to Collection Efforts

Generally, we continue to seek recovery on amounts that were written off during the period unless the loan is sold, we no longer have the right to collect or we have exhausted all reasonable efforts to collect.

### Collateral

Collateral is used to manage credit risk related to securities borrowed or purchased under resale agreements, residential mortgages, consumer instalment and other personal loans and business and government loans. Additional information on our collateral requirements is included in Notes 14 and 24 as well as in the blue-tinted font in the Enterprise-Wide Risk Management section of Management's Discussion and Analysis on pages 87 and 88 of this report.

## Note 5: Risk Management

We have an enterprise-wide approach to the identification, measurement, monitoring and control of risks faced across our organization.
The key risks related to our financial instruments are classified as credit and counterparty, market, and liquidity and funding risk.

### Credit and Counterparty Risk

Credit and counterparty risk is the potential for loss due to the failure of a borrower, endorser, guarantor or counterparty to repay a loan or honour another predetermined financial obligation. Credit risk arises predominantly with respect to loans, over-the-counter and centrally cleared derivatives and other credit instruments. This is the most significant measurable risk that we face.

Our risk management practices and key measures are disclosed in the text and tables presented in a blue-tinted font in the Enterprise-Wide Risk Management section of Management's Discussion and Analysis on pages 87 to 91 of this report. Additional information on credit risk related to loans and derivatives is disclosed in Notes 4 and 8, respectively.

### Market Risk

Market risk is the potential for adverse changes in the value of our assets and liabilities resulting from changes in market variables such as interest rates, foreign exchange rates, equity and commodity prices and their implied volatilities, and credit spreads, and includes the risk of credit migration and default in our trading book. We incur market risk in our trading and underwriting activities and in the management of structural market risk in our banking and insurance activities.

Our market risk management practices and key measures are disclosed in the text and tables presented in a blue-tinted font in the Enterprise-Wide Risk Management section of Management's Discussion and Analysis on pages 95 to 99 of this report.

### Liquidity and Funding Risk

Liquidity and funding risk is the potential for loss if we are unable to meet our financial commitments in a timely manner at reasonable prices as they become due. It is our policy to ensure that sufficient liquid assets and funding capacity are available to meet financial commitments, including liabilities to depositors and suppliers, and lending, investment and pledging commitments, even in times of stress. Managing liquidity and funding risk is essential to maintaining a safe and sound enterprise, depositor confidence and earnings stability.

Our liquidity and funding risk management practices and key measures are disclosed in the text presented in a blue-tinted font in the Enterprise-Wide Risk Management section of Management's Discussion and Analysis on pages 100 to 108 of this report.

## Note 6: Transfer of Assets

### Loan Securitization

We sell Canadian mortgage loans to third-party Canadian securitization programs, including the Canada Mortgage Bond program, directly to third-party investors under the National Housing Act Mortgage-Backed Securities program and under our own program. We assess whether substantially all of the risks and rewards of the loans have been transferred to determine if they qualify for derecognition.

Under these programs, we are entitled to the payment over time of the excess of the sum of interest and fees collected from customers, in connection with the loans that were sold, over the yield paid to investors, less credit losses and other costs. Since we continue to be exposed to substantially all of the prepayment, interest rate and credit risk associated with the securitized loans, they do not qualify for derecognition. We continue to recognize the loans and the related cash proceeds as secured financing in our Consolidated Balance Sheet. The interest and fees collected, net of the yield paid to investors, is recorded in net interest income using the effective interest method over the term of the securitization. Credit losses associated with the loans are recorded in the provision for credit losses. During the year ended October 31, 2018, we sold $8,062 million of mortgage loans to these programs ($8,707 million in 2017).

The following table presents the carrying amount and fair value of transferred assets that did not qualify for derecognition and the associated liabilities:

| (Canadian $ in millions) | | 2018 | | 2017 |
|---|---|---|---|---|
| | **Carrying amount of assets** (1) | **Carrying amount of associated liabilities** | Carrying amount of assets (1) | Carrying amount of associated liabilities |
| Residential mortgages | **5,569** | | 4,797 | |
| Other related assets (2) | **11,640** | | 12,091 | |
| Total (3) | **17,209** | **16,925** | 16,888 | 16,621 |

(1) Carrying amount of loans is net of allowance.
(2) Other related assets represent payments received on account of loans pledged under securitization programs that have not yet been applied against the associated liabilities. The payments received are held on behalf of the investors in the securitization vehicles until principal payments are required to be made on the associated liabilities. In order to compare all assets supporting the associated liabilities, this amount is added to the carrying amount of the securitized assets in the table above.
(3) The fair values of assets and associated liabilities are $17,105 million and $16,763 million, respectively, as at October 31, 2018 ($16,847 million and $16,746 million, respectively, in 2017).

We retain the mortgage servicing rights for certain mortgage loans purchased or originated in the U.S. which are sold and derecognized. During the year ended October 31, 2018, we sold $936 million of these loans ($1,012 million in 2017) and recognized $17 million in mortgage servicing rights ($17 million in 2017) due to our continued involvement.

## Securities Lent or Sold Under Repurchase Agreements

Securities lent or sold under repurchase agreements represent short-term funding transactions in which we sell securities that we own and simultaneously commit to repurchase the same securities at a specified price on a specified date in the future. We retain substantially all of the risks and rewards associated with the securities and we continue to recognize them in our Consolidated Balance Sheet, with the obligation to repurchase these securities recorded as secured borrowing transactions at the amount owing. The interest expense related to these liabilities is recorded on an accrual basis. Additional information on securities lent or sold under repurchase agreements is provided in Note 14.

# Note 7: Structured Entities

We enter into certain transactions in the ordinary course of business which involve the establishment of structured entities ("SEs") to facilitate or secure customer transactions and to obtain alternate sources of funding. We are required to consolidate an SE if we control the entity. We control an SE when we have power over the SE, exposure to variable returns as a result of our involvement, and the ability to exercise power to affect the amount of our returns.

In assessing whether we control an SE, we consider the entire arrangement to determine the purpose and design of the SE, the nature of any rights held through contractual arrangements and whether we are acting as a principal or agent.

We perform a reassessment of consolidation if facts and circumstances indicate that there have been changes to one or more of the elements of control over the SE. See Note 1 for more information on our basis of consolidation.

## Consolidated Structured Entities

*Bank Securitization Vehicles*

We use securitization vehicles to securitize our Canadian credit card loans, Canadian real estate lines of credit and Canadian auto loans in order to obtain alternate sources of funding. The structure of these vehicles limits the activities they can undertake and the types of assets they can hold, and the vehicles have limited decision-making authority. The vehicles issue term asset-backed securities to fund their activities. We control and consolidate these vehicles, as we have the key decision-making powers necessary to obtain the majority of the benefits of their activities.

The following table presents the carrying amount and fair value of transferred assets that did not qualify for derecognition and the associated liabilities issued by our bank securitization vehicles:

| (Canadian $ in millions) | | 2018 | | 2017 |
|---|---|---|---|---|
| | **Carrying amount of assets** (1) | **Carrying amount of associated liabilities** | Carrying amount of assets (1) | Carrying amount of associated liabilities |
| Credit card receivables | **7,246** | **5,096** | 7,058 | 4,115 |
| Consumer instalment and other personal (2) | **6,827** | **3,083** | 5,699 | 2,295 |
| Total (3) | **14,073** | **8,179** | 12,757 | 6,410 |

(1) Carrying amount of loans is net of allowance.
(2) Includes Canadian real estate lines of credit and Canadian auto loans.
(3) The fair values of assets and associated liabilities are $14,045 million and $8,134 million, respectively, as at October 31, 2018 ($12,753 million and $6,403 million, respectively, in 2017).
Certain comparative figures have been reclassified to conform with the current year's presentation.

*U.S. Customer Securitization Vehicle*

We sponsor one customer securitization vehicle (also referred to as a bank-sponsored multi-seller conduit) that provides our customers with alternate sources of funding through the securitization of their assets. This vehicle provides clients with access to financing in the asset-backed commercial paper ("ABCP") markets by allowing them to either sell their assets directly into the vehicle or indirectly by selling an interest in the securitized assets into the vehicle, which then issues ABCP to investors in order to fund the purchases. We do not sell assets to the customer securitization vehicle. We earn fees for providing services related to the securitizations, including liquidity, distribution and financial arrangement fees for supporting the ongoing operations of the vehicle. We have determined that we control and therefore consolidate this vehicle, as we are exposed to its variable returns and we have the key decision-making powers necessary to affect the amount of those returns in our capacity as liquidity provider and servicing agent.

We provide committed liquidity support facilities to this vehicle which may require that we provide additional financing to the vehicle in the event that certain events occur. The total committed undrawn amount under these facilities at October 31, 2018 was $7,100 million ($6,765 million at October 31, 2017).

*Capital and Funding Vehicles*

We have a funding vehicle that was created to guarantee payments due to bondholders on bonds issued by us. We sell assets to this funding vehicle in exchange for an intercompany loan.

We may also use capital vehicles to transfer our credit exposure on certain loan assets. We purchase credit protection against eligible credit events from these vehicles. The vehicles collateralize their obligation through the issuance of guarantee-linked notes. Loan assets are not sold or assigned to the vehicles and remain on our Consolidated Balance Sheet. As at October 31, 2018, $325 million of guarantee-linked notes issued by these vehicles were included in deposits in our Consolidated Balance Sheet ($318 million at October 31, 2017).

For those vehicles that purchase assets from us or are designed to pass on our credit risk, we have determined that based on the rights of the arrangements or through our equity interest we have significant exposure to the variable returns of the vehicles, and we control and therefore consolidate these vehicles. Additional information related to notes issued by and assets sold to these vehicles is provided in Note 13 and Note 24, respectively.

## Unconsolidated Structured Entities

The table below presents amounts related to our interests in unconsolidated SEs:

| (Canadian $ in millions) | | 2018 | | | | 2017 |
|---|---|---|---|---|---|---|
| | **Capital vehicles** | **Canadian customer securitization vehicles** (1) | **Structured finance vehicles** | Capital vehicles | Canadian customer securitization vehicles (1) | Structured finance vehicles |
| **Interests recorded on the balance sheet** | | | | | | |
| Cash and cash equivalents | **118** | **53** | **–** | 8 | 50 | – |
| Trading securities | **–** | **12** | **–** | – | 6 | 209 |
| FVTPL securities | **–** | **582** | **–** | na | na | na |
| FVOCI securities | **2** | **242** | **–** | na | na | na |
| Available-for-sale securities | **na** | **na** | **na** | 2 | 725 | – |
| Loans | **7** | **–** | **–** | 7 | – | – |
| Other | **3** | **13** | **–** | – | 6 | – |
| | **130** | **902** | **–** | 17 | 787 | 209 |
| Deposits | **570** | **53** | **–** | 460 | 50 | 146 |
| Derivatives | **–** | **–** | **–** | – | – | 63 |
| Other | **17** | **–** | **–** | 16 | – | – |
| | **587** | **53** | **–** | 476 | 50 | 209 |
| **Exposure to loss** (2) | **28** | **7,135** | **–** | 57 | 6,425 | 209 |
| **Total assets of the entities** | **587** | **5,033** | **–** | 476 | 4,592 | 209 |

(1) Securities held that are issued by our Canadian customer securitization vehicles are comprised of asset-backed commercial paper and are classified as trading securities, FVTPL securities and FVOCI securities (trading securities and available-for-sale securities in 2017 under IAS 39). All assets held by these vehicles relate to assets in Canada.

(2) Exposure to loss represents securities held, undrawn liquidity facilities, total committed amounts of the BMO funded vehicle, derivative assets and loans.

na – not applicable due to IFRS 9 adoption.

*Capital Vehicles*

One of our capital vehicles holds a note issued by us as its underlying asset. We intend to redeem the note on December 31, 2018. We may also use capital vehicles to pass our credit risk to security holders of the vehicles. In these situations we are not exposed to significant default or credit risk. Our remaining exposure to variable returns is less than that of the note holders in these vehicles, who are exposed to our default and credit risk. We are not required to consolidate these vehicles.

*Canadian Customer Securitization Vehicles*

We sponsor customer securitization vehicles (also referred to as bank-sponsored multi-seller conduits) that provide our customers with alternate sources of funding through the securitization of their assets. These vehicles provide clients with access to financing either from BMO or in the ABCP markets by allowing them to either sell their assets directly into the vehicle or indirectly by selling an interest in the securitized assets into the vehicle, which then issues ABCP to either investors or BMO to fund the purchases. We do not sell assets to the customer securitization vehicles. We earn fees for providing services related to the securitizations, including liquidity, distribution and financial arrangement fees for supporting the ongoing operations of the vehicles. We have determined that we do not control these entities, as their key relevant activity, the servicing of program assets, does not reside with us.

We provide liquidity facilities to the market-funded vehicles which may require that we provide additional financing to the vehicles in the event that certain events occur. The total committed and undrawn amount under these liquidity facilities and any undrawn amounts of the BMO funded vehicle at October 31, 2018 was $6,286 million ($5,688 million at October 31, 2017).

*Structured Finance Vehicles*

We facilitate development of investment products by third parties, including mutual funds, unit investment trusts and other investment funds that are sold to retail investors. We enter into derivative contracts with these third parties to provide investors with their desired exposure, and we hedge our exposure related to these derivative contracts by investing in other funds through SEs. We are not required to consolidate these vehicles.

During 2018, we discontinued these vehicles and we no longer enter into these types of arrangements with third parties.

*BMO Managed Funds*

We have established a number of funds that we also manage. We assess whether or not we control these funds based on the economic interest we have in the funds, including investments in the funds and management fees earned from the funds, and any investors' rights to remove us as

investment manager. Based on our assessment, we have determined that we do not control these funds. Our total interest in unconsolidated BMO managed funds was $1,612 million at October 31, 2018 ($1,750 million in 2017), which is included in securities in our Consolidated Balance Sheet.

### Other Structured Entities

We purchase and hold investments in a variety of third-party structured entities, including exchange-traded funds, mutual funds, limited partnerships and investment trusts. We are considered to have an interest in these investments through our holdings and because we may act as a counterparty in certain derivatives contracts. We are not the investment manager or the sponsor of any of these investments. We are generally a passive investor and do not have power over the key decision-making activities of these investments. Our maximum exposure to loss from our investments is limited to the carrying amounts of our investments and any unutilized commitment we have provided.

### Sponsored Structured Entities

We may be deemed to be the sponsor of an SE if we are involved in the design, legal set-up or marketing of the SE. We may also be deemed to be the sponsor of an SE if market participants would reasonably associate the entity with us. We do not have an interest in certain SEs that we have sponsored.

Additional information on our compensation trusts is provided in Note 20.

## Note 8: Derivative Instruments

Derivative instruments are financial contracts that derive their value from underlying changes in interest rates, foreign exchange rates or other financial or commodity prices or indices.

Derivative instruments are either regulated exchange-traded contracts or negotiated over-the-counter contracts. We use these instruments for trading purposes, as well as to manage our exposures, mainly to foreign currency and interest rate fluctuations, as part of our asset/liability management program.

### Types of Derivatives

*Swaps*

Swaps are contractual agreements between two parties to exchange a series of cash flows. The various swap agreements that we enter into are as follows:

Interest rate swaps – counterparties generally exchange fixed and floating rate interest payments based on a notional value in a single currency.

Cross-currency swaps – fixed rate interest payments and principal amounts are exchanged in different currencies.

Cross-currency interest rate swaps – fixed and/or floating rate interest payments and principal amounts are exchanged in different currencies.

Commodity swaps – counterparties generally exchange fixed and floating rate payments based on a notional value of a single commodity.

Equity swaps – counterparties exchange the return on an equity security or a group of equity securities for the return based on a fixed or floating interest rate or the return on another equity security or group of equity securities.

Credit default swaps – one counterparty pays the other a fee in exchange for that other counterparty agreeing to make a payment if a credit event occurs, such as bankruptcy or failure to pay.

Total return swaps – one counterparty agrees to pay or receive from the other cash amounts based on changes in the value of a reference asset or group of assets, including any returns such as interest earned on these assets, in exchange for amounts that are based on prevailing market funding rates.

*Forwards and Futures*

Forwards and futures are contractual agreements to either buy or sell a specified amount of a currency, commodity, interest-rate-sensitive financial instrument or security at a specified price and date in the future.

Forwards are customized contracts transacted in the over-the-counter market. Futures are transacted in standardized amounts on regulated exchanges and are subject to daily cash margining.

*Options*

Options are contractual agreements that convey to the purchaser the right but not the obligation to either buy or sell a specified amount of a currency, commodity, interest-rate-sensitive financial instrument or security at a fixed future date or at any time within a fixed future period.

For options written by us, we receive a premium from the purchaser for accepting market risk.

For options purchased by us, we pay a premium for the right to exercise the option. Since we have no obligation to exercise the option, our primary exposure to risk is the potential credit risk if the writer of an over-the-counter contract fails to meet the terms of the contract.

Caps, collars and floors are specialized types of written and purchased options. They are contractual agreements in which the writer agrees to pay the purchaser, based on a specified notional amount, the difference between the market rate and the prescribed rate of the cap, collar or floor. The writer receives a premium for selling this instrument.

A swaption is an option granting its owner the right but not the obligation to enter into an underlying swap.

A future option is an option contract in which the underlying instrument is a single futures contract.

The main risks associated with these derivative instruments are related to exposure to movements in interest rates, foreign exchange rates, credit quality, value of the underlying financial instrument or commodity, as applicable, and the possible inability of counterparties to meet the terms of the contracts.

### Embedded Derivatives

From time to time, we purchase or issue financial instruments containing embedded derivatives. The embedded derivative in financial liabilities is separated from the host contract and carried at fair value if the economic characteristics of the derivative are not closely related to those of the host contract, the terms of the embedded derivative are the same as those of a stand-alone derivative, and the combined contract is not measured at fair

value. To the extent that we cannot reliably identify and measure the embedded derivative, the entire contract is carried at fair value, with changes in fair value reflected in income. Embedded derivatives in certain of our equity linked notes are accounted for separately from the host instrument.

## Contingent Features

Certain over-the-counter derivative instruments contain provisions that link the amount of collateral we are required to post or pay to our credit ratings (as determined by the major credit rating agencies). If our credit ratings were to be downgraded, certain counterparties to these derivative instruments could demand immediate and ongoing collateralization on derivative liability positions or request immediate payment. The aggregate fair value of all derivative instruments with collateral posting requirements that were in a liability position on October 31, 2018 was $2,860 million ($3,866 million in 2017), for which we have posted collateral of $2,963 million ($4,223 million in 2017).

## Risks Hedged

*Interest Rate Risk*

We manage interest rate risk through interest rate futures, interest rate swaps and options, which are linked to and adjust the interest rate sensitivity of a specific asset, liability, forecasted transaction or firm commitment, or a specific pool of transactions with similar risk characteristics.

*Foreign Currency Risk*

We manage foreign currency risk through currency futures, foreign currency options, cross-currency swaps, foreign exchange spot transactions, forward contracts and deposits denominated in foreign currencies.

*Equity Price Risk*

We manage equity price risk through total return swaps.

## Trading Derivatives

Trading derivatives include derivatives entered into with customers to accommodate their risk management needs, market-making to facilitate customer-driven demand for derivatives, derivatives transacted on a limited basis to generate trading income from our principal trading positions and certain derivatives that are executed as part of our risk management strategy that do not qualify as hedges for accounting purposes ("economic hedges").

We structure and market derivative products to enable customers to transfer, modify or reduce current or expected risks.

Principal trading activities include market-making and positioning activities. Market-making involves quoting bid and offer prices to other market participants with the intention of generating revenues based on spread and volume. Positioning activities involve managing market risk positions with the expectation of profiting from favourable movements in prices, rates or indices.

Trading derivatives are recorded at fair value. Realized and unrealized gains and losses are recorded in trading revenues in our Consolidated Statement of Income. Unrealized gains on trading derivatives are recorded as derivative instrument assets and unrealized losses are recorded as derivative instrument liabilities in our Consolidated Balance Sheet.

We may also economically hedge a portion of our U.S. dollar earnings through forward foreign exchange contracts and/or options to minimize fluctuations in our consolidated net income due to the translation of our U.S. dollar earnings. These contracts are recorded at fair value, with changes in fair value recorded in non-interest revenue, trading revenues, in our Consolidated Statement of Income.

## Fair Value of Trading and Hedging Derivatives

Fair value represents point-in-time estimates that may change in subsequent reporting periods due to market conditions or other factors. A discussion of the fair value measurement of derivatives is included in Note 17.

Fair values of our derivative instruments are as follows:

| (Canadian $ in millions) | | | 2018 | | | 2017 |
|---|---|---|---|---|---|---|
| | **Gross assets** | **Gross liabilities** | **Net** | Gross assets | Gross liabilities | Net |
| **Trading** | | | | | | |
| **Interest Rate Contracts** | | | | | | |
| Swaps | **7,795** | **(6,419)** | **1,376** | 8,390 | (7,027) | 1,363 |
| Forward rate agreements | **36** | **(10)** | **26** | 41 | – | 41 |
| Futures | **2** | **(3)** | **(1)** | – | – | – |
| Purchased options | **425** | **–** | **425** | 444 | – | 444 |
| Written options | **–** | **(273)** | **(273)** | – | (329) | (329) |
| **Foreign Exchange Contracts** | | | | | | |
| Cross-currency swaps | **2,362** | **(1,678)** | **684** | 2,687 | (1,752) | 935 |
| Cross-currency interest rate swaps | **4,977** | **(6,057)** | **(1,080)** | 8,103 | (9,051) | (948) |
| Forward foreign exchange contracts | **4,335** | **(2,817)** | **1,518** | 4,954 | (3,178) | 1,776 |
| Purchased options | **241** | **–** | **241** | 267 | – | 267 |
| Written options | **–** | **(228)** | **(228)** | – | (270) | (270) |
| **Commodity Contracts** | | | | | | |
| Swaps | **1,559** | **(1,084)** | **475** | 726 | (717) | 9 |
| Futures | **17** | **–** | **17** | – | – | – |
| Purchased options | **484** | **–** | **484** | 352 | – | 352 |
| Written options | **–** | **(372)** | **(372)** | – | (357) | (357) |
| **Equity Contracts** | **2,158** | **(2,402)** | **(244)** | 1,388 | (3,386) | (1,998) |
| **Credit Default Swaps** | | | | | | |
| Purchased | **1** | **(36)** | **(35)** | – | (54) | (54) |
| Written | **9** | **(1)** | **8** | 7 | (1) | 6 |
| Total fair value – trading derivatives | **24,401** | **(21,380)** | **3,021** | 27,359 | (26,122) | 1,237 |
| **Hedging** | | | | | | |
| **Interest Rate Contracts** | | | | | | |
| Cash flow hedges – swaps | **18** | **(1,261)** | **(1,243)** | 78 | (558) | (480) |
| Fair value hedges – swaps | **701** | **(668)** | **33** | 274 | (402) | (128) |
| Total swaps | **719** | **(1,929)** | **(1,210)** | 352 | (960) | (608) |
| **Foreign Exchange Contracts** | | | | | | |
| Cash flow hedges | **1,084** | **(1,074)** | **10** | 1,202 | (722) | 480 |
| Total foreign exchange contracts | **1,084** | **(1,074)** | **10** | 1,202 | (722) | 480 |
| **Equity Contracts** | | | | | | |
| Cash flow hedges | **–** | **(28)** | **(28)** | 38 | – | 38 |
| Total equity contracts | **–** | **(28)** | **(28)** | 38 | – | 38 |
| Total fair value – hedging derivatives (1) | **1,803** | **(3,031)** | **(1,228)** | 1,592 | (1,682) | (90) |
| Total fair value – trading and hedging derivatives | **26,204** | **(24,411)** | **1,793** | 28,951 | (27,804) | 1,147 |
| Less: impact of master netting agreements | **(15,575)** | **15,575** | **–** | (19,909) | 19,909 | – |
| Total | **10,629** | **(8,836)** | **1,793** | 9,042 | (7,895) | 1,147 |

(1) The fair values of hedging derivatives wholly or partially offset the changes in fair values of the related on-balance sheet financial instruments.

Assets are shown net of liabilities to customers where we have a legally enforceable right to offset amounts and we intend to settle contracts on a net basis.

Notes

## Notional Amounts of Trading Derivatives

The notional amounts of our derivatives represent the amount to which a rate or price is applied in order to calculate the amount of cash that must be exchanged under the contract. Notional amounts do not represent assets or liabilities and therefore are not recorded in our Consolidated Balance Sheet.

| (Canadian $ in millions) | | | **2018** | | | 2017 |
|---|---|---|---|---|---|---|
| | **Exchange traded** | **Over-the-counter** | **Total** | Exchange traded | Over-the-counter | Total |
| **Interest Rate Contracts** | | | | | | |
| Swaps | **–** | **3,684,763** | **3,684,763** | – | 3,073,490 | 3,073,490 |
| Forward rate agreements | **–** | **411,573** | **411,573** | – | 195,142 | 195,142 |
| Purchased options | **26,629** | **35,023** | **61,652** | 10,407 | 29,107 | 39,514 |
| Written options | **16,511** | **48,721** | **65,232** | 9,284 | 37,247 | 46,531 |
| Futures | **192,482** | **–** | **192,482** | 89,053 | – | 89,053 |
| Total interest rate contracts | **235,622** | **4,180,080** | **4,415,702** | 108,744 | 3,334,986 | 3,443,730 |
| **Foreign Exchange Contracts** | | | | | | |
| Cross-currency swaps | **–** | **57,226** | **57,226** | – | 50,534 | 50,534 |
| Cross-currency interest rate swaps | **–** | **449,187** | **449,187** | – | 430,808 | 430,808 |
| Forward foreign exchange contracts | **–** | **463,743** | **463,743** | – | 392,924 | 392,924 |
| Purchased options | **2,625** | **21,468** | **24,093** | 6,001 | 23,812 | 29,813 |
| Written options | **1,420** | **24,018** | **25,438** | 1,249 | 29,101 | 30,350 |
| Futures | **739** | **–** | **739** | 794 | – | 794 |
| Total foreign exchange contracts | **4,784** | **1,015,642** | **1,020,426** | 8,044 | 927,179 | 935,223 |
| **Commodity Contracts** | | | | | | |
| Swaps | **–** | **24,366** | **24,366** | – | 18,713 | 18,713 |
| Purchased options | **3,303** | **6,182** | **9,485** | 5,031 | 7,080 | 12,111 |
| Written options | **4,909** | **4,233** | **9,142** | 6,896 | 4,905 | 11,801 |
| Futures | **33,104** | **–** | **33,104** | 28,139 | – | 28,139 |
| Total commodity contracts | **41,316** | **34,781** | **76,097** | 40,066 | 30,698 | 70,764 |
| **Equity Contracts** | **33,687** | **52,725** | **86,412** | 14,253 | 63,184 | 77,437 |
| **Credit Default Swaps** | | | | | | |
| Purchased | **–** | **3,047** | **3,047** | – | 2,658 | 2,658 |
| Written | **–** | **443** | **443** | – | 448 | 448 |
| Total | **315,409** | **5,286,718** | **5,602,127** | 171,107 | 4,359,153 | 4,530,260 |

## Derivatives Used in Hedge Accounting

In accordance with our risk management strategy, we enter into various derivative contracts to hedge our interest rate, foreign currency and equity price exposures. In addition, we use deposits to hedge foreign currency exposure in our net investment in foreign operations. To the extent these instruments qualify for hedge accounting, we designate them in accounting hedge relationships. Our structural market risk strategies, including our approach to managing interest rate and foreign exchange risk, are included in the blue-tinted font in the Structural (Non-Trading) Market Risk section of Management's Discussion and Analysis on page 98 of this report. In addition, our exposure to foreign exchange rate risk is discussed in the Foreign Exchange Risk section of Management's Discussion and Analysis on page 99. Our exposure to equity price risk and our approach to managing it are discussed in the "other share-based compensation, mid-term incentive plans" section of Note 20.

By using derivatives to hedge exposures to interest rates, foreign currency exchange rates, and equity prices, we are also exposed to the credit risk of the derivative counterparty. We mitigate credit risk by entering into transactions with high-quality counterparties, requiring the counterparties to post collateral, entering into master netting agreements, or settling through centrally cleared counterparties.

In order to qualify as an accounting hedge, the hedging relationship must be designated and formally documented at its inception, detailing the particular risk management objective and strategy for the hedge and the specific asset, liability or cash flow being hedged, as well as how effectiveness is being assessed. Changes in the fair value of the derivative must be highly effective in offsetting changes in the fair value or changes in the amount of future cash flows of the hedged item. We evaluate hedge effectiveness at the inception of the hedging relationship and on an ongoing basis, retrospectively and prospectively, primarily using a quantitative statistical regression analysis. We consider a hedging relationship highly effective when all of the following criteria are met: correlation between the variables in the regression is at least 0.8; the slope of the regression is within a 0.8 to 1.25 range; and the confidence level of the slope is at least 95%. The practice is different for our net investment hedge, discussed in the Net Investment Hedges section below.

Any ineffectiveness in the hedging relationship is recognized as it arises in non-interest revenue, other, in our Consolidated Statement of Income.

The following table outlines the notional amounts and average rates of derivatives and the carrying amount of deposits designated as hedging instruments, by term to maturity, hedge type, and risk type, where applicable.

| (Canadian $ in millions, except as noted) | | | | | | | 2018 |
|---|---|---|---|---|---|---|---|
| | | Remaining term to maturity | | | | | |
| | | Within 1 year | 1 to 3 years | 3 to 5 years | 5 to 10 years | Over 10 years | Total |
| **Cash Flow Hedges** | | | | | | | |
| **Interest rate risk – Interest rate swaps** | | | | | | | |
| Notional amount | | **5,252** | **22,976** | **30,790** | **14,751** | **–** | **73,769** |
| Average fixed interest rate | | **1.66%** | **1.67%** | **2.60%** | **2.42%** | **–** | **2.21%** |
| **Foreign exchange risk – Cross-currency swaps and foreign exchange forwards** (1) | | | | | | | |
| CAD-USD pair | Notional amount | **3,939** | **10,572** | **11,781** | **2,576** | **251** | **29,119** |
| | Average fixed interest rate | **1.31%** | **1.20%** | **2.01%** | **1.27%** | **3.02%** | **1.57%** |
| | Average exchange rate: CAD-USD | **1.3347** | **1.3035** | **1.2923** | **1.1871** | **1.3122** | **1.2930** |
| CAD-EUR pair | Notional amount | **3,804** | **8,726** | **8,618** | **–** | **201** | **21,349** |
| | Average fixed interest rate | **1.74%** | **2.10%** | **2.26%** | **–** | **2.97%** | **2.11%** |
| | Average exchange rate: CAD-EUR | **1.5217** | **1.4685** | **1.4999** | **–** | **1.4870** | **1.4908** |
| Other currency pairs (2) | Notional amount | **–** | **1,817** | **4,427** | **109** | **–** | **6,353** |
| | Average fixed interest rate | **–** | **2.05%** | **2.80%** | **2.98%** | **–** | **2.59%** |
| | Average exchange rate: CAD-Non USD/EUR | **–** | **1.4361** | **1.3338** | **0.1696** (3) | **–** | **1.3430** |
| **Equity price risk – Total return swap** | | | | | | | |
| Notional amount | | **381** | **–** | **–** | **–** | **–** | **381** |
| **Fair Value Hedges** | | | | | | | |
| **Interest rate risk – Interest rate swaps** | | | | | | | |
| Notional amount | | **14,516** | **21,919** | **22,928** | **14,101** | **–** | **73,464** |
| Average fixed interest rate | | **1.81%** | **2.16%** | **2.29%** | **2.36%** | **–** | **2.17%** |
| **Net Investment Hedges** | | | | | | | |
| **Foreign exchange risk** | | | | | | | |
| USD denominated deposit – carrying amount | | **6,596** | **–** | **–** | **–** | **–** | **6,596** |
| GBP denominated deposit – carrying amount | | **473** | **–** | **–** | **–** | **–** | **473** |

(1) Under certain hedge strategies using cross-currency swaps, a CAD leg is inserted to create two swaps designated as separate hedges (for example, a EURO-USD cross-currency swap split into EURO-CAD and CAD-USD cross-currency swaps). The relevant notional amount is grossed up in this table as the cross-currency swaps are disclosed by CAD-foreign currency pair.

(2) Includes CAD-AUD, CAD-CHF, CAD-CNH, CAD-GBP or CAD-HKD cross-currency swaps where applicable.

(3) Includes one CAD-HKD cross-currency swap.

*Cash Flow Hedges*

Cash flow hedges modify exposure to variability in cash flows for variable interest rate bearing instruments, foreign currency denominated assets and liabilities and certain cash-settled share-based payment grants subject to equity price risk. We use interest rate swaps with or without embedded options, cross-currency swaps, and total return swaps to hedge this variability. We hedge the full amount of foreign exchange risk, but interest rate risk is hedged only to the extent of benchmark interest rates. The benchmark interest rate is a component of interest rate risk that is observable in the relevant financial markets, for example London Interbank Offered Rate ("LIBOR") or Bankers' Acceptances ("BA") rate.

We determine the amount of the exposure to which hedge accounting is applied by assessing the potential impact of changes in interest rates, foreign exchange rates, and equity prices on the future cash flows of floating rate loans and deposits, foreign currency denominated assets and liabilities and certain cash-settled share-based payments. This assessment is performed using analytical techniques, such as simulation, sensitivity analysis, stress testing and gap analysis.

We record interest that we pay or receive on these cash flow hedge derivatives as an adjustment to net interest income in our Consolidated Statement of Income over the life of the hedge.

To the extent that changes in the fair value of the derivative offset changes in the fair value of the hedged item for the designated hedged risk, they are recorded in other comprehensive income. Hedge ineffectiveness, the portion of the change in fair value of the derivative that does not offset changes in the fair value of the hedged item, is recorded directly in non-interest revenue, other, in our Consolidated Statement of Income as it arises.

For cash flow hedges that are discontinued before the end of the original hedge term, the cumulative unrealized gain or loss recorded in other comprehensive income is amortized to our Consolidated Statement of Income in net interest income for interest rate swaps and in employee compensation for total return swaps as the hedged item is recorded in earnings. The entire unrealized gain or loss is recognized immediately in net interest income in our Consolidated Statement of Income, if the hedged item is sold or settled. We do not terminate our foreign exchange hedges before maturity.

Under cash flow hedges, we use a hypothetical derivative to measure the hedged risk of floating rate loans, deposits, foreign currency denominated assets and liabilities, or share-based payment grants. This hypothetical derivative matches the critical terms of the hedged items identically, and it perfectly offsets the hedged cash flow.

In our cash flow hedge relationships, the main sources of ineffectiveness are differences in interest rate indices, tenor and reset/settlement frequencies between the hedging instrument and the hedged item.

*Net Investment Hedges*

Net investment hedges mitigate our exposure to foreign currency exchange rate fluctuations related to our net investment in foreign operations.

Deposits denominated in foreign currencies are designated as a hedging instrument for a portion of the net investment in foreign operations. The foreign currency translation of our net investment in foreign operations and the effective portion of the corresponding hedging instrument are recorded in unrealized gains (losses) on translation of net foreign operations in other comprehensive income.

Effectiveness of our net investment hedge is determined by using the dollar offset method with spot foreign currency rates. As the notional amount of the deposits and the hedged net investment in foreign operations are the same, there is no source of ineffectiveness in these hedging relationships.

For cash flow hedges and net investment hedges, the following table contains information related to items designated as hedging instruments, hedged items and hedge ineffectiveness for the year ended October 31, 2018.

| | | | | | 2018 |
|---|---|---|---|---|---|
| | Carrying amount of hedging instruments (1) | | Hedge ineffectiveness | | |
| (Canadian $ in millions) | Asset | Liability | Gains (Losses) on hedging derivatives used to calculate hedge ineffectiveness | Gains (Losses) on hypothetical derivatives used to calculate hedge ineffectiveness | Ineffectiveness recorded in non-interest revenue – other |
| **Cash flow hedges** | | | | | |
| Interest rate risk – Interest rate swaps | **18** | **(1,261)** | **(1,685)** | **1,687** | **(4)** |
| Foreign exchange risk – Cross-currency swaps and foreign exchange forwards | **1,084** | **(1,074)** | **(459)** | **459** | **–** |
| Equity price risk – Total return swaps | **–** | **(28)** | **24** | **(24)** | **–** |
| | **1,102** | **(2,363)** | **(2,120)** | **2,122** | **(4)** |
| **Net investment hedges** | | | | | |
| Foreign exchange risk – Deposit liabilities | | **(7,069)** | **(211)** | **211** | **–** |
| **Total** | **1,102** | **(9,432)** | **(2,331)** | **2,333** | **(4)** |

(1) Represents the unrealized gains (losses) within derivative financial instruments in assets and liabilities, respectively, in the Consolidated Balance Sheet.

For cash flow hedges and net investment hedges, the following table contains information related to impacts on the Consolidated Statement of Other Comprehensive Income, on a pre-tax basis for the year ended October 31, 2018.

| | | | | | | 2018 |
|---|---|---|---|---|---|---|
| | | | | | Balance in cash flow hedge AOCI / net foreign operations AOCI | |
| (Canadian $ in millions) | AOCI as at November 1, 2017 | Gains / (losses) recognized in OCI | Amount reclassified to net income as the hedged item affects net income | AOCI as at October 31, 2018 | Active hedges | Discontinued hedges |
| **Cash flow hedges** | | | | | | |
| Interest rate risk | (597) | **(1,681)** | **67** | **(2,211)** | **(1,348)** | **(863)** |
| Foreign exchange risk | 298 | **(3)** | **456** | **751** | **751** | **–** |
| Equity price risk | 72 | **24** | **(66)** | **30** | **30** | **–** |
| | (227) | **(1,660)** | **457** | **(1,430)** (1) | **(567)** | **(863)** |
| **Net investment hedges** | | | | | | |
| Foreign exchange risk | (1,580) | **(211)** | **–** | **(1,791)** | **(1,791)** | **–** |
| **Total** | (1,807) | **(1,871)** | **457** | **(3,221)** | **(2,358)** | **(863)** |

(1) Tax balance related to cash flow hedge AOCI is $356 million as at October 31, 2018.

*Fair Value Hedges*

Fair value hedges modify exposure to changes in a fixed rate instrument's fair value caused by changes in interest rates. These hedges economically convert fixed rate assets and liabilities to floating rate. We use interest rate swaps to hedge interest rate risk, including benchmark interest rates, inherent in fixed rate securities, a portfolio of mortgages, deposits and subordinated debt.

Any fixed rate assets or liabilities that are part of a hedging relationship are adjusted for the change in value of the risk being hedged. To the extent that the change in the fair value of the derivative does not offset changes in the fair value of the hedged item for the risk being hedged, the net amount (hedge ineffectiveness) is recorded directly in non-interest revenue, other, in our Consolidated Statement of Income.

For fair value hedges that are discontinued, we cease adjusting the hedged item. The cumulative fair value adjustment of the hedged item is then amortized to net interest income over the hedged item's remaining term to maturity. If the hedged item is sold or settled, the cumulative fair value adjustment is included in the gain or loss on sale or settlement.

In our fair value hedge relationships, the main sources of ineffectiveness are the counterparty effect and our own credit risk on the fair value of the swap, and the difference in terms such as fixed interest rate or reset/settlement frequency between the swap and the hedged item.

The amounts relating to derivatives designated as fair value hedging instruments, hedged items and hedge ineffectiveness for the year are as follows:

| (Canadian $ in millions ) | | | | | | | | 2018 |
|---|---|---|---|---|---|---|---|---|
| | Carrying amount of hedging derivatives (1) | | Hedge ineffectiveness | | | | Accumulated amount of fair value hedge gains (losses) on hedged items | |
| | Asset | Liability | Gains (Losses) on hedging derivatives used to calculate hedge ineffectiveness | Gains (Losses) on hedged item used to calculate hedge ineffectiveness | Ineffectiveness recorded in non-interest revenue – other | Carrying amount of the hedged item (2) | Active hedges | Discontinued hedges |
| **Fair value hedge** | | | | | | | | |
| Interest rate swaps | **701** | **(668)** | | | | | | |
| FVOCI securities and loans | **–** | **–** | **850** | **(843)** | **7** | **36,722** | **(1,160)** | **–** |
| Deposits and subordinated debt | **–** | **–** | **(764)** | **761** | **(3)** | **(34,375)** | **719** | **436** |
| **Total** | **701** | **(668)** | **86** | **(82)** | **4** | **2,347** | **(441)** | **436** |

(1) Represents the unrealized gains (losses) within derivative financial instruments in assets and liabilities, respectively, in the Consolidated Balance Sheet.
(2) Represents the carrying value on the Consolidated Balance Sheet and includes amortized cost, before allowance for credit losses, plus fair value hedge adjustments, except for FVOCI securities that are carried at fair value.

*Comparative Information*
During 2017, net losses of $1,161 million related to the effective portion of cash flow hedges were recognized in OCI. A gain of $188 million related to cash flow hedges was transferred from equity to income in interest income or interest expense. Net ineffectiveness recognized on cash flow hedges during 2017 was a loss of $7 million.

Included within non-interest revenue, other, is a fair value loss of $200 million on derivatives held in qualifying fair value hedging relationships, and a gain of $193 million representing net increases in the fair value of the hedged item attributable to the hedged risk.

## Derivative-Related Market Risk

Derivative instruments are subject to market risk. Market risk arises from the potential for a negative impact on the balance sheet and/or statement of income due to adverse changes in the value of derivative instruments as a result of changes in certain market variables. These variables include interest rates, foreign exchange rates, equity and commodity prices and their implied volatilities, as well as credit spreads, credit migration and default. We strive to limit market risk by employing comprehensive governance and management processes for all market risk-taking activities.

## Derivative-Related Credit Risk

Over-the-counter derivative instruments are subject to credit risk arising from the possibility that counterparties may default on their obligations. The credit risk associated with a derivative is normally a small fraction of the notional amount of the derivative instrument. Derivative contracts generally expose us to potential credit loss if changes in market rates affect the counterparty's position unfavourably and the counterparty defaults on payment. The credit risk is represented by the positive fair value of the derivative instrument. We strive to limit credit risk by dealing with counterparties that we believe are creditworthy, and we manage our credit risk for derivatives using the same credit risk process that is applied to loans and other credit assets.

We also pursue opportunities to reduce our exposure to credit losses on derivative instruments, including through collateral and by entering into master netting agreements with counterparties. The credit risk associated with favourable contracts is mitigated by legally enforceable master netting agreements to the extent that unfavourable contracts with the same counterparty must be settled concurrently with favourable contracts.

Exchange-traded derivatives have limited potential for credit exposure, as they are settled net daily with each exchange.

Terms used in the credit risk table below are as follows:

**Replacement cost** represents the cost of replacing all contracts that have a positive fair value, determined using current market rates. It represents in effect the unrealized gains on our derivative instruments. Replacement costs disclosed below represent the net of the asset and liability to a specific counterparty where we have a legally enforceable right to offset the amount owed to us with the amount owed by us and we intend either to settle on a net basis or to realize the asset and settle the liability simultaneously.

**Credit risk equivalent** represents the total replacement cost plus an amount representing the potential future credit exposure, as outlined in OSFI's Capital Adequacy Guideline.

**Risk-weighted assets** represent the credit risk equivalent, weighted on the basis of the creditworthiness of the counterparty, and considering collateral, netting and other credit risk mitigants, as prescribed by OSFI.

| (Canadian $ in millions) | | | 2018 | | | 2017 |
|---|---|---|---|---|---|---|
| | **Replacement cost** | **Credit risk equivalent** | **Risk-weighted assets** | Replacement cost | Credit risk equivalent | Risk-weighted assets |
| **Interest Rate Contracts** | | | | | | |
| Swaps | **8,514** | **10,699** | **–** | 8,742 | 11,603 | – |
| Forward rate agreements | **36** | **34** | **–** | 41 | 42 | – |
| Purchased options | **409** | **393** | **–** | 440 | 381 | – |
| Total interest rate contracts | **8,959** | **11,126** | **704** | 9,223 | 12,026 | 1,537 |
| **Foreign Exchange Contracts** | | | | | | |
| Cross-currency swaps | **3,270** | **7,832** | **–** | 3,727 | 8,345 | – |
| Cross-currency interest rate swaps | **5,035** | **14,909** | **–** | 8,157 | 17,210 | – |
| Forward foreign exchange contracts | **4,453** | **8,373** | **–** | 5,062 | 8,389 | – |
| Purchased options | **225** | **424** | **–** | 250 | 420 | – |
| Total foreign exchange contracts | **12,983** | **31,538** | **2,544** | 17,196 | 34,364 | 2,701 |
| **Commodity Contracts** | | | | | | |
| Swaps | **1,559** | **4,450** | **–** | 726 | 2,971 | – |
| Purchased options | **335** | **1,108** | **–** | 120 | 1,034 | – |
| Total commodity contracts | **1,894** | **5,558** | **1,188** | 846 | 4,005 | 971 |
| **Equity Contracts** | **1,585** | **4,332** | **431** | 1,322 | 4,750 | 461 |
| **Credit Default Swaps** | **10** | **55** | **83** | 7 | 46 | 27 |
| Total derivatives | **25,431** | **52,609** | **4,950** | 28,594 | 55,191 | 5,697 |
| Less: impact of master netting agreements | **(15,575)** | **(29,170)** | **–** | (19,909) | (33,025) | – |
| Total | **9,856** | **23,439** | **4,950** | 8,685 | 22,166 | 5,697 |

The total derivatives and the impact of master netting agreements for replacement cost do not include exchange-traded derivatives with a fair value of $773 million as at October 31, 2018 ($357 million in 2017).

Transactions are conducted with counterparties in various geographic locations and industry sectors. Set out below is the replacement cost of contracts with customers located in the following countries, based on country of ultimate risk:

| (Canadian $ in millions, except as noted) | Before master netting agreements | | | | After master netting agreements | | | |
|---|---|---|---|---|---|---|---|---|
| | **2018** | | 2017 | | **2018** | | 2017 | |
| Canada | **13,449** | **53%** | 15,447 | 54% | **4,901** | **50%** | 5,045 | 58% |
| United States | **5,446** | **21%** | 7,149 | 25% | **2,102** | **21%** | 1,940 | 22% |
| United Kingdom | **1,181** | **5%** | 1,079 | 4% | **315** | **3%** | 182 | 2% |
| Other countries (1) | **5,355** | **21%** | 4,919 | 17% | **2,538** | **26%** | 1,518 | 18% |
| Total | **25,431** | **100%** | 28,594 | 100% | **9,856** | **100%** | 8,685 | 100% |

(1) No other country represented 15% or more of our replacement cost in 2018 or 2017.

Transactions are conducted with various counterparties. Set out below is the replacement cost of contracts (before the impact of master netting agreements) with customers in the following industries:

| As at October 31, 2018 (Canadian $ in millions) | **Interest rate contracts** | **Foreign exchange contracts** | **Commodity contracts** | **Equity contracts** | **Credit default swaps** | **Total** |
|---|---|---|---|---|---|---|
| Financial institutions | **6,509** | **10,238** | **360** | **1,219** | **10** | **18,336** |
| Governments | **1,694** | **1,478** | **56** | **–** | **–** | **3,228** |
| Natural resources | **3** | **27** | **432** | **–** | **–** | **462** |
| Energy | **93** | **641** | **727** | **–** | **–** | **1,461** |
| Other | **660** | **599** | **319** | **366** | **–** | **1,944** |
| Total | **8,959** | **12,983** | **1,894** | **1,585** | **10** | **25,431** |

| As at October 31, 2017 (Canadian $ in millions) | Interest rate contracts | Foreign exchange contracts | Commodity contracts | Equity contracts | Credit default swaps | Total |
|---|---|---|---|---|---|---|
| Financial institutions | 6,063 | 13,898 | 227 | 1,141 | 7 | 21,336 |
| Governments | 1,895 | 1,202 | 66 | – | – | 3,163 |
| Natural resources | – | 22 | 74 | – | – | 96 |
| Energy | 155 | 479 | 226 | – | – | 860 |
| Other | 1,110 | 1,595 | 253 | 181 | – | 3,139 |
| Total | 9,223 | 17,196 | 846 | 1,322 | 7 | 28,594 |

## Term to Maturity

Our derivative contracts have varying maturity dates. The remaining contractual terms to maturity for the notional amounts of our derivative contracts are set out below:

| (Canadian $ in millions) | | | | | Term to maturity | 2018 | 2017 |
|---|---|---|---|---|---|---|---|
| | Within 1 year | 1 to 3 years | 3 to 5 years | 5 to 10 years | Over 10 years | Total notional amounts | Total notional amounts |
| **Interest Rate Contracts** | | | | | | | |
| Swaps | **1,404,557** | **707,683** | **1,167,568** | **514,392** | **37,797** | **3,831,997** | 3,202,365 |
| Forward rate agreements, futures and options | **608,132** | **100,756** | **13,885** | **7,897** | **269** | **730,939** | 370,240 |
| Total interest rate contracts | **2,012,689** | **808,439** | **1,181,453** | **522,289** | **38,066** | **4,562,936** | 3,572,605 |
| **Foreign Exchange Contracts** | | | | | | | |
| Cross-currency swaps | **12,466** | **36,718** | **24,980** | **15,413** | **3,339** | **92,916** | 85,586 |
| Cross-currency interest rate swaps | **118,783** | **147,231** | **97,828** | **72,857** | **18,533** | **455,232** | 434,210 |
| Forward foreign exchange contracts, futures and options | **512,002** | **9,283** | **1,148** | **134** | **26** | **522,593** | 463,665 |
| Total foreign exchange contracts | **643,251** | **193,232** | **123,956** | **88,404** | **21,898** | **1,070,741** | 983,461 |
| **Commodity Contracts** | | | | | | | |
| Swaps | **6,234** | **14,885** | **2,875** | **372** | **–** | **24,366** | 18,713 |
| Futures and options | **21,910** | **25,587** | **3,530** | **704** | **–** | **51,731** | 52,051 |
| Total commodity contracts | **28,144** | **40,472** | **6,405** | **1,076** | **–** | **76,097** | 70,764 |
| **Equity Contracts** | **72,922** | **7,953** | **3,873** | **1,680** | **366** | **86,794** | 77,781 |
| **Credit Contracts** | **746** | **248** | **1,262** | **1,083** | **151** | **3,490** | 3,106 |
| Total notional amount | **2,757,752** | **1,050,344** | **1,316,949** | **614,532** | **60,481** | **5,800,058** | 4,707,717 |

# Note 9: Premises and Equipment

We record all premises and equipment at cost less accumulated amortization, and less any accumulated impairment, except land, which is recorded at cost. Buildings, computer equipment and operating system software, other equipment and leasehold improvements are amortized on a straight-line basis over their estimated useful lives. When the major components of a building have different useful lives, they are accounted for separately and amortized over each component's estimated useful life.

The maximum estimated useful lives we use to amortize our assets are as follows:

| | |
|---|---|
| Buildings | 10 to 40 years |
| Computer equipment and operating system software | 5 years |
| Other equipment | 10 years |
| Leasehold improvements | Lease term to a maximum of 10 years |

Amortization methods, useful lives and the residual values of premises and equipment are reviewed annually for any change in circumstances and are adjusted if appropriate. At each reporting period, we review whether there are any indications that premises and equipment need to be tested for impairment. If there is an indication that an asset may be impaired, we test for impairment by comparing the asset's carrying value to its recoverable amount. The recoverable amount is calculated as the higher of the value in use and the fair value less costs to sell. Value in use is the present value of the future cash flows expected to be derived from the asset. An impairment charge is recorded when the recoverable amount is less than the carrying value. There were no significant write-downs of premises and equipment due to impairment during the years ended October 31, 2018 and 2017. Gains and losses on disposal are included in non-interest expense, premises and equipment, in our Consolidated Statement of Income.

Net rent expense for premises and equipment reported in non-interest expense, premises and equipment, in our Consolidated Statement of Income for the years ended October 31, 2018, 2017 and 2016 was $530 million, $501 million and $502 million, respectively.

| (Canadian $ in millions) | | | | | 2018 | | | | | | | 2017 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Land** | **Buildings** | **Computer equipment** | **Other equipment** | **Leasehold improvements** | **Total** | Land | Buildings | Computer equipment | Other equipment | Leasehold improvements | Total |
| **Cost** | | | | | | | | | | | | |
| Balance at beginning of year | **174** | **1,726** | **1,994** | **913** | **1,429** | **6,236** | 207 | 1,784 | 1,844 | 902 | 1,347 | 6,084 |
| Additions | **4** | **66** | **236** | **40** | **87** | **433** | – | 72 | 156 | 69 | 105 | 402 |
| Disposals (1) | **(32)** | **(163)** | **(11)** | **(27)** | **(20)** | **(253)** | (28) | (95) | (13) | (13) | (10) | (159) |
| Foreign exchange and other | **(1)** | **(2)** | **10** | **7** | **18** | **32** | (5) | (35) | 7 | (45) | (13) | (91) |
| Balance at end of year | **145** | **1,627** | **2,229** | **933** | **1,514** | **6,448** | 174 | 1,726 | 1,994 | 913 | 1,429 | 6,236 |
| **Accumulated Depreciation and Impairment** | | | | | | | | | | | | |
| Balance at beginning of year | **–** | **1,063** | **1,465** | **674** | **1,001** | **4,203** | – | 1,055 | 1,306 | 649 | 927 | 3,937 |
| Disposals (1) | **–** | **(116)** | **(9)** | **(24)** | **(15)** | **(164)** | – | (32) | (11) | (8) | (8) | (59) |
| Amortization | **–** | **60** | **201** | **48** | **91** | **400** | – | 63 | 185 | 49 | 94 | 391 |
| Foreign exchange and other | **–** | **9** | **5** | **6** | **3** | **23** | – | (23) | (15) | (16) | (12) | (66) |
| Balance at end of year | **–** | **1,016** | **1,662** | **704** | **1,080** | **4,462** | – | 1,063 | 1,465 | 674 | 1,001 | 4,203 |
| Net carrying value | **145** | **611** | **567** | **229** | **434** | **1,986** | 174 | 663 | 529 | 239 | 428 | 2,033 |

(1) Includes fully depreciated assets written off.

# Note 10: Acquisitions

The cost of an acquisition is measured at the fair value of the consideration transferred, including contingent consideration. Acquisition-related costs are recognized as an expense in the period in which they are incurred. The identifiable assets acquired and liabilities assumed and contingent consideration are measured at their fair values at the date of acquisition. Goodwill is measured as the excess of the aggregate of the consideration transferred over the net of the fair value of identifiable assets acquired and liabilities assumed. The results of operations of acquired businesses are included in our consolidated financial statements beginning on the date of acquisition.

## KGS-Alpha Capital Markets ("KGS")

On September 1, 2018, we completed the acquisition of the business of KGS, a U.S. fixed income broker-dealer specializing in U.S. mortgage and asset-backed securities in the institutional investor market, for cash consideration of US$304 million (CAD$397 million). The acquisition was accounted for as a business combination, and the acquired business and corresponding goodwill are included in our Capital Markets reporting segment.

As part of this acquisition, we acquired intangible assets of $49 million and goodwill of $54 million. The intangible assets are being amortized over three to fourteen years on an accelerated basis. Goodwill of $32 million related to this acquisition is deductible for tax purposes.

The fair values of the assets acquired and liabilities assumed at the date of acquisition are as follows:

| (Canadian $ in millions) | KGS |
|---|---|
| Securities – trading | 5,193 |
| Securities borrowed or purchased under resale agreements | 5,669 |
| Goodwill and intangible assets | 103 |
| Other assets | 584 |
| Total assets | 11,549 |
| Securities lent or sold under repurchase agreements | 9,563 |
| Securities sold but not yet purchased | 1,431 |
| Other liabilities | 158 |
| Purchase price | 397 |

The purchase price allocation for KGS is subject to refinement as we complete the valuation of the assets acquired and liabilities assumed.

# Note 11: Goodwill and Intangible Assets

## Goodwill

When we complete an acquisition, we allocate the purchase price paid to the assets acquired, including identifiable intangible assets, and the liabilities assumed. Any portion of the consideration transferred that is in excess of the fair value of those net assets is considered to be goodwill. Goodwill is not amortized and is instead tested for impairment annually.

In performing the impairment test, we utilize the fair value less costs to sell for each group of CGUs based on discounted cash flow projections. Cash flows were projected for the first 10 years based on actual operating results, expected future business performance and past experience. Beyond 10 years, cash flows were assumed to grow at perpetual annual rates of up to 2% (3% in 2017). The discount rates we applied in determining the recoverable amounts in 2018 ranged from 8.6% to 11.4% (8.3% to 12.2% in 2017), and were based on our estimate of the cost of capital for each CGU. The cost of capital for each CGU was estimated using the Capital Asset Pricing Model, based on the historical betas of publicly traded peer companies that are comparable to the CGU.

There were no write-downs of goodwill due to impairment during the years ended October 31, 2018 and 2017.

The key assumptions described above may change as market and economic conditions change. However, we estimate that reasonably possible changes in these assumptions are not expected to cause recoverable amounts of our CGUs to decline below their carrying amounts.

A continuity of our goodwill by group of CGUs for the years ended October 31, 2018 and 2017 is as follows:

| (Canadian $ in millions) | Personal and Commercial Banking | | | Wealth Management | | | BMO Capital Markets | Total |
|---|---|---|---|---|---|---|---|---|
| | Canadian P&C | U.S. P&C | Total | Traditional Wealth Management | Insurance | Total | | |
| Balance – October 31, 2016 | 97 | 3,861 | 3,958 | 2,117 | 2 | 2,119 | 304 | 6,381 |
| Acquisitions (disposals) during the year | – | – | – | (4) | – | (4) | – | (4) |
| Foreign exchange and other (1) | – | (142) | (142) | 24 | – | 24 | (15) | (133) |
| Balance – October 31, 2017 | 97 | 3,719 | 3,816 | 2,137 | 2 | 2,139 | 289 | 6,244 |
| Acquisitions (disposals) during the year | **–** | **–** | **–** | **–** | **–** | **–** | **54** | **54** |
| Foreign exchange and other (1) | **–** | **78** | **78** | **(8)** | **–** | **(8)** | **5** | **75** |
| Balance – October 31, 2018 | **97** (2) | **3,797** (3) | **3,894** | **2,129** (4) | **2** (5) | **2,131** | **348** (6) | **6,373** |

(1) Other changes in goodwill included the effects of translating goodwill denominated in foreign currencies into Canadian dollars and purchase accounting adjustments related to prior-year purchases.
(2) Relates primarily to bcpbank Canada, Diners Club, Aver Media LP and GE Transportation Finance.
(3) Relates primarily to First National Bank & Trust, Ozaukee Bank, Merchants and Manufacturers Bancorporation, Inc., Diners Club, AMCORE, M&I and GE Transportation Finance.
(4) Relates to BMO Nesbitt Burns Inc., Guardian Group of Funds Ltd., Pyrford International plc, LGM Investments Limited, M&I, myCFO, Inc., Stoker Ostler Wealth Advisors, Inc., CTC Consulting LLC, AWMB and F&C Asset Management plc.
(5) Relates to AIG.
(6) Relates to Gerard Klauer Mattison, BMO Nesbitt Burns Inc., Paloma Securities L.L.C., M&I, Greene Holcomb Fisher and KGS.

## Intangible Assets

Intangible assets related to our acquisitions are initially recorded at their fair value at the acquisition date and subsequently at cost less accumulated amortization. Software is recorded at cost less accumulated amortization. Amortization expense is recorded in amortization of intangible assets in our Consolidated Statement of Income. The following table presents the changes in the balance of these intangible assets:

| (Canadian $ in millions) | Customer relationships | Core deposits | Branch distribution networks | Software – amortizing | Software under development | Other | Total |
|---|---|---|---|---|---|---|---|
| Cost as at October 31, 2016 | 704 | 968 | 194 | 3,189 | 476 | 365 | 5,896 |
| Additions (disposals) | (33) | – | – | 546 | (67) | – | 446 |
| Foreign exchange and other | (17) | (37) | (7) | (39) | (11) | 11 | (100) |
| Cost as at October 31, 2017 | 654 | 931 | 187 | 3,696 | 398 | 376 | 6,242 |
| Additions (disposals) | **35** | **–** | **–** | **422** | **94** | **12** | **563** |
| Foreign exchange and other | **(1)** | **20** | **4** | **9** | **4** | **(4)** | **32** |
| Cost as at October 31, 2018 | **688** | **951** | **191** | **4,127** | **496** | **384** | **6,837** |

Certain comparative figures have been reclassified to conform with the current year's presentation.

The following table presents the accumulated amortization of our intangible assets:

| (Canadian $ in millions) | Customer relationships | Core deposits | Branch distribution networks | Software – amortizing | Software under development | Other | Total |
|---|---|---|---|---|---|---|---|
| Accumulated amortization at October 31, 2016 | 398 | 735 | 194 | 2,329 | – | 62 | 3,718 |
| Amortization | 68 | 56 | – | 336 | – | 25 | 485 |
| Disposals | (22) | – | – | (11) | – | – | (33) |
| Foreign exchange and other | (13) | (29) | (7) | (36) | – | (2) | (87) |
| Accumulated amortization at October 31, 2017 | 431 | 762 | 187 | 2,618 | – | 85 | 4,083 |
| Amortization | **46** | **51** | **–** | **387** | **–** | **19** | **503** |
| Disposals | **–** | **–** | **–** | **(20)** | **–** | **–** | **(20)** |
| Foreign exchange and other | **(2)** | **17** | **4** | **(15)** | **–** | **(5)** | **(1)** |
| Accumulated amortization at October 31, 2018 | **475** | **830** | **191** | **2,970** | **–** | **99** | **4,565** |
| Carrying value at October 31, 2018 | **213** | **121** | **–** | **1,157** | **496** | **285** | **2,272** |
| Carrying value at October 31, 2017 | 223 | 169 | – | 1,078 | 398 | 291 | 2,159 |

Certain comparative figures have been reclassified to conform with the current year's presentation.

Intangible assets are amortized to income over the period during which we believe the assets will benefit us, on either a straight-line or an accelerated basis, over a period not to exceed 15 years. We have $165 million as at October 31, 2018 ($169 million as at October 31, 2017) in intangible assets with indefinite lives that relate primarily to fund management contracts.

The useful lives of intangible assets are reviewed annually for any changes in circumstances. We test definite-life intangible assets for impairment when events or changes in circumstances indicate that their carrying value may not be recoverable. Indefinite-life intangible assets are tested annually for impairment. If any intangible assets are determined to be impaired, we write them down to their recoverable amount, the higher of value in use and fair value less costs to sell, when this is less than the carrying value.

There were write-downs of intangible assets of $13 million during the year ended October 31, 2018 ($5 million in 2017).

# Note 12: Other Assets

## Customers' Liability under Acceptances

Acceptances represent a form of negotiable short-term debt that is issued by our customers, which we guarantee for a fee. The fees earned are recorded in lending fees in our Consolidated Statement of Income over the term of the acceptance. The amount potentially due under the acceptances is recorded in other liabilities on our Consolidated Balance Sheet. We record the bank's equivalent claim against our customers in the event of a call on these commitments in other assets on our Consolidated Balance Sheet.

## Other

The components of other within other assets are as follows:

| (Canadian $ in millions) | **2018** | 2017 |
|---|---|---|
| Accounts receivable, prepaid expenses and other items | **6,910** | 6,508 |
| Accrued interest receivable | **1,461** | 1,079 |
| BMO Transportation Finance – leased vehicles | **937** | 928 |
| Cash collateral | **2,019** | 3,165 |
| Due from clients, dealers and brokers | **236** | 156 |
| Insurance-related assets | **822** | 644 |
| Pension asset (Note 21) | **664** | 508 |
| Precious metals | **1,603** | 582 |
| Total | **14,652** | 13,570 |

Certain comparative figures have been reclassified to conform with the current year's presentation.

# Note 13: Deposits

| | Payable on demand | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| (Canadian $ in millions) | Interest bearing | | Non-interest bearing | | Payable after notice | | Payable on a fixed date | | Total | |
| | **2018** | 2017 | **2018** | 2017 | **2018** | 2017 | **2018** | 2017 | **2018** | 2017 |
| Deposits by: | | | | | | | | | | |
| Banks (1) | **1,450** | 818 | **1,400** | 1,864 | **526** | 586 | **24,531** | 24,937 | **27,907** | 28,205 |
| Business and government | **25,266** | 20,621 | **33,984** | 33,968 | **67,026** | 61,790 | **187,024** | 166,897 | **313,300** | 283,276 |
| Individuals | **3,476** | 3,278 | **21,345** | 20,044 | **90,233** | 89,859 | **65,790** | 55,130 | **180,844** | 168,311 |
| Total (2)(3) | **30,192** | 24,717 | **56,729** | 55,876 | **157,785** | 152,235 | **277,345** | 246,964 | **522,051** | 479,792 |
| Booked in: | | | | | | | | | | |
| Canada | **21,735** | 21,557 | **47,231** | 44,380 | **82,091** | 81,590 | **161,192** | 145,648 | **312,249** | 293,175 |
| United States | **7,395** | 2,259 | **9,477** | 11,496 | **74,476** | 69,555 | **86,805** | 75,517 | **178,153** | 158,827 |
| Other countries | **1,062** | 901 | **21** | – | **1,218** | 1,090 | **29,348** | 25,799 | **31,649** | 27,790 |
| Total | **30,192** | 24,717 | **56,729** | 55,876 | **157,785** | 152,235 | **277,345** | 246,964 | **522,051** | 479,792 |

(1) Includes regulated and central banks.
(2) Includes structured notes designated at fair value through profit or loss.
(3) As at October 31, 2018 and 2017, total deposits payable on a fixed date included $29,673 million and $30,419 million, respectively, of federal funds purchased, commercial paper issued and other deposit liabilities. Included in deposits as at October 31, 2018 and 2017 are $259,747 million and $237,127 million, respectively, of deposits denominated in U.S. dollars, and $37,427 million and $27,686 million, respectively, of deposits denominated in other foreign currencies.

Certain comparative figures have been reclassified to conform with the current year's presentation.

Deposits payable on demand are comprised primarily of our customers' chequing accounts, some of which we pay interest on. Our customers need not notify us prior to withdrawing money from their chequing accounts.

Deposits payable after notice are comprised primarily of our customers' savings accounts, on which we pay interest. Deposits payable on a fixed date are comprised of:

- Various investment instruments purchased by our customers to earn interest over a fixed period, such as term deposits and guaranteed investment certificates. The terms of these deposits can vary from one day to 10 years.
- Federal funds purchased, which are overnight borrowings of other banks' excess reserve funds at the United States Federal Reserve Bank. As at October 31, 2018, we had borrowed $55 million of federal funds ($707 million in 2017).
- Commercial paper, which totalled $9,121 million as at October 31, 2018 ($8,430 million in 2017).
- Covered bonds, which totalled $25,045 million as at October 31, 2018 ($23,108 million in 2017).

The following table presents the maturity schedule for our deposits payable on a fixed date:

| (Canadian $ in millions) | **2018** | 2017 |
|---|---|---|
| Within 1 year | **162,666** | 145,039 |
| 1 to 2 years | **34,154** | 25,620 |
| 2 to 3 years | **26,107** | 23,323 |
| 3 to 4 years | **16,708** | 19,345 |
| 4 to 5 years | **22,196** | 15,850 |
| Over 5 years | **15,514** | 17,787 |
| Total (1) | **277,345** | 246,964 |

(1) Includes $247,808 million of deposits, each greater than one hundred thousand dollars, of which $146,697 million were booked in Canada, $71,770 million were booked in the United States and $29,341 million were booked in other countries ($221,954 million, $130,197 million, $65,963 million and $25,794 million, respectively, in 2017). Of the $146,697 million of deposits booked in Canada, $55,190 million mature in less than three months, $3,836 million mature in three to six months, $12,909 million mature in six to twelve months and $74,762 million mature after 12 months ($130,197 million, $41,418 million, $7,922 million, $10,574 million and $70,283 million, respectively, in 2017). We have unencumbered liquid assets of $242,612 million to support these and other deposit liabilities ($213,757 million in 2017).

Most of our structured note liabilities included in deposits have been designated at fair value through profit or loss and are accounted for at fair value, which aligns the accounting result with the way the portfolio is managed. The fair value and notional amount due at contractual maturity of these notes as at October 31, 2018 were $15,309 million and $15,668 million respectively ($13,674 million and $13,563 million, respectively, in 2017). The change in fair value of these structured notes was recorded as an increase of $498 million in non-interest revenue, trading revenues, and a decrease of $28 million before tax was recorded in other comprehensive income related to changes in our own credit spread for the year ended October 31, 2018 (a decrease of $72 million recorded in non-interest revenue, trading revenues, and a decrease of $169 million related to changes in our own credit spread in 2017). The impact of changes in our own credit spread is measured based on movements in our own credit spread year over year.

The cumulative change in fair value related to changes in our own credit spread that has been recognized since the notes were designated at fair value to October 31, 2018 was an unrealized loss of approximately $331 million (unrealized loss of approximately $303 million in 2017), and $255 million of this unrealized loss has been recorded in other comprehensive income ($227 million in 2017).

# Note 14: Other Liabilities

## Acceptances

Acceptances represent a form of negotiable short-term debt that is issued by our customers, which we guarantee for a fee. The fees earned are recorded in lending fees in our Consolidated Statement of Income over the term of the acceptance. The amount potentially due under acceptances is recorded in other liabilities on our Consolidated Balance Sheet. We record the bank's equivalent claim against our customers in the event of a call on these commitments in other assets on our Consolidated Balance Sheet.

## Securities Lending and Borrowing

Securities lending and borrowing transactions are generally collateralized by securities or cash. Cash advanced or received as collateral is recorded in other assets or other liabilities, respectively. Interest earned on cash collateral is recorded in interest, dividend and fee income in our Consolidated Statement of Income, and interest expense on cash collateral is recorded in interest expense, other liabilities, in our Consolidated Statement of Income. The transfer of the securities to counterparties is only reflected in our Consolidated Balance Sheet if the risks and rewards of ownership have also been transferred. Securities borrowed are not recognized in our Consolidated Balance Sheet unless they are then sold to third parties, in which case the obligation to return the securities is recorded in Securities sold but not yet purchased at fair value, with any gains or losses recorded in non-interest revenue, trading revenues.

## Securities Sold but not yet Purchased

Securities sold but not yet purchased represent our obligations to deliver securities that we did not own at the time of sale. These obligations are recorded at their fair value. Adjustments to the fair value as at the balance sheet date and gains and losses on the settlement of these obligations are recorded in trading revenues in our Consolidated Statement of Income.

## Securities Lent or Sold Under Repurchase Agreements

Securities lent or sold under repurchase agreements represent short-term funding transactions in which we sell securities that we own and simultaneously commit to repurchase the same securities at a specified price on a specified date in the future. The obligation to repurchase these securities is recorded at the amount owing. The interest expense related to these liabilities is recorded on an accrual basis in interest expense, other liabilities, in our Consolidated Statement of Income.

## Securitization and Structured Entities' Liabilities

Securitization and structured entities' liabilities include notes issued by our consolidated bank securitization vehicles and liabilities associated with the securitization of our Canadian mortgage loans as part of the Canada Mortgage Bond program, the National Housing Act Mortgage-Backed Securities program and our own program. Additional information on our securitization program and associated liabilities is provided in Notes 6 and 7. These liabilities are initially measured at fair value plus any directly attributable costs and are subsequently measured at amortized cost. The interest expense related to these liabilities is recorded in interest expense, other liabilities, in our Consolidated Statement of Income.

## Other

The components of other within other liabilities are as follows:

| (Canadian $ in millions) | 2018 | 2017 |
|---|---|---|
| Accounts payable, accrued expenses and other items | **8,119** | 7,894 |
| Accrued interest payable | **1,385** | 1,037 |
| Cash collateral | **4,343** | 3,696 |
| Insurance-related liabilities | **9,585** | 8,959 |
| Liabilities of subsidiaries, other than deposits | **9,283** | 6,931 |
| Other employee future benefits liability (Note 21) | **960** | 1,303 |
| Payable to brokers, dealers and clients | **1,898** | 2,177 |
| Pension liability (Note 21) | **256** | 364 |
| Total | **35,829** | 32,361 |

Certain comparative figures have been reclassified to conform with the current year's presentation.

## Insurance-Related Liabilities

We are engaged in insurance businesses related to life and health insurance, annuities and reinsurance.

We designate the obligation related to certain investment contracts in our insurance business at fair value through profit or loss, which eliminates a measurement inconsistency that would otherwise arise from measuring the investment contract liabilities and offsetting changes in the fair value of the investments supporting them on a different basis. The fair value of these investment contract liabilities as at October 31, 2018 of $800 million ($749 million as at October 31, 2017) is recorded in other liabilities in our Consolidated Balance Sheet. The change in fair value of these investment contract liabilities resulted in a decrease of $28 million in insurance claims, commissions and changes in policy benefit liabilities for the year ended October 31, 2018 (decrease of $41 million in 2017 and an increase of $55 million in 2016). For the year ended October 31, 2018, a loss of $2 million was recorded in other comprehensive income related to changes in our credit spread (loss of $32 million in 2017 and $7 million in 2016). The impact of changes in our own credit spread is measured based on movements in our own credit spread year over year. Changes in the fair value of investments backing these investment contract liabilities are recorded in non-interest revenue, insurance revenue.

Insurance claims and policy benefit liabilities represent current claims and estimates of future insurance policy benefit liabilities. Liabilities for life insurance contracts are determined using the Canadian Asset Liability Method, which incorporates best-estimate assumptions for mortality, morbidity, policy lapses, surrenders, future investment yields, policy dividends, administration costs and margins for adverse deviation. These assumptions are reviewed at least annually and updated to reflect actual experience and market conditions.

A reconciliation of the change in insurance-related liabilities is as follows:

| (Canadian $ in millions) | 2018 | 2017 |
|---|---|---|
| Insurance-related liabilities, beginning of year | **8,959** | 7,909 |
| Increase (decrease) in life insurance policy benefit liabilities from: | | |
| New business | **742** | 545 |
| In-force policies | **(400)** | 66 |
| Changes in actuarial assumptions and methodology | **3** | (52) |
| Foreign currency | **–** | (1) |
| Net increase in life insurance policy benefit liabilities | **345** | 558 |
| Change in other insurance-related liabilities | **281** | 492 |
| Insurance-related liabilities, end of year | **9,585** | 8,959 |

## Reinsurance

In the ordinary course of business, our insurance subsidiaries reinsure risks to other insurance and reinsurance companies in order to provide greater diversification, limit loss exposure to large risks, and provide additional capacity for future growth. These ceding reinsurance arrangements do not relieve our insurance subsidiaries of their direct obligation to the insured parties. We evaluate the financial condition of the reinsurers and monitor their credit ratings to minimize our exposure to losses from reinsurer insolvency.

Reinsurance premiums ceded are recorded net against direct premium income and are included in non-interest revenue, insurance revenue, in our Consolidated Statement of Income for the years ended October 31, 2018, 2017 and 2016, as shown in the table below:

| (Canadian $ in millions) | 2018 | 2017 | 2016 |
|---|---|---|---|
| Direct premium income | **1,976** | 1,750 | 1,561 |
| Ceded premiums | **(148)** | (157) | (271) |
| | **1,828** | 1,593 | 1,290 |

# Note 15: Subordinated Debt

Subordinated debt represents our direct unsecured obligations to our debt holders, in the form of notes and debentures and forms part of our regulatory capital. Subordinated debt is recorded at amortized cost using the effective interest rate method. Where appropriate, we enter into fair value hedges to hedge the risks caused by changes in interest rates (see Note 8). The rights of the holders of our notes and debentures are subordinate to the claims of depositors and certain other creditors. We require approval from OSFI before we can redeem any part of our subordinated debt.

The face values, terms to maturity and carrying values of our subordinated debt are as follows:

| (Canadian $ in millions, except as noted) | Face value | Maturity date | Interest rate (%) | Redeemable at our option | **2018 Total** | 2017 Total |
|---|---|---|---|---|---|---|
| Debentures Series 20 | 150 | December 2025 to 2040 | 8.25 | Not redeemable | **143** | 148 |
| Series F Medium-Term Notes, First Tranche | 900 | March 2023 | 6.17 | March 2018 (1) | **–** | 905 |
| Series H Medium-Term Notes, First Tranche (8) | 1,000 | September 2024 | 3.12 | September 2019 (2) | **1,003** | 1,016 |
| Series H Medium-Term Notes, Second Tranche (8) | 1,000 | December 2025 | 3.34 | December 2020 (3) | **916** | 969 |
| Series I Medium-Term Notes, First Tranche (8) | 1,250 | June 2026 | 3.32 | June 2021 (4) | **1,222** | 1,178 |
| Series I Medium-Term Notes, Second Tranche (8) | 850 | June 2027 | 2.57 | June 2022 (5) | **813** | 813 |
| 3.803% Subordinated Notes due 2032 (8)(9) | US 1,250 | December 2032 | 3.80 | December 2027 (6) | **1,573** | – |
| 4.338% Subordinated Notes due 2028 (8)(10) | US 850 | October 2028 | 4.34 | October 2023 (7) | **1,112** | – |
| Total (11) | | | | | **6,782** | 5,029 |

(1) All $900 million Series F Medium-Term Notes, First Tranche were redeemed on March 28, 2018 for 100% of the principal amount plus accrued and unpaid interest to, but excluding, the redemption date.
(2) Redeemable at par together with accrued and unpaid interest to, but excluding, their redemption date commencing September 19, 2019.
(3) Redeemable at the greater of par and the Canada Yield Price prior to December 8, 2020, and redeemable at par together with accrued and unpaid interest to, but excluding, their redemption date commencing December 8, 2020.
(4) Redeemable at the greater of par and the Canada Yield Price prior to June 1, 2021, and redeemable at par together with accrued and unpaid interest to, but excluding, their redemption date commencing June 1, 2021.
(5) Redeemable at the greater of par and the Canada Yield Price prior to June 1, 2022, and redeemable at par together with accrued and unpaid interest to, but excluding, their redemption date commencing June 1, 2022.
(6) Redeemable at par on December 15, 2027 together with accrued and unpaid interest to, but excluding, the redemption date.
(7) Redeemable at par on October 5, 2023 together with accrued and unpaid interest to, but excluding, the redemption date.
(8) These notes include a non-viability contingent capital provision, which is necessary for notes issued after a certain date to qualify as regulatory capital under Basel III. As such, the notes are convertible into a variable number of our common shares if OSFI announces that the bank is, or is about to become, non-viable or if a federal or provincial government in Canada publicly announces that the bank has accepted or agreed to accept a capital injection, or equivalent support, to avoid non-viability. In such an event, each note is convertible into common shares pursuant to an automatic conversion formula with a multiplier and a conversion price based on the greater of: (i) a floor price of $5.00 and (ii) the current market price of our common shares based on the volume weighted average trading price of our common shares on the TSX. The number of common shares issued is determined by dividing the par value of the note (including accrued and unpaid interest on such note) by the conversion price and then times the multiplier.
(9) On December 12, 2017, we issued US$1,250 million of 3.803% subordinated notes.
(10) On October 5, 2018, we issued US$850 million of 4.338% subordinated notes.
(11) Certain amounts of subordinated debt were issued at a premium or discount and include fair value hedge adjustments, which together decreased their carrying value as at October 31, 2018 by $233 million ($121 million in 2017); see Note 8 for further details. The carrying value is also adjusted for the subordinated debt holdings, held for market making purposes.

Certain comparative figures have been reclassified to conform with the current year's presentation.

The aggregate remaining maturities of our subordinated debt, based on the maturity dates under the terms of issue, can be found in the blue-tinted font in the Contractual Maturities of Assets and Liabilities and Off-Balance Sheet Commitments section of Management's Discussion and Analysis on pages 107 to 108 of this report.

# Note 16: Equity

## Share Capital

| (Canadian $ in millions, except as noted) | | | 2018 | | | 2017 |
|---|---|---|---|---|---|---|
| | **Number of shares** | **Amount** | **Dividends declared per share** | Number of shares | Amount | Dividends declared per share |
| **Preferred Shares – Classified as Equity** | | | | | | |
| Class B – Series 14 (1) | **–** | **–** | **–** | – | – | 0.66 |
| Class B – Series 15 (2) | **–** | **–** | **–** | – | – | 0.73 |
| Class B – Series 16 (3) | **–** | **–** | **0.64** | 6,267,391 | 157 | 0.85 |
| Class B – Series 17 (4) | **–** | **–** | **0.52** | 5,732,609 | 143 | 0.55 |
| Class B – Series 25 | **9,425,607** | **236** | **0.45** | 9,425,607 | 236 | 0.45 |
| Class B – Series 26 | **2,174,393** | **54** | **0.59** | 2,174,393 | 54 | 0.43 |
| Class B – Series 27 | **20,000,000** | **500** | **1.00** | 20,000,000 | 500 | 1.00 |
| Class B – Series 29 | **16,000,000** | **400** | **0.98** | 16,000,000 | 400 | 0.98 |
| Class B – Series 31 | **12,000,000** | **300** | **0.95** | 12,000,000 | 300 | 0.95 |
| Class B – Series 33 | **8,000,000** | **200** | **0.95** | 8,000,000 | 200 | 0.95 |
| Class B – Series 35 | **6,000,000** | **150** | **1.25** | 6,000,000 | 150 | 1.25 |
| Class B – Series 36 | **600,000** | **600** | **58.50** | 600,000 | 600 | 58.50 |
| Class B – Series 38 | **24,000,000** | **600** | **1.21** | 24,000,000 | 600 | 1.33 |
| Class B – Series 40 (5) | **20,000,000** | **500** | **1.13** | 20,000,000 | 500 | 0.80 |
| Class B – Series 42 (6) | **16,000,000** | **400** | **1.10** | 16,000,000 | 400 | 0.45 |
| Class B – Series 44 (7) | **16,000,000** | **400** | **–** | – | – | – |
| | | **4,340** | | | 4,240 | |
| **Common Shares** | | | | | | |
| Balance at beginning of year | **647,816,318** | **13,032** | | 645,761,333 | 12,539 | |
| Issued under the Shareholder Dividend Reinvestment and Share Purchase Plan | **–** | **–** | | 4,821,184 | 448 | |
| Issued/cancelled under the Stock Option Plan and other stock-based compensation plans (Note 20) | **1,513,307** | **99** | | 2,233,801 | 146 | |
| Repurchased for cancellation | **(10,000,000)** | **(202)** | | (5,000,000) | (101) | |
| **Balance at End of Year** | **639,329,625** | **12,929** | **3.78** | 647,816,318 | 13,032 | 3.56 |
| **Share Capital** | | **17,269** | | | 17,272 | |

(1) On May 25, 2017, we redeemed all 10 million Non-Cumulative Perpetual Class B Preferred Shares, Series 14, at a price of $25.00 cash per share plus all declared and unpaid dividends. Dividends declared for the year ended October 31, 2017 were $0.66 per share and 10 million shares were outstanding at the time of the dividend declaration.
(2) On May 25, 2017, we redeemed all 10 million Non-Cumulative Perpetual Class B Preferred Shares, Series 15, at a price of $25.00 cash per share plus all declared and unpaid dividends. Dividends declared for the year ended October 31, 2017 were $0.73 per share and 10 million shares were outstanding at the time of the dividend declaration.
(3) On August 25, 2018, we redeemed all 6,267,391 Non-Cumulative Perpetual Class B Preferred Shares, Series 16, at a price of $25.00 cash per share plus all declared and unpaid dividends. Dividends declared for the year ended October 31, 2018 were $0.64 per share and 6,267,391 shares were outstanding at the time of the dividend declaration.
(4) On August 25, 2018, we redeemed all 5,732,609 Non-Cumulative Perpetual Class B Preferred Shares, Series 17, at a price of $25.00 cash per share plus all declared and unpaid dividends. Dividends declared for the year ended October 31, 2018 were $0.52 per share and 5,732,609 shares were outstanding at the time of the dividend declaration.
(5) On March 9, 2017, we issued 20 million Non-Cumulative 5-Year Rate Reset Class B Preferred Shares, Series 40, at a price of $25.00 cash per share for gross proceeds of $500 million.
(6) On June 29, 2017, we issued 16 million Non-Cumulative 5-Year Rate Reset Class B Preferred Shares, Series 42, at a price of $25.00 cash per share for gross proceeds of $400 million.
(7) On September 17, 2018, we issued 16 million Non-Cumulative 5-Year Rate Reset Class B Preferred Shares, Series 44, at a price of $25.00 cash per share for gross proceeds of $400 million.

## Preferred Share Rights and Privileges

(Canadian $, except as noted)

| | Redemption amount | Quarterly non-cumulative dividend (1) | Reset premium | Date redeemable / convertible | Convertible to |
|---|---|---|---|---|---|
| Class B – Series 25 | 25.00 | $0.112813 (2) | 1.15% | August 25, 2021 (3)(4) | Class B – Series 26 (8) |
| Class B – Series 26 | 25.00 | Floating (7) | 1.15% | August 25, 2021 (3)(5) | Class B – Series 25 (8) |
| Class B – Series 27 | 25.00 | $ 0.2500 (2) | 2.33% | May 25, 2019 (3)(4) | Class B – Series 28 (8) |
| Class B – Series 29 | 25.00 | $ 0.24375 (2) | 2.24% | August 25, 2019 (3)(4) | Class B – Series 30 (8) |
| Class B – Series 31 | 25.00 | $ 0.2375 (2) | 2.22% | November 25, 2019 (3)(4) | Class B – Series 32 (8) |
| Class B – Series 33 | 25.00 | $ 0.2375 (2) | 2.71% | August 25, 2020 (3)(4) | Class B – Series 34 (8) |
| Class B – Series 35 | 25.00 | $ 0.3125 | Does not reset | August 25, 2020 (6) | Not convertible |
| Class B – Series 36 | 1,000.00 | $ 14.6250 (2) | 4.97% | November 25, 2020 (3)(4) | Class B – Series 37 (8) |
| Class B – Series 38 | 25.00 | $0.303125 (2) | 4.06% | February 25, 2022 (3)(4) | Class B – Series 39 (8) |
| Class B – Series 40 | 25.00 | $ 0.28125 (2) | 3.33% | May 25, 2022 (3)(4) | Class B – Series 41 (8) |
| Class B – Series 42 | 25.00 | $ 0.2750 (2) | 3.17% | August 25, 2022 (3)(4) | Class B – Series 43 (8) |
| Class B – Series 44 | 25.00 | $0.303125 (2) | 2.68% | November 25, 2023 (3)(4) | Class B – Series 45 (8) |

(1) Non-cumulative dividends are payable quarterly as and when declared by the Board of Directors.
(2) The dividend rate will reset on the date redeemable and every five years thereafter at a rate equal to the 5-year Government of Canada bond yield plus the reset premium noted. If converted to a floating rate series, the rate will be set as and when declared at the 3-month Government of Canada treasury bill yield plus the reset premium noted.
(3) Redeemable on the date noted and every five years thereafter.
(4) Convertible on the date noted and every five years thereafter if not redeemed. If converted, Series 26, 28, 30, 32, 34, 37, 39, 41, 43 and 45 are floating rate preferred shares.
(5) Convertible on the date noted and every five years thereafter if not redeemed. If converted, Series 25 are fixed rate preferred shares.
(6) Series 35 is subject to a redemption premium if redeemed prior to August 25, 2024.
(7) Floating rate will be set as and when declared at the 3-month Government of Canada treasury bill yield plus a reset premium.
(8) If converted, the holders have the option to convert back to the original preferred shares on subsequent redemption dates.

## Authorized Share Capital

We classify financial instruments that we issue as financial liabilities, equity instruments or compound instruments. Financial instruments that will be settled by a variable number of our common shares upon conversion by the holders are classified as liabilities on our Consolidated Balance Sheet. Dividends and interest payments on financial liabilities are classified as interest expense in our Consolidated Statement of Income. Financial instruments are classified as equity instruments when there is no contractual obligation to transfer cash or other financial assets. Further, issued instruments that are not mandatorily redeemable, or that are not convertible into a variable number of our common shares at the holder's option, are classified as equity and presented in share capital. Dividend payments on equity instruments are recognized as a reduction in equity.

*Common Shares*

We are authorized by our shareholders to issue an unlimited number of our common shares, without par value, for unlimited consideration. Our common shares are not redeemable or convertible. Dividends are declared by our Board of Directors at their discretion. Historically, the Board of Directors has declared dividends on a quarterly basis and the amount can vary from quarter to quarter.

*Preferred Shares*

We are authorized by our shareholders to issue an unlimited number of Class A Preferred Shares and Class B Preferred Shares, without par value, in series, for unlimited consideration. Class B Preferred Shares may be issued in a foreign currency.

*Treasury Shares*

When we purchase our common shares as part of our trading business, we record the cost of those shares as a reduction in shareholders' equity. If those shares are resold at a price higher than their cost, the premium is recorded as an increase in contributed surplus. If those shares are resold at a price below their cost, the discount is recorded as a reduction first to contributed surplus and then to retained earnings for any amount in excess of total contributed surplus related to treasury shares.

## Non-Viability Contingent Capital

Class B – Series 27, Class B – Series 29, Class B – Series 31, Class B – Series 33, Class B – Series 35, Class B – Series 36, Class B – Series 38, Class B – Series 40, Class B – Series 42 and Class B – Series 44 preferred share issues include a non-viability contingent capital provision, which is necessary for the shares to qualify as regulatory capital under Basel III. As such, the shares are convertible into a variable number of our common shares if OSFI announces that the bank is, or is about to become, non-viable or if a federal or provincial government in Canada publicly announces that the bank has accepted or agreed to accept a capital injection, or equivalent support, to avoid non-viability. In such an event, each preferred share is convertible into common shares pursuant to an automatic conversion formula and a conversion price based on the greater of: (i) a floor price of $5.00 and (ii) the current market price of our common shares based on the volume weighted average trading price of our common shares on the TSX. The number of common shares issued is determined by dividing the share value of the preferred share issuance (including declared and unpaid dividends on such preferred share issuance) by the conversion price and then times the multiplier.

## Normal Course Issuer Bid

We renewed our normal course issuer bid ("NCIB"), effective June 1, 2018 for one year. Under this NCIB, we may purchase up to 20 million of our common shares for cancellation. The timing and amount of purchases under the NCIB are subject to management discretion based on factors such as market conditions and capital levels. The bank will consult with OSFI before making purchases under the NCIB.

During the year ended October 31, 2018, we purchased for cancellation 10 million of our common shares.

During the year ended October 31, 2017, we purchased for cancellation 5 million of our common shares.

## Share Redemption and Dividend Restrictions

OSFI must approve any plan to redeem any of our preferred share issues for cash.

We are prohibited from declaring dividends on our preferred or common shares when we would be, as a result of paying such a dividend, in contravention of the capital adequacy, liquidity or any other regulatory directive issued under the *Bank Act (Canada)*. In addition, common share dividends cannot be paid unless all dividends declared and payable on our preferred shares have been paid or sufficient funds have been set aside to do so.

In addition, we have agreed that if BMO Capital Trust II (the "Trust"), an unconsolidated structured entity, fails to pay any required distribution on its capital trust securities, we will not declare dividends of any kind on any of our preferred or common shares for a period of time following the Trust's failure to pay the required distribution (as defined in the applicable prospectuses) unless the Trust first pays such distribution to the holders of its capital trust securities.

Currently, these limitations do not restrict the payment of dividends on common or preferred shares.

## Shareholder Dividend Reinvestment and Share Purchase Plan

We offer a Dividend Reinvestment and Share Purchase Plan ("DRIP") for our shareholders. Participation in the plan is optional. Under the terms of the DRIP, cash dividends on common shares are reinvested to purchase additional common shares. Shareholders also have the opportunity to make optional cash payments to acquire additional common shares.

For dividends paid in fiscal 2018, common shares to supply the DRIP were purchased in the open market.

For the dividends paid in the first two quarters of 2017, common shares to supply the DRIP were issued from treasury with a two percent discount. For the dividends paid in the third quarter of 2017, common shares to supply the DRIP were issued from treasury without a discount. For the dividends paid in the fourth quarter, common shares to supply the DRIP were purchased on the open market.

During the year ended October 31, 2018, we did not issue any common shares from treasury (4,821,184 in 2017) and purchased 1,995,353 common shares in the open market (504,873 in 2017) for delivery to shareholders under the DRIP.

## Potential Share Issuances

As at October 31, 2018, we had reserved 39,947,147 common shares (39,947,147 in 2017) for potential issuance in respect of the DRIP. We have also reserved 6,095,201 common shares (7,525,296 in 2017) for the potential exercise of stock options, as further described in Note 20.

# Note 17: Fair Value of Financial Instruments and Trading-Related Revenue

We record trading assets and liabilities, derivatives, certain equity and debt securities and securities sold but not yet purchased at fair value, and other non-trading assets and liabilities at amortized cost less allowances or write-downs for impairment. The fair values presented in this note are based upon the amounts estimated for individual assets and liabilities and do not include an estimate of the fair value of any of the legal entities or underlying operations that comprise our business. For certain portfolios of financial instruments where we manage exposures to similar and offsetting risks, fair value is determined on the basis of our net exposure to that risk.

Fair value represents the amount that would be received to sell an asset or paid to transfer a liability in an orderly transaction between willing market participants at the measurement date. The fair value amounts disclosed represent point-in-time estimates that may change in subsequent reporting periods due to changes in market conditions or other factors. Some financial instruments are not typically exchangeable or exchanged and therefore it is difficult to determine their fair value. Where there is no quoted market price, we determine fair value using management's best estimates based on a range of valuation techniques and assumptions; since these involve uncertainties, the fair values may not be realized in an actual sale or immediate settlement of the asset or liability.

## Governance Over the Determination of Fair Value

Senior executive oversight of our valuation processes is provided through various valuation and risk committees. In order to ensure that all financial instruments carried at fair value are reasonably measured for risk management and financial reporting purposes, we have established governance structures and controls, such as model validation and approval, independent price verification ("IPV") and profit or loss attribution analysis ("PAA"), consistent with industry practice. These controls are applied independently of the relevant operating groups.

We establish and regularly update valuation methodologies for each financial instrument that is required to be measured at fair value. The application of valuation models for products or portfolios is subject to independent approval to ensure only validated models are used. The impact of known limitations of models and data inputs is also monitored on an ongoing basis. IPV is a process that regularly and independently verifies the accuracy and appropriateness of market prices or model inputs used in the valuation of financial instruments. This process assesses fair values using a variety of different approaches to verify and validate the valuations. PAA is a daily process used by management to identify and explain changes in fair value positions across all operating lines of business within BMO Capital Markets. This process works in concert with other processes to ensure that the fair values being reported are reasonable and appropriate.

## Securities

For traded securities, quoted market value is considered to be fair value. Quoted market value is based on bid or ask prices, depending on which is the most appropriate to measure fair value. Securities for which no active market exists are valued using all reasonably available market information. Our fair value methodologies are described below.

*Government Securities*

The fair value of government issued or guaranteed debt securities in active markets is determined by reference to recent transaction prices, broker quotes or third-party vendor prices. The fair value of securities that are not traded in an active market is modelled using implied yields derived from the prices of similar actively traded government securities and observable spreads. Market inputs to the model include coupon, maturity and duration.

*Mortgage-Backed Securities and Collateralized Mortgage Obligations*

The fair value of mortgage-backed securities and collateralized mortgage obligations is determined using independent prices obtained from third-party vendor prices, broker quotes and relevant market indices, as applicable. If such prices are not available, fair value is determined using cash flow models that make maximum use of observable market inputs or benchmark prices for similar instruments. Valuation assumptions for mortgage-backed securities and collateralized mortgage obligations include discount rates, expected prepayments, credit spreads and recoveries.

*Corporate Debt Securities*

The fair value of corporate debt securities is determined using prices observed in the most recent transactions. When observable price quotations are not available, fair value is determined based on discounted cash flow models using discounting curves and spreads obtained from independent dealers, brokers and multi-contributor pricing sources.

*Corporate Equity Securities*

The fair value of equity securities is based on quoted prices in active markets, where available. Where quoted prices in active markets are not readily available, fair value is determined using either quoted market prices for similar securities or using valuation techniques, which include discounted cash flow analysis and earnings multiples.

*Privately Issued Securities*

Privately issued debt and equity securities are valued using prices observed in recent market transactions, where available. Otherwise, fair value is derived from valuation models using a market or income approach. These models consider various factors, including projected cash flows, earnings, revenue and other third-party evidence, as available. The fair value of limited partnership investments is based upon net asset values published by third-party fund managers.

Prices from brokers and multi-contributor pricing sources are corroborated as part of our independent review process, which may include using valuation techniques or obtaining consensus or composite prices from other pricing services. We validate the estimates of fair value by independently obtaining multiple quotes for external market prices and input values. We review the approach taken by third-party vendors to ensure that the vendor employs a valuation model which maximizes the use of observable inputs such as benchmark yields, bid-ask spreads, underlying collateral, weighted-average terms to maturity and prepayment rate assumptions. Fair value estimates from internal valuation techniques are verified, where possible, by reference to prices obtained from third-party vendors.

## Loans

In determining the fair value of our fixed rate performing loans, we discount the remaining contractual cash flows, adjusted for estimated prepayment, at market interest rates currently offered for loans with similar terms and risks. For floating rate performing loans, changes in interest rates have minimal impact on fair value since interest rates are repriced or reset frequently. On that basis, fair value is assumed to be equal to carrying value.

## Derivative Instruments

A number of valuation techniques are employed to estimate fair value, including discounted cash flow analysis, the Black-Scholes model, Monte Carlo simulation and other accepted market models. These independently validated models incorporate current market data for interest rates, currency exchange rates, equity and commodity prices and indices, credit spreads, recovery rates, corresponding market volatility levels, spot prices, correlation levels and other market-based pricing factors. Option implied volatilities, an input into many valuation models, are either obtained directly from market sources or calculated from market prices. Multi-contributor pricing sources are used wherever possible.

In determining the fair value of complex and customized derivatives, we consider all reasonably available information, including dealer and broker quotations, multi-contributor pricing sources and any relevant observable market inputs. Our model calculates fair value based on inputs specific to the type of contract, which may include stock prices, correlation for multiple assets, interest rates, foreign exchange rates, yield curves and volatilities.

We calculate a credit valuation adjustment ("CVA") to recognize the risk that any given derivative counterparty may not ultimately be able to fulfill its obligations. The CVA is derived from market-observed credit spreads or proxy credit spreads and our assessment of the net counterparty credit risk exposure, taking into account credit mitigants such as collateral, master netting agreements and novation to central counterparties. We also calculate a funding valuation adjustment ("FVA") to recognize the implicit funding costs associated with over-the-counter derivative positions. The FVA is determined by reference to market funding spreads.

## Deposits

In determining the fair value of our deposits, we incorporate the following assumptions:

- For fixed rate, fixed maturity deposits, we discount the remaining contractual cash flows for these deposits, adjusted for expected redemptions, at market interest rates currently offered for deposits with similar terms and risks. Fair value of our senior note liabilities and covered bonds is determined by referring to current market prices for similar instruments or using valuation techniques, such as discounted cash flows that use market interest rate curves and funding spreads.
- For fixed rate deposits with no defined maturities, we consider fair value to equal carrying value, based on carrying value being equivalent to the amount payable on the reporting date.
- For floating rate deposits, changes in interest rates have minimal impact on fair value since deposits reprice to market frequently. On that basis, fair value is assumed to equal carrying value.

A portion of our structured note liabilities that have coupons or repayment terms linked to the performance of interest rates, foreign currencies, commodities or equity securities have been designated at fair value through profit or loss. The fair value of these structured notes is estimated using internally validated valuation models and incorporates observable market prices for identical or comparable securities, as well as other inputs, such as interest rate yield curves, option volatilities and foreign exchange rates, where appropriate. Where observable prices or inputs are not available, management judgment is required to determine the fair value by assessing other relevant sources of information, such as historical data and proxy information from similar transactions.

## Securities Sold But Not Yet Purchased

The fair value of these obligations is based on the fair value of the underlying securities, which can be equity or debt securities. As these obligations are fully collateralized, the method used to determine fair value would be the same as that used for the relevant underlying equity or debt securities.

## Securitization and Structured Entities' Liabilities

The determination of the fair value of securitization and structured entities' liabilities is based on quoted market prices or quoted market prices for similar financial instruments, where available. Where quoted prices are not available, fair value is determined using valuation techniques, such as discounted cash flow models that maximize the use of observable inputs.

## Subordinated Debt

The fair value of our subordinated debt is determined by referring to current market prices for the same or similar instruments.

## Financial Instruments with a Carrying Value Approximating Fair Value

*Short-term and Other Financial Instruments*

Carrying value is assumed to be a reasonable estimate of fair value for our cash and cash equivalents.

The carrying value of certain financial assets and liabilities, such as interest bearing deposits with banks, securities borrowed or purchased under resale agreements, customers' liability under acceptances, other assets, acceptances, securities lent or sold under repurchase agreements and other liabilities, is a reasonable estimate of fair value due to their short-term nature or because they are frequently repriced to current market rates.

Certain assets, including premises and equipment, goodwill and intangible assets, as well as shareholders' equity, are not considered financial instruments and therefore no fair value has been determined for these items.

## Fair Value Hierarchy

We use a fair value hierarchy to categorize financial instruments according to the inputs we use in valuation techniques to measure fair value.

## Fair Value of Financial Instruments Not Carried at Fair Value on the Balance Sheet

Set out in the following tables are the fair values of financial instruments not carried at fair value on our Consolidated Balance Sheet.

| (Canadian $ in millions) | | | | | 2018 |
|---|---|---|---|---|---|
| | Carrying value | Fair value | Valued using quoted market prices | Valued using models (with observable inputs) | Valued using models (without observable inputs) |
| **Securities** | | | | | |
| Amortized cost | **6,485** | **6,288** | **429** | **5,795** | **64** |
| **Loans** (1) | | | | | |
| Residential mortgages | **119,544** | **118,609** | **–** | **118,609** | **–** |
| Consumer instalment and other personal | **62,687** | **62,618** | **–** | **62,618** | **–** |
| Credit cards | **8,099** | **8,099** | **–** | **8,099** | **–** |
| Business and government (2) | **192,225** | **191,989** | **–** | **191,989** | **–** |
| | **382,555** | **381,315** | **–** | **381,315** | **–** |
| **Deposits** (3) | **506,742** | **506,581** | **–** | **506,581** | **–** |
| **Securitization and structured entities' liabilities** | **25,051** | **24,838** | **–** | **24,838** | **–** |
| **Subordinated debt** | **6,782** | **6,834** | **–** | **6,834** | **–** |

(1) Carrying value of loans is net of allowance.
(2) Excludes $1,450 million of loans classified as FVTPL upon adoption of IFRS 9 (refer to Note 28).
(3) Excludes $15,309 million of structured note liabilities designated at FVTPL and accounted for at fair value.

This table excludes financial instruments with a carrying value approximating fair value, such as cash and cash equivalents, interest bearing deposits with banks, securities borrowed or purchased under resale agreements, customers' liability under acceptances, other assets, acceptances, securities lent or sold under repurchase agreements and other liabilities.

| (Canadian $ in millions) | | | | | 2017 |
|---|---|---|---|---|---|
| | Carrying value | Fair value | Valued using quoted market prices | Valued using models (with observable inputs) | Valued using models (without observable inputs) |
| **Securities** | | | | | |
| Held to maturity | 9,094 | 9,096 | 2,522 | 6,574 | – |
| **Loans** (1) | | | | | |
| Residential mortgages | 115,165 | 114,821 | – | 114,821 | – |
| Consumer instalment and other personal | 61,465 | 61,470 | – | 61,470 | – |
| Credit cards | 7,828 | 7,828 | – | 7,828 | – |
| Business and government | 174,084 | 174,105 | – | 174,105 | – |
| | 358,542 | 358,224 | – | 358,224 | – |
| **Deposits** (2) | 466,118 | 466,441 | – | 466,441 | – |
| **Securitization and structured entities' liabilities** | 23,054 | 23,148 | – | 23,148 | – |
| **Subordinated debt** | 5,029 | 5,255 | – | 5,255 | – |

(1) Carrying value of loans is net of allowance.
(2) Excludes $13,674 million of structured note liabilities designated at FVTPL and accounted for at fair value.

This table excludes financial instruments with a carrying value approximating fair value, such as cash and cash equivalents, interest bearing deposits with banks, securities borrowed or purchased under resale agreements, customers' liability under acceptances, other assets, acceptances, securities lent or sold under repurchase agreements and other liabilities.

Certain comparative figures have been reclassified to conform with the current year's presentation.

## Valuation Techniques and Significant Inputs

We determine the fair value of publicly traded fixed maturity debt and equity securities using quoted prices in active markets (Level 1) when these are available. When quoted prices in active markets are not available, we determine the fair value of financial instruments using models such as discounted cash flows, with observable market data for inputs, such as yield and prepayment rates or broker quotes and other third-party vendor quotes (Level 2). Fair value may also be determined using models where significant market inputs are not observable due to inactive markets or minimal market activity (Level 3). We maximize the use of observable market inputs to the extent possible.

Our Level 2 trading securities are primarily valued using discounted cash flow models with observable spreads or broker quotes. The fair value of Level 2 FVOCI securities, previously classified as available-for-sale securities, is determined using discounted cash flow models with observable spreads or third-party vendor quotes. Level 2 structured note liabilities are valued using models with observable market information. Level 2 derivative assets and liabilities are valued using industry-standard models and observable market information.

The extent of our use of actively quoted market prices (Level 1), internal models using observable market information as inputs (Level 2) and models without observable market information as inputs (Level 3) in the valuation of securities, fair value liabilities, derivative assets and derivative liabilities is presented in the following tables:

## Classified under IFRS 9

| (Canadian $ in millions) | | | | 2018 |
|---|---|---|---|---|
| | Valued using quoted market prices | Valued using models (with observable inputs) | Valued using models (without observable inputs) | Total |
| **Trading Securities** | | | | |
| Issued or guaranteed by: | | | | |
| Canadian federal government | 9,107 | 1,213 | – | 10,320 |
| Canadian provincial and municipal governments | 4,013 | 4,689 | – | 8,702 |
| U.S. federal government | 9,465 | 52 | – | 9,517 |
| U.S. states, municipalities and agencies | 78 | 1,138 | – | 1,216 |
| Other governments | 1,210 | 201 | – | 1,411 |
| NHA MBS and U.S. agency MBS and CMO | 60 | 8,869 | 255 | 9,184 |
| Corporate debt | 2,973 | 6,218 | 7 | 9,198 |
| Loans | – | 199 | – | 199 |
| Corporate equity | 49,946 | 4 | – | 49,950 |
| | 76,852 | 22,583 | 262 | 99,697 |
| **FVTPL Securities** | | | | |
| Issued or guaranteed by: | | | | |
| Canadian federal government | 328 | 103 | – | 431 |
| Canadian provincial and municipal governments | 219 | 727 | – | 946 |
| U.S. federal government | 69 | – | – | 69 |
| NHA MBS and U.S. agency MBS and CMO | – | 7 | – | 7 |
| Corporate debt | 178 | 6,643 | – | 6,821 |
| Corporate equity | 1,378 | 134 | 1,825 | 3,337 |
| | 2,172 | 7,614 | 1,825 | 11,611 |
| **FVOCI Securities** | | | | |
| Issued or guaranteed by: | | | | |
| Canadian federal government | 11,978 | 827 | – | 12,805 |
| Canadian provincial and municipal governments | 3,315 | 3,547 | – | 6,862 |
| U.S. federal government | 16,823 | – | – | 16,823 |
| U.S. states, municipalities and agencies | 14 | 3,640 | 1 | 3,655 |
| Other governments | 3,143 | 1,647 | – | 4,790 |
| NHA MBS and U.S. agency MBS and CMO | – | 13,687 | – | 13,687 |
| Corporate debt | 1,959 | 1,797 | – | 3,756 |
| Corporate equity | – | – | 62 | 62 |
| | 37,232 | 25,145 | 63 | 62,440 |
| **Business and Government Loans** | – | – | 1,450 | 1,450 |
| **Fair Value Liabilities** | | | | |
| Securities sold but not yet purchased | 26,336 | 2,468 | – | 28,804 |
| Structured note liabilities and other note liabilities | – | 15,309 | – | 15,309 |
| Annuity liabilities | – | 800 | – | 800 |
| | 26,336 | 18,577 | – | 44,913 |
| **Derivative Assets** | | | | |
| Interest rate contracts | 18 | 8,959 | – | 8,977 |
| Foreign exchange contracts | 16 | 12,983 | – | 12,999 |
| Commodity contracts | 166 | 1,894 | – | 2,060 |
| Equity contracts | 286 | 1,872 | – | 2,158 |
| Credit default swaps | – | 10 | – | 10 |
| | 486 | 25,718 | – | 26,204 |
| **Derivative Liabilities** | | | | |
| Interest rate contracts | 14 | 8,620 | – | 8,634 |
| Foreign exchange contracts | 2 | 11,852 | – | 11,854 |
| Commodity contracts | 295 | 1,161 | – | 1,456 |
| Equity contracts | 246 | 2,183 | 1 | 2,430 |
| Credit default swaps | – | 36 | 1 | 37 |
| | 557 | 23,852 | 2 | 24,411 |

## Classified under IAS 39

| (Canadian $ in millions) | | | | 2017 |
|---|---|---|---|---|
| | Valued using quoted market prices | Valued using models (with observable inputs) | Valued using models (without observable inputs) | Total |
| **Trading Securities** | | | | |
| Issued or guaranteed by: | | | | |
| Canadian federal government | 8,712 | 2,115 | – | 10,827 |
| Canadian provincial and municipal governments | 3,177 | 4,150 | – | 7,327 |
| U.S. federal government | 9,417 | 56 | – | 9,473 |
| U.S. states, municipalities and agencies | 189 | 1,942 | – | 2,131 |
| Other governments | 630 | 193 | – | 823 |
| NHA MBS, U.S. agency MBS and CMO | – | 931 | – | 931 |
| Corporate debt | 1,485 | 10,278 | – | 11,763 |
| Loans | 3 | 150 | – | 153 |
| Corporate equity | 55,640 | 1 | – | 55,641 |
| | 79,253 | 19,816 | – | 99,069 |
| **Available-for-Sale Securities** | | | | |
| Issued or guaranteed by: | | | | |
| Canadian federal government | 8,283 | 897 | – | 9,180 |
| Canadian provincial and municipal governments | 920 | 2,707 | – | 3,627 |
| U.S. federal government | 14,269 | – | – | 14,269 |
| U.S. states, municipalities and agencies | 18 | 4,077 | 1 | 4,096 |
| Other governments | 2,290 | 1,268 | – | 3,558 |
| NHA MBS, U.S. agency MBS and CMO | – | 13,216 | – | 13,216 |
| Corporate debt | 1,551 | 2,972 | 2 | 4,525 |
| Corporate equity | 37 | 126 | 1,441 | 1,604 |
| | 27,368 | 25,263 | 1,444 | 54,075 |
| **Other Securities** | – | – | 333 | 333 |
| **Fair Value Liabilities** | | | | |
| Securities sold but not yet purchased | 22,992 | 2,171 | – | 25,163 |
| Structured note liabilities and other note liabilities | – | 13,674 | – | 13,674 |
| Annuity liabilities | – | 749 | – | 749 |
| | 22,992 | 16,594 | – | 39,586 |
| **Derivative Assets** | | | | |
| Interest rate contracts | 4 | 9,223 | – | 9,227 |
| Foreign exchange contracts | 17 | 17,196 | – | 17,213 |
| Commodity contracts | 232 | 846 | – | 1,078 |
| Equity contracts | 93 | 1,333 | – | 1,426 |
| Credit default swaps | – | 7 | – | 7 |
| | 346 | 28,605 | – | 28,951 |
| **Derivative Liabilities** | | | | |
| Interest rate contracts | 7 | 8,309 | – | 8,316 |
| Foreign exchange contracts | 6 | 14,967 | – | 14,973 |
| Commodity contracts | 239 | 835 | – | 1,074 |
| Equity contracts | 166 | 3,220 | – | 3,386 |
| Credit default swaps | – | 55 | – | 55 |
| | 418 | 27,386 | – | 27,804 |

## Quantitative Information about Level 3 Fair Value Measurements

The table below presents the fair values of our significant Level 3 financial instruments, the valuation techniques used to determine their fair values and the value ranges of significant unobservable inputs used in the valuations. We have not applied any other reasonably possible alternative assumption to the significant Level 3 categories of private equity investments, as the net asset values are provided by the investment or fund managers.

| As at October 31, 2018 (Canadian $ in millions, except as noted) | Reporting line in fair value hierarchy table | Fair value of assets | Valuation techniques | Significant unobservable inputs | Range of input values (1) | | Change in fair value reasonably possible alternatives (2) |
|---|---|---|---|---|---|---|---|
| | | | | | Low | High | |
| Private equity (3) | Corporate equity | **1,825** | Net Asset Value | Net Asset Value | **na** | **na** | **na** |
| | | | EV/EBITDA | Multiple | **6x** | **18x** | **na** |
| Loans | Business and government loans | **1,450** | Discounted cash flows | Discount margin | **50 bps** | **175 bps** | **3** |

(1) The low and high input values represent the highest and lowest actual level of inputs used to value a group of financial instruments in a particular product category. These input ranges do not reflect the level of input uncertainty, but are affected by the specific underlying instruments within the product category. The input ranges will therefore vary from period to period based on the characteristics of the underlying instruments held at each balance sheet date.

(2) The impact of assuming a 10 basis point increase or decrease in discount margin for business and government loans.

(3) Included in private equity is $889 million of Federal Reserve Bank and U.S. Federal Home Loan Bank shares that we hold to meet regulatory requirements.

na – not applicable

## Significant Unobservable Inputs in Level 3 Instrument Valuations

*Net Asset Value*

Net asset value represents the estimated value of a security based on valuations received from the investment or fund manager. The valuation of certain private equity securities is based on the economic benefit we derive from our investment.

*EV/EBITDA Multiple*

The fair value of private equity and merchant banking investments is derived by calculating an enterprise value ("EV") using the EV/EBITDA multiple and then proceeding through a waterfall of the company's capital structure to determine the value of the assets or securities we hold. The EV/EBITDA multiple is determined using judgment in considering factors such as multiples for comparable listed companies, recent transactions and company-specific factors, as well as liquidity discounts that account for the lack of active trading in these assets and securities.

*Discount Margin*

Loan and corporate debt yield is the interest rate used to discount expected future cash flows in the valuation model. The discount margin is the difference between an instrument's yield and a benchmark instrument's yield. Benchmark instruments have high credit quality ratings and similar maturities, such as government bonds. The discount margin therefore represents a market return required for uncertainty in future cash flows. Generally a higher or lower discount margin will result in a lower or higher fair value.

*Significant Transfers*

Our policy is to record transfers of assets and liabilities between fair value hierarchy levels at their fair values as at the end of each reporting period, consistent with the date of the determination of fair value. Transfers between the various fair value hierarchy levels reflect changes in the availability of quoted market prices or observable market inputs that result from changes in market conditions. The following is a discussion of the significant transfers between Level 1, Level 2 and Level 3 balances for the year ended October 31, 2018.

During the year ended October 31, 2018, $2,578 million of trading securities, $714 million of FVTPL securities and $2,266 million of FVOCI securities ($176 million of trading securities and $107 million of available-for-sale securities, respectively, in 2017) were transferred from Level 1 to Level 2 due to reduced observability of the inputs used to value these securities. During the year ended October 31, 2018, $4,122 million of trading securities, $742 million of FVTPL securities and $4,044 million of FVOCI securities ($156 million of trading securities and $56 million of available-for-sale securities, respectively, in 2017) were transferred from Level 2 to Level 1 due to increased availability of quoted prices in active markets.

During the year ended October 31, 2017, $33 million of available-for-sale securities were transferred from Level 3 to Level 1 due to the availability of observable prices used to value these securities. No such transfers happened in 2018.

## Changes in Level 3 Fair Value Measurements

The tables below present a reconciliation of all changes in Level 3 financial instruments during the years ended October 31, 2018 and 2017, including realized and unrealized gains (losses) included in earnings and other comprehensive income.

| | | Change in fair value | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| For the year ended October 31, 2018 (Canadian $ in millions) | Balance November 1, 2017 | Included in earnings | Included in other compre-hensive income (1) | Purchases | Sales | Maturities/ Settlement | Transfers into Level 3 | Transfers out of Level 3 | Fair value as at October 31, 2018 | Change in unrealized gains (losses) recorded in income for instruments still held (2) |
| **Trading Securities** | | | | | | | | | | |
| NHA MBS and U.S. agency MBS and CMO | – | **(1)** | **4** | **306** | **(54)** | **–** | **–** | **–** | **255** | **(5)** |
| Corporate debt | – | **–** | **–** | **7** | **–** | **–** | **–** | **–** | **7** | **–** |
| Total trading securities | – | **(1)** | **4** | **313** | **(54)** | **–** | **–** | **–** | **262** | **(5)** |
| **FVTPL Securities** | | | | | | | | | | |
| Corporate debt (3) | 73 | **–** | **(4)** | **5** | **–** | **–** | **–** | **(74)** | **–** | **–** |
| Corporate equity (3)(4) | 1,701 | **12** | **31** | **307** | **(161)** | **(2)** | **–** | **(63)** | **1,825** | **5** |
| Total FVTPL securities | 1,774 | **12** | **27** | **312** | **(161)** | **(2)** | **–** | **(137)** | **1,825** | **5** |
| **FVOCI Securities** | | | | | | | | | | |
| Issued or guaranteed by: | | | | | | | | | | |
| U.S. states, municipalities and agencies | 1 | **–** | **–** | **–** | **–** | **–** | **–** | **–** | **1** | **na** |
| Corporate debt | 2 | **–** | **–** | **–** | **–** | **(2)** | **–** | **–** | **–** | **na** |
| Corporate equity | – | **–** | **–** | **62** | **–** | **–** | **–** | **–** | **62** | **na** |
| Total FVOCI securities | 3 | **–** | **–** | **62** | **–** | **(2)** | **–** | **–** | **63** | **na** |
| **Business and Government Loans** (5) | 2,372 | **(2)** | **24** | **604** | **–** | **(1,548)** | **–** | **–** | **1,450** | **–** |
| **Derivative Liabilities** | | | | | | | | | | |
| Equity contracts | – | **–** | **–** | **–** | **–** | **–** | **1** | **–** | **1** | **–** |
| Credit default swaps | – | **–** | **–** | **–** | **–** | **–** | **1** | **–** | **1** | **–** |
| Total derivative liabilities | – | **–** | **–** | **–** | **–** | **–** | **2** | **–** | **2** | **–** |

(1) Foreign exchange translation on trading securities held by foreign subsidiaries is included in other comprehensive income, net foreign operations.
(2) Changes in unrealized gains (losses) on FVTPL securities still held on October 31, 2018 are included in earnings for the year.
(3) Includes $73 million of debt instruments and $260 million of equity instruments reclassified from other securities to FVTPL upon adoption of IFRS 9 (see Note 28).
(4) Includes $1,441 million of equity instruments reclassified from available-for-sale to FVTPL upon adoption of IFRS 9 (see Note 28).
(5) Business and government loans were reclassified from amortized cost to FVTPL upon adoption of IFRS 9 (see Note 28).

na – not applicable

| For the year ended October 31, 2017 (Canadian $ in millions) | Balance October 31, 2016 | Change in fair value: Included in earnings | Change in fair value: Included in other compre-hensive income (1) | Purchases | Sales | Maturities/ Settlement | Transfers into Level 3 | Transfers out of Level 3 | Fair value as at October 31, 2017 | Change in unrealized gains (losses) recorded in income for instruments still held (2) |
|---|---|---|---|---|---|---|---|---|---|---|
| **Trading Securities** | | | | | | | | | | |
| Corporate debt | 91 | 1 | 1 | – | – | (93) | – | – | – | – |
| Total trading securities | 91 | 1 | 1 | – | – | (93) | – | – | – | – |
| **Available-for-Sale Securities** | | | | | | | | | | |
| Issued or guaranteed by: | | | | | | | | | | |
| U.S. states, municipalities and agencies | 1 | – | – | – | – | – | – | – | 1 | na |
| Corporate debt | 4 | – | – | – | (1) | (1) | – | – | 2 | na |
| Corporate equity | 1,456 | (40) | (15) | 190 | (117) | – | – | (33) | 1,441 | na |
| Total available-for-sale securities | 1,461 | (40) | (15) | 190 | (118) | (1) | – | (33) | 1,444 | na |
| **Other Securities** | 320 | (9) | (7) | 134 | (102) | (3) | – | – | 333 | (8) |

(1) Foreign exchange translation on trading securities held by foreign subsidiaries is included in other comprehensive income, net foreign operations.
(2) Changes in unrealized gains (losses) on trading securities, derivative assets and derivative liabilities still held on October 31, 2017 are included in earnings for the year.
na – not applicable

## Trading-Related Revenue

Trading assets and liabilities, including derivatives, securities and financial instruments designated at fair value through profit or loss, are measured at fair value, with gains and losses recognized in trading revenues, non-interest revenue, in the Consolidated Statement of Income. Trading-related revenue includes net interest income and non-interest revenue and excludes underwriting fees and commissions on securities transactions, which are shown separately in the Consolidated Statement of Income. Net interest income arises from interest and dividends related to trading assets and liabilities and is reported net of interest expense associated with funding these assets and liabilities in the following table.

| (Canadian $ in millions) | **2018** | 2017 | 2016 |
|---|---|---|---|
| Interest rates | **437** | 480 | 663 |
| Foreign exchange | **377** | 369 | 349 |
| Equities | **449** | 239 | 188 |
| Commodities | **63** | 84 | 66 |
| Other | **82** | 47 | 25 |
| Total trading revenue | **1,408** | 1,219 | 1,291 |
| Reported as: | | | |
| Net interest income (1) | **(422)** | (133) | 99 |
| Non-interest revenue – trading revenue | **1,830** | 1,352 | 1,192 |
| Total trading revenue | **1,408** | 1,219 | 1,291 |

(1) Amounts in brackets denote net interest expense.

# Note 18: Offsetting of Financial Assets and Financial Liabilities

Financial assets and financial liabilities are offset and the net amount is reported in our Consolidated Balance Sheet when there is a legally enforceable right to offset the recognized amounts and there is an intention to settle on a net basis, or realize the asset and settle the liability simultaneously. The following table presents the amounts that have been offset in our Consolidated Balance Sheet, including securities purchased under resale agreements, securities sold under repurchase agreements and derivative instruments, generally under a market settlement mechanism (e.g. an exchange or clearing house) where simultaneous net settlement can be achieved to eliminate credit and liquidity risk between counterparties. Also presented are amounts not offset in the Consolidated Balance Sheet related to transactions where a master netting agreement or similar arrangement is in place with a right to offset the amounts only in the event of default, insolvency or bankruptcy, or where the offset criteria are otherwise not met.

| (Canadian $ in millions) | | | | | | | **2018** |
|---|---|---|---|---|---|---|---|
| | | | | **Amounts not offset in the balance sheet** | | | |
| | **Gross amounts** | **Amounts offset in the balance sheet** | **Net amounts presented in the balance sheet** | **Impact of master netting agreements** | **Securities received/pledged as collateral** (1)(2) | **Cash collateral** | **Net amount** (3) |
| **Financial Assets** | | | | | | | |
| Securities borrowed or purchased under resale agreements | **86,635** | **1,584** | **85,051** | **13,355** | **70,640** | **–** | **1,056** |
| Derivative instruments | **52,810** | **26,606** | **26,204** | **15,575** | **505** | **3,576** | **6,548** |
| | **139,445** | **28,190** | **111,255** | **28,930** | **71,145** | **3,576** | **7,604** |
| **Financial Liabilities** | | | | | | | |
| Derivative instruments | **51,017** | **26,606** | **24,411** | **15,575** | **555** | **1,492** | **6,789** |
| Securities lent or sold under repurchase agreements | **68,268** | **1,584** | **66,684** | **13,355** | **53,071** | **–** | **258** |
| | **119,285** | **28,190** | **91,095** | **28,930** | **53,626** | **1,492** | **7,047** |

| (Canadian $ in millions) | | | | | | | 2017 |
|---|---|---|---|---|---|---|---|
| | | | | Amounts not offset in the balance sheet | | | |
| | Gross amounts | Amounts offset in the balance sheet | Net amounts presented in the balance sheet | Impact of master netting agreements | Securities received/pledged as collateral (1)(2) | Cash collateral | Net amount (3) |
| **Financial Assets** | | | | | | | |
| Securities borrowed or purchased under resale agreements | 80,948 | 5,901 | 75,047 | 9,382 | 65,044 | – | 621 |
| Derivative instruments | 45,064 | 16,113 | 28,951 | 19,909 | 933 | 2,903 | 5,206 |
| | 126,012 | 22,014 | 103,998 | 29,291 | 65,977 | 2,903 | 5,827 |
| **Financial Liabilities** | | | | | | | |
| Derivative instruments | 43,917 | 16,113 | 27,804 | 19,909 | 1,263 | 1,642 | 4,990 |
| Securities lent or sold under repurchase agreements | 61,020 | 5,901 | 55,119 | 9,382 | 45,436 | – | 301 |
| | 104,937 | 22,014 | 82,923 | 29,291 | 46,699 | 1,642 | 5,291 |

(1) Financial assets received/pledged as collateral are disclosed at fair value and are limited to the net balance sheet exposure (i.e. any over-collateralization is excluded from the table).
(2) Certain amounts of collateral are restricted from being sold or repledged except in the event of default or the occurrence of other predetermined events.
(3) Not intended to represent our actual exposure to credit risk.

# Note 19: Capital Management

Our objective is to maintain a strong capital position in a cost-effective structure that: is appropriate given our target regulatory capital ratios and internal assessment of required economic capital; is consistent with our target credit ratings; underpins our operating groups' business strategies; and supports depositor, investor and regulator confidence, while building long-term shareholder value.

Our approach includes establishing limits, targets and performance measures that are used to manage balance sheet positions, risk levels and capital requirements, as well as issuing and redeeming capital instruments to achieve a cost-effective capital structure.

Regulatory capital requirements and risk-weighted assets for the consolidated entity are determined in accordance with OSFI's Capital Adequacy Requirements Guideline.

Common Equity Tier 1 (CET1) capital is the most permanent form of capital. It is comprised of common shareholders' equity less deductions for goodwill, intangible assets and certain other items. Tier 1 capital is primarily comprised of CET1, preferred shares and innovative hybrid instruments, less certain regulatory deductions.

Tier 2 capital is primarily comprised of subordinated debentures and may include certain loan loss allowances, less certain regulatory deductions. Total capital includes Tier 1 and Tier 2 capital. Details of the components of our capital position are presented in Notes 11, 12, 15 and 16.

CET1 Capital Ratio, Tier 1 Capital Ratio, Total Capital Ratio and Leverage Ratio are the primary regulatory capital measures.

- The CET1 Capital Ratio is defined as common shareholders' equity, net of capital adjustments, divided by CET1 capital risk-weighted assets.
- The Tier 1 Capital Ratio is defined as Tier 1 capital divided by Tier 1 capital risk-weighted assets.
- The Total Capital Ratio is defined as Total capital divided by Total capital risk-weighted assets.
- The Leverage Ratio is defined as Tier 1 capital divided by the sum of on-balance sheet items and specified off-balance sheet items, net of specified adjustments.

As at October 31, 2018, we met OSFI's required target capital ratios, which include a 2.5% Capital Conservation Buffer, a 1.0% Common Equity Tier 1 Surcharge for domestic systemically important banks, a Countercyclical Buffer and a 1.5% Domestic Stability Buffer.

## Regulatory Capital Measures and Risk-Weighted Assets

| (Canadian $ in millions, except as noted) | **2018** | 2017 |
|---|---|---|
| Common Equity Tier 1 Capital | **32,721** | 30,633 |
| Tier 1 Capital | **37,220** | 35,108 |
| Total Capital | **44,116** | 40,596 |
| Common Equity Tier 1 Capital Risk-Weighted Assets | **289,237** | 269,466 |
| Tier 1 Capital Risk-Weighted Assets | **289,420** | 269,466 |
| Total Capital Risk-Weighted Assets | **289,604** | 269,466 |
| Common Equity Tier 1 Capital Ratio | **11.3%** | 11.4% |
| Tier 1 Capital Ratio | **12.9%** | 13.0% |
| Total Capital Ratio | **15.2%** | 15.1% |
| Leverage Ratio | **4.2%** | 4.4% |

All 2018 and 2017 balances above are on an "all-in" basis.

# Note 20: Employee Compensation – Share-Based Compensation

## Stock Option Plan

We maintain a Stock Option Plan for designated officers and employees. Options are granted at an exercise price equal to the closing price of our common shares on the day before the grant date. Stock options granted on or after December 2013 vest in equal tranches of 50% on the third and fourth anniversaries of their grant date. Options granted prior to December 2013 vest in tranches over a four-year period starting from their grant date. Each tranche is treated as a separate award with a different vesting period. Certain options can only be exercised once certain performance targets are met. All options expire 10 years from their grant date.

We determine the fair value of stock options on their grant date and record this amount as compensation expense over the period that the stock options vest, with a corresponding increase to contributed surplus. When these stock options are exercised, we issue shares and record the amount of proceeds, together with the amount recorded in contributed surplus, in share capital. The estimated grant date fair value of stock options granted to employees who are eligible to retire is expensed at the date of grant.

The following table summarizes information about our Stock Option Plan:

| (Canadian $, except as noted) | | **2018** | | 2017 | | 2016 |
|---|---|---|---|---|---|---|
| | **Number of stock options** | **Weighted-average exercise price** (1) | Number of stock options | Weighted-average exercise price (1) | Number of stock options | Weighted-average exercise price (1) |
| Outstanding at beginning of year | **7,525,296** | **72.05** | 9,805,299 | 77.41 | 12,111,153 | 80.19 |
| Granted | **705,398** | **100.63** | 723,431 | 96.90 | 754,714 | 77.23 |
| Exercised | **1,513,307** | **58.40** | 2,233,801 | 57.80 | 2,103,391 | 55.32 |
| Forfeited/cancelled | **152,417** | **86.85** | 13,243 | 66.89 | 104,606 | 71.76 |
| Expired | **469,769** | **153.40** | 756,390 | 195.02 | 852,571 | 179.53 |
| Outstanding at end of year | **6,095,201** | **72.19** | 7,525,296 | 72.05 | 9,805,299 | 77.41 |
| Exercisable at end of year | **3,782,481** | **61.39** | 4,584,375 | 67.42 | 5,605,485 | 83.34 |
| Available for grant | **3,405,239** | | 3,811,157 | | 4,151,676 | |

(1) The weighted-average exercise prices reflect the conversion of foreign currency denominated options at the exchange rate as at October 31, 2018, October 31, 2017 and October 31, 2016, respectively.

For foreign currency denominated options exercised or expired during the year, the weighted-average exercise prices are translated using the exchange rates as at the settlement date and expiry date respectively.

Employee compensation expense related to this plan for the years ended October 31, 2018, 2017 and 2016 was $7 million, $8 million and $6 million before tax, respectively ($7 million, $7 million and $6 million after tax, respectively).

The intrinsic value of a stock option grant is the difference between the current market price of our common shares and the strike price of the option. The aggregate intrinsic value of stock options outstanding at October 31, 2018, 2017 and 2016 was $162 million, $232 million and $211 million, respectively. The aggregate intrinsic value of stock options exercisable at October 31, 2018, 2017 and 2016 was $140 million, $174 million and $146 million, respectively.

Options outstanding and exercisable at October 31, 2018 by range of exercise price were as follows:

| (Canadian $, except as noted) | | | | | | **2018** |
|---|---|---|---|---|---|---|
| | | | **Options outstanding** | | | **Options exercisable** |
| Range of exercise prices | **Number of stock options** | **Weighted-average remaining contractual life (years)** | **Weighted-average exercise price** (2) | **Number of stock options** | **Weighted-average remaining contractual life (years)** | **Weighted-average exercise price** (2) |
| $30.01 to $40.00 | **13,690** | **0.1** | **34.13** | **13,690** | **0.1** | **34.13** |
| $50.01 to $60.00 | **1,736,930** | **2.3** | **55.88** | **1,736,930** | **2.3** | **55.88** |
| $60.01 to $70.00 | **1,798,219** | **4.7** | **64.68** | **1,798,219** | **4.7** | **64.68** |
| $70.01 and over (1) | **2,546,362** | **7.7** | **88.83** | **233,642** | **6.0** | **78.62** |

(1) Certain options were issued as part of the acquisition of M&I.

(2) The weighted-average exercise prices reflect the conversion of foreign currency denominated options at the exchange rate as at October 31, 2018.

The following table summarizes further information about our Stock Option Plan:

| (Canadian $ in millions, except as noted) | **2018** | 2017 | 2016 |
|---|---|---|---|
| Unrecognized compensation cost for non-vested stock option awards | **5** | 5 | 4 |
| Weighted-average period over which this cost will be recognized (in years) | **2.6** | 2.7 | 2.5 |
| Total intrinsic value of stock options exercised | **67** | 90 | 55 |
| Cash proceeds from stock options exercised | **88** | 129 | 116 |
| Weighted-average share price for stock options exercised (in dollars) | **102.55** | 98.05 | 81.41 |

The fair value of options granted was estimated using a binomial option pricing model. The weighted-average fair value of options granted during the years ended October 31, 2018, 2017 and 2016 was $11.30, $11.62 and $7.60, respectively. To determine the fair value of the stock option tranches on the grant date, the following ranges of values were used for each option pricing assumption:

| | **2018** | 2017 | 2016 |
|---|---|---|---|
| Expected dividend yield | **4.1%** | 4.3% | 5.5% |
| Expected share price volatility | **17.0% – 17.3%** | 18.4% – 18.8% | 19.8% – 20.0% |
| Risk-free rate of return | **2.1%** | 1.7% – 1.8% | 1.3% – 1.4% |
| Expected period until exercise (in years) | **6.5 – 7.0** | 6.5 – 7.0 | 6.5 – 7.0 |

Changes to the input assumptions can result in different fair value estimates.

Expected dividend yield is based on market expectations of future dividends on our common shares. Expected share price volatility is determined based on the market consensus implied volatility for traded options on our common shares. The risk-free rate is based on the yields of a Canadian swap curve with maturities similar to the expected period until exercise of the options. The weighted-average exercise price on the grant date for the years ended October 31, 2018, 2017 and 2016 was $100.63, $96.90 and $77.23, respectively.

## Other Share-Based Compensation

*Share Purchase Plans*

We offer various employee share purchase plans. The largest of these plans provides employees with the option of directing a portion of their gross salary toward the purchase of our common shares. We match 50% of employee contributions up to 6% of their individual gross salary to a maximum of $100,000. Our contributions during the first two years vest after two years of participation in the plan, with subsequent contributions vesting immediately. The shares held in the employee share purchase plan are purchased on the open market and are considered outstanding for purposes of computing earnings per share. The dividends earned on our common shares held by the plan are used to purchase additional common shares on the open market.

We account for our contribution as employee compensation expense when it is contributed to the plan.

Employee compensation expense related to these plans for the years ended October 31, 2018, 2017 and 2016 was $51 million, $53 million and $51 million, respectively. There were 17.8 million, 18.3 million and 18.9 million common shares held in these plans for the years ended October 31, 2018, 2017 and 2016, respectively.

*Compensation Trusts*

We sponsor various share ownership arrangements, certain of which are administered through trusts into which our matching contributions are paid.

We are not required to consolidate our compensation trusts. The assets held by the trusts are not included in our consolidated financial statements.

Total assets held under our share ownership arrangements amounted to $1,752 million as at October 31, 2018 ($1,805 million in 2017).

*Mid-Term Incentive Plans*

We offer mid-term incentive plans for executives and certain senior employees. Payment amounts are adjusted to reflect reinvested dividends and changes in the market value of our common shares. Depending on the plan, the recipient receives either a single cash payment at the end of the three-year period of the plan, or cash payments over the three years of the plan. As the awards are cash settled, they are recorded as liabilities. Amounts payable under such awards are recorded as compensation expense over the vesting period. Amounts related to units granted to employees who are eligible to retire are expensed at the time of grant. Subsequent changes in the fair value of the liability are recorded in compensation expense in the period in which they arise.

Mid-term incentive plan units granted during the years ended October 31, 2018, 2017 and 2016 totalled 5.9 million, 5.9 million and 6.4 million, respectively.

Prior to 2015, we entered into agreements with third parties to assume our liabilities related to a portion of units granted for a fixed up-front payment. For units subject to such arrangements, we no longer have any obligation for future cash payments and as a result no liability is recorded related to these awards. All cash payments made under such arrangements are deferred in the Consolidated Balance Sheet as other assets and are recognized on a straight-line basis over the vesting period. Subsequent changes in the market value of our common shares do not affect the amount of compensation expense related to these awards. During the year ended October 31, 2017, all remaining deferred compensation related to these arrangements was recognized.

Employee compensation expense related to plans where we entered into agreements with third parties for the years ended October 31, 2018, 2017 and 2016 was $nil, $(7) million and $26 million before tax, respectively ($nil, $(5) million and $19 million after tax, respectively).

Mid-term incentive plan units for which we did not enter into agreements with third parties for the years ended October 31, 2018, 2017 and 2016 totalled 5.9 million, 5.9 million and 6.4 million units, respectively. The grant date fair value of these awards as at October 31, 2018, 2017 and 2016 was $581 million, $515 million and $492 million, respectively, for which we recorded employee compensation expense of $595 million, $703 million and $537 million before tax, respectively ($437 million, $516 million and $397 million after tax, respectively). We hedge the impact of the change in market value of our common shares by entering into total return swaps (equity contracts). We also enter into foreign currency swaps to manage the foreign exchange translation from our United States businesses. Gains on total return swaps and foreign currency swaps recognized for the years ended October 31, 2018, 2017 and 2016 were $51 million, $183 million and $111 million, respectively, resulting in net employee compensation expense of $544 million, $520 million and $426 million, respectively.

A total of 17.1 million, 17.0 million and 17.0 million mid-term incentive plan units were outstanding as at October 31, 2018, 2017 and 2016, respectively, and the intrinsic value of those awards which had vested was $1,269 million, $1,253 million and $883 million, respectively. Cash payments made in relation to these liabilities were $598 million, $343 million and $131 million, respectively.

*Deferred Incentive Plans*

We offer deferred incentive plans for members of our Board of Directors, executives and key employees in BMO Capital Markets and Wealth Management. Under these plans, fees, annual incentive payments and/or commissions can be deferred as share units of our common shares. These share units are either fully vested on the grant date or vest at the end of three years. The value of these share units is adjusted to reflect reinvested dividends and changes in the market value of our common shares.

Deferred incentive plan payments are paid in cash upon the participant's departure from the bank.

Employee compensation expense for these plans is recorded in the year the fees, incentive payments and/or commissions are earned. Changes in the amount of the incentive plan payments as a result of dividends and share price movements are recorded as increases or decreases in employee compensation expense in the period of the change.

Deferred incentive plan units granted during the years ended October 31, 2018, 2017 and 2016 totalled 0.3 million, 0.3 million and 0.4 million, respectively, and the grant date fair value of these units was $33 million, $32 million and $28 million, respectively.

Liabilities related to these plans are recorded in other liabilities in our Consolidated Balance Sheet and totalled $485 million and $499 million as at October 31, 2018 and 2017, respectively. Payments made under these plans for the years ended October 31, 2018, 2017 and 2016 were $60 million, $32 million and $53 million, respectively.

Employee compensation expense related to these plans for the years ended October 31, 2018, 2017 and 2016 was $27 million, $91 million and $67 million before tax, respectively ($20 million, $67 million and $50 million after tax, respectively). We have entered into derivative instruments to hedge our exposure related to these plans. Changes in the fair value of these derivatives are recorded as employee compensation expense in the period in which they arise. Gains on these derivatives for the years ended October 31, 2018, 2017 and 2016 were $8 million, $78 million and $57 million before tax, respectively. These gains resulted in net employee compensation expense for the years ended October 31, 2018, 2017 and 2016 of $19 million, $13 million and $10 million before tax, respectively ($14 million, $10 million and $7 million after tax, respectively).

A total of 4.9 million, 5.0 million and 4.8 million deferred incentive plan units were outstanding as at October 31, 2018, 2017 and 2016, respectively.

# Note 21: Employee Compensation – Pension and Other Employee Future Benefits

## Pension and Other Employee Future Benefit Plans

We sponsor a number of arrangements globally, that provide pension and other employee future benefits to our retired and current employees. The largest of these arrangements, by defined benefit obligation, are the primary defined benefit pension plans for employees in Canada and the United States and the primary other employee future benefit plan for employees in Canada.

Pension arrangements include defined benefit pension plans, as well as supplementary arrangements that provide pension benefits in excess of statutory limits. Generally, under these plans we provide retirement benefits based on an employee's years of service and average annual earnings over a period of time prior to retirement. Our pension and other employee future benefit expenses, recorded in employee compensation expense, mainly comprise the current service cost plus or minus the interest on net defined benefit assets or liabilities. In addition, we provide defined contribution pension plans to employees in some of our subsidiaries. The costs of these plans, recorded in employee compensation expense, are equal to our contributions to the plans.

The defined benefit pension plans for our employees in the United States were closed to new members on April 1, 2016 and closed to future accruals on March 1, 2017. A defined contribution pension plan was made available for employees affected by the closure. As a result of the closure of these plans, we recorded a curtailment gain of $52 million in non-interest expense, employee compensation, in our Consolidated Statement of Income in 2016.

During the fourth quarter of 2018, we announced changes to our other employee future benefits plan for Canadian employees that will become mandatory for new retirees beginning January 1, 2021. Plan changes include an increase in the service requirement for eligibility and flexible benefits with employer premium caps. We recorded a $277 million benefit from the remeasurement of the benefit liability in non-interest expense, employee compensation, in our Consolidated Statement of Income.

We also provide other employee future benefits, including health and dental care benefits and life insurance, for eligible current and retired employees.

Short-term employee benefits, such as salaries, paid absences, bonuses and other benefits, are accounted for on an accrual basis over the period in which the employees provide the related services.

## Investment Policy

The defined benefit pension plans are administered under a defined governance structure, with the oversight resting with the Board of Directors.

The plans are managed under a framework that considers both assets and liabilities in the development of an investment policy and in managing risk. Over the past several years, we have implemented a liability-driven investment strategy for the primary Canadian plan to enhance risk-adjusted returns while reducing the plan's surplus volatility. This strategy has reduced the impact of the plan on our regulatory capital.

The plans invest in asset classes that include equities, fixed income and alternative strategies, under established investment guidelines. Plan assets are diversified across asset classes and by geographic exposure. They are managed by asset management firms that are responsible for the selection of investment securities. Derivative instruments are permitted under policy guidelines and are generally used to hedge foreign currency exposures, manage interest rate exposures or replicate the return of an asset.

## Asset Allocations

The asset allocation ranges and weighted-average actual asset allocations of our primary pension plans, based on the fair market values at October 31, are as follows:

| | Pension benefit plans | | |
|---|---|---|---|
| | **Target range 2018** | **Actual 2018** | Actual 2017 |
| Equities | **25% – 50%** | **37%** | 40% |
| Fixed income investments | **25% – 55%** | **46%** | 46% |
| Other | **10% – 40%** | **17%** | 14% |

Our pension and other employee future benefit plan assets are measured at fair value on a recurring basis.

## Risk Management

The defined benefit pension plans are exposed to various risks, including market risk (interest rate, equity and foreign currency risks), credit risk, operational risk, surplus risk and longevity risk. We follow a number of approaches to monitor and actively manage these risks, including:

- monitoring surplus-at-risk, which measures a plan's risk in an asset-liability framework;
- stress testing and scenario analyses to evaluate the volatility of the plans' financial positions and any potential impact on the bank;
- hedging of currency exposures and interest rate risk within policy limits;
- controls related to asset mix allocations, geographic allocations, portfolio duration, credit quality of debt securities, sector guidelines, issuer/counterparty limits and others; and
- ongoing monitoring of exposures, performance and risk levels.

## Pension and Other Employee Future Benefit Liabilities

Our actuaries perform valuations of our defined benefit obligations for pension and other employee future benefits as at October 31 of each year using the projected unit credit method based on management's assumptions about discount rates, rates of compensation increase, retirement age, mortality and health care cost trend rates.

The discount rates for the primary Canadian and U.S. pension and other employee future benefit plans were selected based on the yields of high-quality AA rated corporate bonds with terms matching the plans' cash flows.

The fair value of plan assets is deducted from the defined benefit obligation to determine the net defined benefit asset or liability. For defined benefit pension plans that are in a net defined benefit asset position, the recognized asset is limited to the present value of economic benefits available in the form of future refunds from the plan or reductions in future contributions to the plan (the "asset ceiling"). Changes in the asset ceiling are recognized in other comprehensive income. Components of the change in our net defined benefit assets or liabilities and our pension and other employee future benefit expense are as follows:

**Current service cost** represents benefits earned in the current year. The cost is determined with reference to the current workforce and the amount of benefits to which employees will be entitled upon retirement, based on the provisions of our benefit plans.

**Interest on net defined benefit asset or liability** represents the increase in the net defined benefit asset or liability that results from the passage of time and is determined by applying the discount rate to the net defined benefit asset or liability.

**Actuarial gains and losses** may arise in two ways. First, each year our actuaries recalculate the defined benefit obligations and compare them to those estimated as at the previous year end. Any differences that result from changes in demographic and economic assumptions or from plan member experience being different from management's expectations at the previous year end are considered actuarial gains or losses. Second, actuarial gains and losses arise when there are differences between the discount rate and actual returns on plan assets. Actuarial gains and losses are recognized immediately in other comprehensive income as they occur and are not subsequently reclassified to income in future periods.

**Plan amendments** are changes in our defined benefit obligations that result from changes to provisions of the plans. The effects of plan amendments are recognized immediately in income when a plan is amended.

**Settlements** occur when defined benefit obligations for plan participants are settled, usually through lump sum cash payments, and as a result we no longer have any obligation to provide such participants with benefit payments in the future.

## Funding of Pension and Other Employee Future Benefit Plans

We fund our defined benefit pension plans in Canada and the United States in accordance with statutory requirements, and the assets in these plans are used to pay benefits to retirees and other employees. Some groups of employees are also eligible to make voluntary contributions in order to receive enhanced benefits. Our supplementary pension plan in Canada is funded, while in the United States the supplementary pension plan is unfunded.

Our other employee future benefit plans in Canada and the United States are either partially funded or unfunded. Benefit payments related to these plans are paid either through the respective plan or directly by us.

We measure the fair value of plan assets for our plans in Canada and the United States as at October 31. In addition to actuarial valuations for accounting purposes, we are required to prepare valuations for determining our minimum funding requirements for our pension arrangements in accordance with the relevant statutory framework (our "funding valuation"). An annual funding valuation is performed for our plans in Canada and the United States. The most recent funding valuation for our primary Canadian pension plan was performed as at October 31, 2018 and the most recent funding valuation for our primary U.S. pension plan was performed as at January 1, 2018. Benefit payments for fiscal 2019 are estimated to be $486 million.

A summary of plan information for the past three years is as follows:

| (Canadian $ in millions) | Pension benefit plans | | | Other employee future benefit plans | | |
|---|---|---|---|---|---|---|
| | **2018** | 2017 | 2016 | **2018** | 2017 | 2016 |
| Defined benefit obligation | **8,311** | 8,846 | 8,992 | **1,113** | 1,460 | 1,493 |
| Fair value of plan assets | **8,719** | 8,990 | 8,655 | **153** | 157 | 150 |
| Surplus (deficit) and net defined benefit asset (liability) | **408** | 144 | (337) | **(960)** | (1,303) | (1,343) |
| Surplus (deficit) is comprised of: | | | | | | |
| Funded or partially funded plans | **573** | 339 | (127) | **37** | 28 | 7 |
| Unfunded plans | **(165)** | (195) | (210) | **(997)** | (1,331) | (1,350) |
| Surplus (deficit) and net defined benefit asset (liability) | **408** | 144 | (337) | **(960)** | (1,303) | (1,343) |

## Pension and Other Employee Future Benefit Expenses

Pension and other employee future benefit expenses are determined as follows:

| (Canadian $ in millions) | Pension benefit plans | | | Other employee future benefit plans | | |
|---|---|---|---|---|---|---|
| | **2018** | 2017 | 2016 | **2018** | 2017 | 2016 |
| **Annual benefits expense** | | | | | | |
| Current service cost | **210** | 254 | 224 | **26** | 32 | 25 |
| Net interest (income) expense on net defined benefit (asset) liability | **(10)** | 7 | (10) | **45** | 47 | 52 |
| Past service cost (income) | **7** | – | – | **(277)** | – | – |
| Administrative expenses | **5** | 5 | 5 | **–** | – | – |
| Remeasurement of other long-term benefits | **–** | – | – | **(10)** | (6) | 6 |
| Benefits expense | **212** | 266 | 219 | **(216)** | 73 | 83 |
| Canada and Quebec pension plan expense | **76** | 75 | 73 | **–** | – | – |
| Defined contribution expense | **153** | 123 | 96 | **–** | – | – |
| Total annual pension and other employee future benefit expenses recognized in the Consolidated Statement of Income | **441** | 464 | 388 | **(216)** | 73 | 83 |

## Weighted-average Assumptions Used to Determine Benefit Expenses

| | Pension benefit plans | | | Other employee future benefit plans | | |
|---|---|---|---|---|---|---|
| | **2018** | 2017 | 2016 | **2018** | 2017 | 2016 |
| Discount rate at beginning of year (3)(4) | **3.5%** | 3.4% | 4.2% | **3.6%** | 3.6% | 4.4% |
| Rate of compensation increase | **2.4%** | 2.8% | 2.7% | **2.0%** | 2.4% | 2.4% |
| Assumed overall health care cost trend rate | **na** | na | na | **4.9%** (1) | 5.2% (2) | 5.3% (2) |

(1) Trending to 4.1% in 2040 and remaining at that level thereafter.
(2) Trending to 4.5% in 2031 and remaining at that level thereafter.
(3) The pension benefit current service cost was calculated using a separate discount rate of 3.70% and 3.68% for 2018 and 2017, respectively.
(4) The other employee future benefit plans current service cost was calculated using a separate discount rate of 3.76% and 3.78% for 2018 and 2017, respectively.
na – not applicable

Assumptions regarding future mortality are based on published statistics and mortality tables calibrated to plan experience, when applicable. The current life expectancies underlying the amounts of the defined benefit obligations for our primary plans are as follows:

| (Years) | Canada | | United States | |
|---|---|---|---|---|
| | **2018** | 2017 | **2018** | 2017 |
| **Life expectancy for those currently age 65** | | | | |
| Males | **23.7** | 23.6 | **21.9** | 22.0 |
| Females | **24.0** | 24.0 | **23.4** | 23.4 |
| **Life expectancy at age 65 for those currently age 45** | | | | |
| Males | **24.6** | 24.6 | **23.1** | 23.2 |
| Females | **25.0** | 24.9 | **24.5** | 24.6 |

Changes in the estimated financial positions of our defined benefit pension plans and other employee future benefit plans are as follows:

| (Canadian $ in millions, except as noted) | Pension benefit plans | | Other employee future benefit plans | |
|---|---|---|---|---|
| | **2018** | 2017 | **2018** | 2017 |
| **Defined benefit obligation** | | | | |
| Defined benefit obligation at beginning of year | **8,846** | 8,992 | **1,460** | 1,493 |
| Current service cost | **210** | 254 | **26** | 32 |
| Past service cost (income) | **7** | – | **(277)** | – |
| Interest cost | **299** | 300 | **51** | 52 |
| Benefits paid | **(492)** | (448) | **(43)** | (45) |
| Employee contributions | **15** | 15 | **5** | 5 |
| Actuarial (gains) losses due to: | | | | |
| Changes in demographic assumptions | **(50)** | (127) | **(31)** | (107) |
| Changes in financial assumptions | **(562)** | (150) | **(77)** | (2) |
| Plan member experience | **16** | 45 | **(4)** | 39 |
| Foreign exchange and other | **22** | (35) | **3** | (7) |
| Defined benefit obligation at end of year | **8,311** | 8,846 | **1,113** | 1,460 |
| Wholly or partially funded defined benefit obligation | **8,146** | 8,651 | **116** | 129 |
| Unfunded defined benefit obligation | **165** | 195 | **997** | 1,331 |
| Total defined benefit obligation | **8,311** | 8,846 | **1,113** | 1,460 |
| **Weighted-average assumptions used to determine the defined benefit obligation** | | | | |
| Discount rate at end of year | **4.0%** | 3.5% | **4.1%** | 3.6% |
| Rate of compensation increase | **2.4%** | 2.4% | **2.0%** | 2.0% |
| Assumed overall health care cost trend rate | **na** | na | **4.9%** (1) | 5.2% (2) |
| **Fair value of plan assets** | | | | |
| Fair value of plan assets at beginning of year | **8,990** | 8,655 | **157** | 150 |
| Interest income | **309** | 293 | **6** | 5 |
| Return on plan assets (excluding interest income) | **(323)** | 277 | **(10)** | 8 |
| Employer contributions | **213** | 219 | **35** | 40 |
| Employee contributions | **15** | 15 | **5** | 5 |
| Benefits paid | **(492)** | (448) | **(43)** | (45) |
| Administrative expenses | **(5)** | (5) | **–** | – |
| Foreign exchange and other | **12** | (16) | **3** | (6) |
| Fair value of plan assets at end of year | **8,719** | 8,990 | **153** | 157 |
| Surplus (deficit) and net defined benefit asset (liability) at end of year | **408** | 144 | **(960)** | (1,303) |
| **Recorded in:** | | | | |
| Other assets | **664** | 508 | **–** | – |
| Other liabilities | **(256)** | (364) | **(960)** | (1,303) |
| Surplus (deficit) and net defined benefit asset (liability) at end of year | **408** | 144 | **(960)** | (1,303) |
| **Actuarial gains (losses) recognized in other comprehensive income** | | | | |
| Net actuarial gains (losses) on plan assets | **(323)** | 277 | **(10)** | 8 |
| Actuarial gains (losses) on defined benefit obligation due to: | | | | |
| Changes in demographic assumptions | **50** | 127 | **30** | 104 |
| Changes in financial assumptions | **562** | 150 | **72** | – |
| Plan member experience | **(16)** | (45) | **1** | (41) |
| Foreign exchange and other | **6** | (3) | **–** | – |
| **Actuarial gains recognized in other comprehensive income for the year** | **279** | 506 | **93** | 71 |

(1) Trending to 4.1% in 2040 and remaining at that level thereafter.
(2) Trending to 4.5% in 2031 and remaining at that level thereafter.
na – not applicable

Our pension and other employee future benefit plan assets are measured at fair value on a recurring basis. The fair values of plan assets held by our primary plans as at October 31 are as follows:

| (Canadian $ in millions) | 2018 | | | 2017 | | |
|---|---|---|---|---|---|---|
| | **Quoted** | **Unquoted** | **Total** | Quoted | Unquoted | Total |
| Cash and money market funds | **114** | **–** | **114** | 150 | 5 | 155 |
| Securities issued or guaranteed by: | | | | | | |
| Canadian federal government | **108** | **41** | **149** | 143 | 47 | 190 |
| Canadian provincial and municipal governments | **219** | **309** | **528** | 471 | 320 | 791 |
| U.S. federal government | **297** | **–** | **297** | 307 | 20 | 327 |
| U.S. states, municipalities and agencies | **–** | **12** | **12** | – | 16 | 16 |
| Pooled funds | **1,591** | **2,715** | **4,306** | 1,743 | 2,012 | 3,755 |
| Derivative instruments | **1** | **(14)** | **(13)** | 1 | (29) | (28) |
| Corporate debt | **6** | **1,055** | **1,061** | 9 | 1,251 | 1,260 |
| Corporate equity | **1,105** | **–** | **1,105** | 1,291 | – | 1,291 |
| | **3,441** | **4,118** | **7,559** | 4,115 | 3,642 | 7,757 |

Certain comparative figures have been reclassified to conform with the current year's presentation.

No plan assets are directly invested in the bank's or related parties' securities as at October 31, 2018 and 2017. As at October 31, 2018, our primary Canadian plan indirectly held, through pooled funds, approximately $15 million ($3 million in 2017) of our common shares. The plans do not hold any property we occupy or other assets we use.

The plans paid $4 million in the year ended October 31, 2018 ($4 million in 2017) to the bank and certain of our subsidiaries for investment management, record-keeping, custodial and administrative services rendered.

## Sensitivity of Assumptions

Key weighted-average assumptions used in measuring the defined benefit obligations for our primary plans are outlined in the following table. The sensitivity analysis provided in the table should be used with caution as it is hypothetical and the impact of changes in each key assumption may not be linear. The sensitivities to changes in each key variable have been calculated independently of the impact of changes in other key variables. Actual experience may result in simultaneous changes in a number of key assumptions, which would amplify or reduce certain sensitivities.

| | Defined benefit obligation | |
|---|---|---|
| (Canadian $ in millions, except as noted) | Pension benefit plans | Other employee future benefit plans |
| Discount rate (%) | 4.0 | 4.1 |
| Impact of: 1% increase ($) | (811) | (102) |
| 1% decrease ($) | 1,016 | 126 |
| Rate of compensation increase (%) | 2.4 | 2.0 |
| Impact of: 0.25% increase ($) | 39 | – (1) |
| 0.25% decrease ($) | (38) | – (1) |
| Mortality | | |
| Impact of: 1 year shorter life expectancy ($) | (138) | (23) |
| 1 year longer life expectancy ($) | 135 | 23 |
| Assumed overall health care cost trend rate (%) | na | 4.9 (2) |
| Impact of: 1% increase ($) | na | 47 |
| 1% decrease ($) | na | (48) |

(1) The change in this assumption is immaterial.

(2) Trending to 4.1% in 2040 and remaining at that level thereafter.

na – not applicable

## Maturity Profile

The duration of the defined benefit obligation for our primary plans is as follows:

| (Years) | **2018** | 2017 |
|---|---|---|
| Canadian pension plans | **14.0** | 14.7 |
| U.S. pension plans | **7.2** | 8.0 |
| Canadian other employee future benefit plans | **14.3** | 16.5 |

## Cash Flows

Cash payments we made during the year in connection with our employee future benefit plans are as follows:

| (Canadian $ in millions) | Pension benefit plans | | | Other employee future benefit plans | | |
|---|---|---|---|---|---|---|
| | **2018** | 2017 | 2016 | **2018** | 2017 | 2016 |
| Contributions to defined benefit plans | **154** | 187 | 192 | **–** | – | – |
| Contributions to defined contribution plans | **153** | 123 | 96 | **–** | – | – |
| Benefits paid directly to pensioners | **59** | 32 | 43 | **35** | 40 | 38 |
| | **366** | 342 | 331 | **35** | 40 | 38 |

Our best estimate of the contributions we expect to make for the year ending October 31, 2019 is approximately $246 million to our defined benefit pension plans and $41 million to our other employee future benefit plans.

# Note 22: Income Taxes

We report our provision for income taxes in our Consolidated Statement of Income based upon transactions recorded in our consolidated financial statements regardless of when they are recognized for income tax purposes, with the exception of repatriation of retained earnings from our subsidiaries, as noted below.

In addition, we record an income tax expense or benefit in other comprehensive income or directly in shareholders' equity when the taxes relate to amounts recorded in other comprehensive income or shareholders' equity. For example, income tax expense (recovery) on hedging gains (losses) related to our net investment in foreign operations is recorded in our Consolidated Statement of Comprehensive Income as part of unrealized gains (losses) on translation of net foreign operations.

Current tax is the amount of income tax recoverable (payable) in respect of the taxable loss (profit) for a period. Deferred tax is recognized on temporary differences between the carrying amounts of assets and liabilities for accounting and tax purposes. Deferred income tax assets and liabilities are measured at the tax rates expected to apply when temporary differences reverse. Changes in deferred income tax assets and liabilities related to a change in tax rates are recorded in income in the period the tax rate is substantively enacted, except to the extent that the tax arises from a transaction or event which is recognized either in other comprehensive income or directly in shareholders' equity. Current and deferred taxes are offset only when they are levied by the same taxing authority, levied on the same entity or group of entities and when there is a legal right to offset.

Included in deferred income tax assets is $42 million ($126 million in 2017) related to Canadian tax loss carryforwards that will expire in 2037, $962 million ($1,545 million in 2017) related to both U.S. tax loss carryforwards and tax credits that will expire in various amounts in U.S. taxation years from 2026 through 2038 and $17 million ($16 million in 2017) related to U.K. tax loss carryforwards that are available for use indefinitely against relevant profits generated in the U.K. On the evidence available, including management projections of income, we believe that it is probable there will be sufficient taxable income generated by our business operations to support these deferred tax assets. The amount of tax on temporary differences, unused tax losses and unused tax credits for which no deferred tax asset is recognized in our Consolidated Balance Sheet as at October 31, 2018 is $132 million ($282 million in 2017), of which $8 million ($53 million in 2017) is scheduled to expire within five years. Deferred tax assets have not been recognized in respect of these items because it is not probable that realization of these assets will occur.

Income that we earn through our foreign subsidiaries is generally taxed in the foreign country in which they operate. Income that we earn through our foreign branches is also generally taxed in the foreign country in which they operate. Canada also taxes the income we earn through foreign branches and a credit is allowed for certain foreign taxes paid on such income. Repatriation of earnings from certain foreign subsidiaries would require us to pay tax on certain of these earnings. As repatriation of such earnings is not planned in the foreseeable future, we have not recorded a related deferred income tax liability. The taxable temporary differences associated with the repatriation of earnings from investments in certain subsidiaries, branches, associates and interests in joint ventures for which deferred tax liabilities have not been recognized totalled $13 billion as at October 31, 2018 ($12 billion in 2017).

## Provision for Income Taxes

| (Canadian $ in millions) | **2018** | 2017 | 2016 |
|---|---|---|---|
| **Consolidated Statement of Income** | | | |
| Current | | | |
| Provision for income taxes for the current period | **1,331** | 1,254 | 927 |
| Adjustments in respect of current tax for prior periods | **20** | 18 | 8 |
| Deferred | | | |
| Origination and reversal of temporary differences | **276** | 80 | 183 |
| Effect of changes in tax rates | **425** | (2) | (2) |
| Previously unrecognized tax loss, tax credit or temporary difference for a prior period | **(92)** | (54) | (15) |
| | **1,960** | 1,296 | 1,101 |
| **Other Comprehensive Income and Shareholders' Equity** | | | |
| Income tax expense (recovery) related to: | | | |
| Unrealized gains (losses) on FVOCI securities (1) | **(69)** | 21 | 64 |
| Reclassification to earnings of (gains) on FVOCI securities (1) | **(23)** | (36) | (11) |
| Gains (losses) on derivatives designated as cash flow hedges | **(432)** | (322) | 4 |
| Reclassification to earnings of losses on derivatives designated as cash flow hedges | **121** | 21 | 6 |
| Hedging of unrealized (gains) losses on translation of net foreign operations | **(56)** | 8 | 10 |
| Gains (losses) on remeasurement of pension and other employee future benefit plans | **111** | 157 | (156) |
| (Losses) on remeasurement of own credit risk on financial liabilities designated at fair value | **(6)** | (53) | (55) |
| Share-based compensation | **10** | (12) | – |
| Total provision for income taxes | **1,616** | 1,080 | 963 |

(1) Fiscal 2017 and prior years represent available-for-sale securities (Note 3).

Certain comparative figures have been reclassified to conform with the current year's presentation.

### Components of Total Provision for Income Taxes

| (Canadian $ in millions) | **2018** | 2017 | 2016 |
|---|---|---|---|
| Canada: Current income taxes | | | |
| Federal | **501** | 470 | 434 |
| Provincial | **299** | 272 | 248 |
| | **800** | 742 | 682 |
| Canada: Deferred income taxes | | | |
| Federal | **(45)** | 2 | (120) |
| Provincial | **(27)** | – | (67) |
| | **(72)** | 2 | (187) |
| Total Canadian | **728** | 744 | 495 |
| Foreign: Current income taxes | **224** | 281 | 220 |
| Deferred income taxes | **664** | 55 | 248 |
| Total foreign | **888** | 336 | 468 |
| Total provision for income taxes | **1,616** | 1,080 | 963 |

Set out below is a reconciliation of our statutory tax rates and income taxes that would be payable at these rates to the effective income tax rates and provision for income taxes that we have recorded in our Consolidated Statement of Income:

| (Canadian $ in millions, except as noted) | | **2018** | | 2017 | | 2016 |
|---|---|---|---|---|---|---|
| Combined Canadian federal and provincial income taxes at the statutory tax rate | **1,971** | **26.6%** | 1,768 | 26.6% | 1,525 | 26.6% |
| Increase (decrease) resulting from: | | | | | | |
| Tax-exempt income from securities | **(226)** | **(3.0)** | (409) | (6.2) | (367) | (6.4) |
| Foreign operations subject to different tax rates | **(110)** | **(1.5)** | 22 | 0.3 | 13 | 0.3 |
| Change in tax rate for deferred income taxes | **425** | **5.7** | (2) | – | (2) | – |
| Previously unrecognized tax loss, tax credit or temporary difference for a prior period | **(92)** | **(1.2)** | (54) | (0.8) | (15) | (0.3) |
| Income attributable to investments in associates and joint ventures | **(39)** | **(0.5)** | (103) | (1.5) | (47) | (0.8) |
| Adjustments in respect of current tax for prior periods | **20** | **0.3** | 18 | 0.2 | 8 | 0.1 |
| Other | **11** | **0.1** | 56 | 0.9 | (14) | (0.3) |
| Provision for income taxes and effective tax rate | **1,960** | **26.5%** | 1,296 | 19.5% | 1,101 | 19.2% |

## Components of Deferred Income Tax Balances

(Canadian $ in millions)

| Deferred Income Tax Asset (Liability) (1) | Net asset, November 1, 2017 (2) | **Benefit (expense) to income statement** | **Benefit (expense) to equity** | **Translation and other** | **Net asset, October 31, 2018** |
|---|---|---|---|---|---|
| Allowance for credit losses | 684 | **(150)** | **–** | **(50)** | **484** |
| Employee future benefits | 416 | **(111)** | **(23)** | **–** | **282** |
| Deferred compensation benefits | 545 | **(50)** | **–** | **(1)** | **494** |
| Other comprehensive income | 50 | **–** | **138** | **7** | **195** |
| Tax loss carryforwards | 1,233 | **(628)** | **–** | **1** | **606** |
| Tax credits | 454 | **(39)** | **–** | **–** | **415** |
| Premises and equipment | (664) | **148** | **–** | **1** | **(515)** |
| Pension benefits | (52) | **19** | **(88)** | **–** | **(121)** |
| Goodwill and intangible assets | (261) | **60** | **–** | **–** | **(201)** |
| Securities | 21 | **17** | **–** | **–** | **38** |
| Other | 180 | **125** | **(10)** | **(9)** | **286** |
| Total | 2,606 | **(609)** | **17** | **(51)** | **1,963** |

(Canadian $ in millions)

| Deferred Income Tax Asset (Liability) (1) | Net asset, October 31, 2016 | Benefit (expense) to income statement | Benefit (expense) to equity | Translation and other | Net asset, October 31, 2017 |
|---|---|---|---|---|---|
| Allowance for credit losses | 883 | (118) | – | (55) | 710 |
| Employee future benefits | 424 | 12 | (14) | (6) | 416 |
| Deferred compensation benefits | 462 | 102 | – | (19) | 545 |
| Other comprehensive income | (82) | – | 112 | (3) | 27 |
| Tax loss carryforwards | 1,343 | (18) | – | (92) | 1,233 |
| Tax credits | 407 | 64 | – | (17) | 454 |
| Premises and equipment | (613) | (83) | – | 32 | (664) |
| Pension benefits | 89 | 5 | (143) | (3) | (52) |
| Goodwill and intangible assets | (253) | (23) | – | 15 | (261) |
| Securities | 12 | 11 | – | (2) | 21 |
| Other | 187 | 24 | 12 | (20) | 203 |
| Total | 2,859 | (24) | (33) | (170) | 2,632 |

(1) Deferred tax assets of $2,037 million and $2,865 million and deferred tax liabilities of $74 million and $233 million as at October 31, 2018 and 2017, respectively, are presented on the balance sheet net by legal jurisdiction.

(2) Includes IFRS 9 adoption (refer to Note 28)

Certain comparative figures have been reclassified to conform with the current year's presentation.

In fiscal 2018, we were reassessed by the Canada Revenue Agency ("CRA") for additional income taxes and interest in an amount of approximately $169 million in respect of certain 2013 Canadian corporate dividends. In prior fiscal years, we were reassessed for additional income taxes and interest of approximately $116 million and $76 million, respectively, for certain 2012 and 2011 Canadian corporate dividends. In its reassessments, the CRA denied dividend deductions on the basis that the dividends were received as part of a "dividend rental arrangement." The tax rules raised by the CRA in the reassessments were prospectively addressed in the 2015 and 2018 Canadian federal budgets. In the future, it is possible that we may be reassessed for significant income tax for similar activities in 2014 and subsequent years. We remain of the view that our tax filing positions were appropriate and intend to challenge any reassessment.

On December 22, 2017, the U.S. government enacted new tax legislation that became effective on January 1, 2018. Under the new legislation, our U.S. net deferred tax asset was revalued by $483 million because of the lower income tax rate. The $483 million revaluation is comprised of a $425 million income tax expense recorded in our Consolidated Statement of Income, and a $58 million income tax charge recorded in other comprehensive income and shareholders' equity for the year ended October 31, 2018.

# Note 23: Earnings Per Share

Basic earnings per share is calculated by dividing net income attributable to our shareholders, after deducting preferred share dividends, by the daily average number of fully paid common shares outstanding throughout the year.

Diluted earnings per share is calculated in the same manner, with further adjustments made to reflect the dilutive impact of instruments convertible into our common shares.

The following table presents our basic and diluted earnings per share:

**Basic Earnings per Share**

| (Canadian $ in millions, except as noted) | 2018 | 2017 | 2016 |
|---|---|---|---|
| Net income attributable to bank shareholders | **5,450** | 5,348 | 4,622 |
| Dividends on preferred shares | **(184)** | (184) | (150) |
| Net income available to common shareholders | **5,266** | 5,164 | 4,472 |
| Weighted-average number of common shares outstanding (in thousands) | **642,930** | 649,650 | 644,049 |
| Basic earnings per share (Canadian $) | **8.19** | 7.95 | 6.94 |
| **Diluted Earnings per Share** | | | |
| Net income available to common shareholders adjusted for impact of dilutive instruments | **5,266** | 5,164 | 4,472 |
| Weighted-average number of common shares outstanding (in thousands) | **642,930** | 649,650 | 644,049 |
| Effect of dilutive instruments | | | |
| Stock options potentially exercisable (1) | **5,876** | 6,859 | 8,706 |
| Common shares potentially repurchased | **(3,893)** | (4,548) | (6,629) |
| Weighted-average number of diluted common shares outstanding (in thousands) | **644,913** | 651,961 | 646,126 |
| Diluted earnings per share (Canadian $) | **8.17** | 7.92 | 6.92 |

(1) In computing diluted earnings per share, we excluded average stock options outstanding of 1,101,938, 1,330,564 and 1,353,464 with weighted-average exercise prices of $127.45, $182.70 and $238.45 for the years ended October 31, 2018, 2017 and 2016, respectively, as the average share price for the period did not exceed the exercise price.

# Note 24: Commitments, Guarantees, Pledged Assets, Provisions and Contingent Liabilities

In the normal course of business, we enter into a variety of contracts under which we may be required to make payments to reimburse a counterparty for a loss if a third party does not perform according to the terms of a contract or does not make payments when due under the terms of a debt instrument, and contracts under which we provide indirect guarantees of the indebtedness of another party, all of which are considered guarantees.

Guarantees that qualify as derivatives are accounted for in accordance with the policy for derivative instruments (see Note 8). For guarantees that do not qualify as derivatives, the liability is initially recorded at fair value, which is generally the fee received. Subsequently, guarantees are recorded at the higher of the initial fair value, less amortization to recognize any fee income earned over the period, and our best estimate of the amount required to settle the obligation. Any change in the liability is reported in our Consolidated Statement of Income.

We enter into a variety of commitments, including off-balance sheet credit instruments, such as backstop liquidity facilities, securities lending, letters of credit, credit default swaps and commitments to extend credit, as a method of meeting the financial needs of our customers. These commitments include contracts where we may be required to make payments to a counterparty, based on changes in the value of an asset, liability or equity security that the counterparty holds, due to changes in an underlying interest rate, foreign exchange rate or other variable. The contractual amount of our commitments represents our maximum undiscounted potential exposure, before possible recoveries under recourse and collateral provisions. Collateral requirements for these instruments are consistent with collateral requirements for loans.

A large majority of these commitments expire without being drawn upon. As a result, the total contractual amounts may not be representative of the funding likely to be required for these commitments.

We strive to limit credit risk by dealing only with counterparties that we believe are creditworthy, and we manage our credit risk for these instruments using the same credit risk process that is applied to loans and other credit assets.

The maximum amount payable related to our various commitments is as follows:

| (Canadian $ in millions) | 2018 | 2017 |
|---|---|---|
| **Financial Guarantees** | | |
| Standby letters of credit | **18,458** | 18,126 |
| Credit default swaps (1) | **443** | 448 |
| **Other Credit Instruments** | | |
| Backstop liquidity facilities | **5,627** | 5,044 |
| Securities lending | **4,939** | 5,336 |
| Documentary and commercial letters of credit | **1,263** | 1,030 |
| Commitments to extend credit (2) | **137,995** | 122,881 |
| Other commitments | **8,935** | 4,329 |
| Total | **177,660** | 157,194 |

(1) The fair value of the related derivatives included in our Consolidated Balance Sheet was $8 million as at October 31, 2018 ($6 million in 2017).
(2) Commitments to extend credit exclude personal lines of credit and credit cards that are unconditionally cancellable at our discretion.

## Financial Guarantees

Standby letters of credit represent our obligation to make payments to third parties on behalf of customers if they are unable to make the required payments or meet other contractual requirements. The majority have a term of one year or less. Collateral requirements for standby letters of credit and guarantees are consistent with our collateral requirements for loans. Standby letters of credit and guarantees include our guarantee of a subsidiary's debt directly provided to a third party.

Written credit default swaps require us to compensate a counterparty following the occurrence of a credit event in relation to a specified reference obligation, such as a bond or a loan. The terms of these contracts range from less than one year to 10 years. Refer to Note 8 for details.

## Other Credit Instruments

Backstop liquidity facilities are provided to asset-backed commercial paper ("ABCP") or commercial paper ("CP") programs administered by either us or third parties as an alternative source of financing when ABCP or CP markets cannot be accessed and for ABCP programs when predetermined performance measures of the financial assets held by these programs are not met. The terms of the backstop liquidity facilities do not require us to advance money to these programs in the event of insolvency of the borrower. The facilities' terms are generally no longer than one year, but can be several years.

We lend eligible customers' securities to third-party borrowers who have been evaluated for credit risk using the same credit risk process that is applied to loans and other credit assets. In connection with these activities, we may provide indemnification to clients against losses resulting from the failure of the borrower to return loaned securities when due. All borrowings are fully collateralized with cash or marketable securities. As securities are loaned, we require borrowers to maintain collateral which is equal to or in excess of 100% of the fair value of the securities borrowed. The collateral is revalued on a daily basis.

Documentary and commercial letters of credit represent our agreement to honour drafts presented by a third party upon completion of specific activities.

Commitments to extend credit represent our commitment to our customers to grant them credit in the form of loans or other financings for specific amounts and maturities, subject to their meeting certain conditions.

Other commitments include commitments to fund external private equity funds and investments in equity and debt securities at market value at the time the commitments are drawn. In addition, we act as underwriter for certain new issuances under which we, alone or together with a syndicate of financial institutions, purchase the new issue for resale to investors.

## Indemnification Agreements

In the normal course of operations, we enter into various agreements that provide general indemnifications. These indemnifications typically occur in connection with sales of assets, securities offerings, service contracts, membership agreements, clearing arrangements, derivative contracts and leasing transactions. Based on historical experience, we expect the risk of loss to be remote.

## Exchange and Clearinghouse Guarantees

We are a member of several securities and futures exchanges and central counterparties. Membership in certain of these organizations may require us to pay a pro rata share of the losses incurred by the organization in the event of default of another member. It is difficult to estimate our maximum exposure under these membership agreements, since this would require an assessment of future claims that may be made against us that have not yet occurred. Based on historical experience, we expect the risk of loss to be remote.

## Pledged Assets

In the normal course of business, we pledge assets as security for various liabilities that we incur.

The following tables summarize our pledged assets and collateral, and the activities to which they relate:

| (Canadian $ in millions) | **2018** | 2017 |
|---|---|---|
| **Bank Assets** | | |
| Cash and securities (1) | | |
| Issued or guaranteed by the Government of Canada | **7,784** | 11,904 |
| Issued or guaranteed by a Canadian province, municipality or school corporation | **7,143** | 6,170 |
| Other | **60,812** | 51,848 |
| Mortgages, securities borrowed or purchased under resale agreements and other | **115,256** | 99,474 |
| | **190,995** | 169,396 |

| (Canadian $ in millions) | **2018** | 2017 |
|---|---|---|
| **Assets pledged in relation to:** | | |
| Central counterparties, payment systems and depositories | **2,403** | 2,043 |
| Bank of Canada | **525** | 725 |
| Foreign governments and central banks | **3** | 3 |
| Obligations related to securities sold under repurchase agreements | **54,606** | 42,450 |
| Securities borrowing and lending | **50,388** | 51,120 |
| Derivatives transactions | **6,120** | 5,924 |
| Securitization | **28,710** | 27,632 |
| Covered bonds | **26,721** | 24,983 |
| Other | **21,519** | 14,516 |
| Total pledged assets and collateral (1) | **190,995** | 169,396 |

(1) Excludes cash pledged with central banks disclosed as restricted cash in Note 2.

Certain comparative figures have been reclassified to conform with the current year's presentation.

## Collateral

When entering into trading activities, such as purchases under resale agreements, securities borrowing and lending activities or financing for certain derivative transactions, we require our counterparties to provide us with collateral that will protect us from losses in the event of their default. Collateral transactions (received or pledged) are typically conducted under terms that are usual and customary in standard trading activities. If there is no default, the securities or their equivalents must be returned to, or returned by, the counterparty at the end of the contract.

The fair value of counterparty collateral that we are permitted to sell or repledge (in the absence of default by the owner of the collateral) was $123,782 million as at October 31, 2018 ($118,324 million as at October 31, 2017). The fair value of collateral that we have sold or repledged was $82,392 million as at October 31, 2018 ($76,909 million as at October 31, 2017).

## Lease Commitments

We have entered into a number of non-cancellable leases for premises and equipment. Our computer and software leases are typically fixed for one term and our premises leases have various renewal options and rights. Our total contractual rental commitments as at October 31, 2018 were

$2,742 million. The commitments for each of the next five years and thereafter are $404 million for 2019, $358 million for 2020, $301 million for 2021, $254 million for 2022, $215 million for 2023 and $1,210 million thereafter. Included in these amounts are commitments related to 1,130 leased branch locations as at October 31, 2018.

### Provisions and Contingent Liabilities

Provisions are recognized when we have a legal or constructive obligation as a result of past events, such as contractual commitments, legal or other obligations where we can reliably estimate the obligation, and it is probable we will be required to settle the obligation. We recognize as a provision our best estimate of the amount required to settle the obligations as of the balance sheet date, taking into account the risks and uncertainties surrounding the obligations. Provisions are recorded in other liabilities on the Consolidated Balance Sheet. Contingent liabilities are potential obligations arising from past events, the existence of which will only be confirmed by the occurrence or non-occurrence of one or more future events not wholly within our control and are not included in the table below.

*Restructuring Charges*

Included in provisions as at October 31, 2018 is $176 million ($98 million in 2017) of restructuring charges related to our ongoing enterprise-wide initiative to simplify how we work, drive increased efficiency, and invest in technology to move our business forward. This amount represents our best estimate of the amount that will be ultimately paid out.

*Legal Proceedings*

The bank and its subsidiaries are party to legal proceedings, including regulatory investigations, in the ordinary course of business. While there is inherent difficulty in predicting the outcome of these proceedings, management does not expect the outcome of any of these proceedings, individually or in the aggregate, to have a material adverse effect on the consolidated financial position or the results of operations of the bank.

Changes in the provision balance during the year were as follows:

| (Canadian $ in millions) | **2018** | 2017 |
|---|---|---|
| Balance at beginning of year | **170** | 268 |
| Additional provisions/increase in provisions | **375** | 153 |
| Provisions utilized | **(250)** | (172) |
| Amounts reversed | **(11)** | (75) |
| Exchange differences and other movements | **–** | (4) |
| Balance at end of year (1) | **284** | 170 |

(1) Balance includes severance obligations, restructuring charges and legal provisions.

## Note 25: Operating and Geographic Segmentation

### Operating Groups

We conduct our business through three operating groups, each of which has a distinct mandate. We determine our operating groups based on our management structure and therefore these groups, and the results attributed to them, may not be comparable with those of other financial services companies. We evaluate the performance of our groups using reported and adjusted measures, such as net income, revenue growth, return on equity, and non-interest expense-to-revenue (productivity) ratio, as well as operating leverage.

Effective with the adoption of IFRS 9, we allocate the provision for credit losses on performing loans and the related allowance to operating groups. In 2017 and prior years, the collective provision and allowance were held in Corporate Services.

### Personal and Commercial Banking

Personal and Commercial Banking ("P&C") is comprised of two operating segments: Canadian Personal and Commercial Banking and U.S. Personal and Commercial Banking.

*Canadian Personal and Commercial Banking*

Canadian Personal and Commercial Banking ("Canadian P&C") provides a full range of financial products and services to eight million customers. Personal Banking provides financial solutions for everyday banking, financing, investing, credit card and creditor insurance needs. Commercial Banking provides our small business and commercial banking customers with a broad suite of integrated commercial and capital markets products, as well as financial advisory services.

*U.S. Personal and Commercial Banking*

U.S. Personal and Commercial Banking ("U.S. P&C") offers a broad range of products and services. Our retail and small and mid-sized business banking customers are served through our branches, contact centres, online and mobile banking platforms and automated banking machines across eight states. Our commercial banking customers are offered in-depth specific industry knowledge, as well as strategic capital markets solutions.

### BMO Wealth Management

BMO's group of wealth management businesses serves a full range of client segments from mainstream to ultra high net worth and institutional, with a broad offering of wealth management products and services, including insurance products. Wealth Management ("BMO WM") is a global business with an active presence in markets across Canada, the United States, Europe and Asia.

## BMO Capital Markets

BMO Capital Markets ("BMO CM") is a North American-based financial services provider offering a complete range of products and services to corporate, institutional and government clients. Through our Investment and Corporate Banking and Trading Products lines of business, we operate in 33 locations around the world, including 19 offices in North America.

## Corporate Services

Corporate Services consists of Corporate Units and Technology and Operations ("T&O"). Corporate Units provide enterprise-wide expertise, governance and support in a variety of areas, including strategic planning, risk management, finance, legal and regulatory compliance, human resources, communications, marketing, real estate, procurement, data and analytics, and innovation. T&O manages, maintains and provides governance of information technology, cyber security, and operations services for the bank.

The costs of these Corporate Units and T&O services are largely transferred to the three operating groups (P&C, BMO WM and BMO CM), with any remaining amounts retained in Corporate Services results. As such, Corporate Services results largely reflect the impact of residual treasury-related activities, the elimination of taxable equivalent adjustments, residual unallocated expenses and certain acquisition integration costs and restructuring costs.

## Basis of Presentation

The results of these operating groups are based on our internal financial reporting systems. The accounting policies used in these segments are generally consistent with those followed in the preparation of our consolidated financial statements, as disclosed in Note 1 and throughout the consolidated financial statements. Income taxes presented below may not be reflective of taxes paid in each jurisdiction where we operate. Income taxes are generally applied to each segment based on a statutory tax rate and may be adjusted for items and activities specific to each segment. A notable accounting measurement difference is the taxable equivalent basis adjustment as described below.

Periodically, certain business lines and units within the business lines are transferred between client and corporate support groups to more closely align our organizational structure with our strategic priorities. In addition, revenue and expense allocations are updated to more accurately align with current experience. Results for prior periods are restated to conform with the current year's presentation.

*Taxable Equivalent Basis*

We analyze revenue on a taxable equivalent basis ("teb") at the operating group level. Revenue and the provision for income taxes are increased on tax-exempt securities to an equivalent before-tax basis to facilitate comparisons of income between taxable and tax-exempt sources. The offset to the groups' teb adjustments is reflected in Corporate Services revenue and provision for income taxes. The teb adjustment for the year ended October 31, 2018 was $313 million ($567 million in 2017 and $510 million in 2016).

*Inter-Group Allocations*

Various estimates and allocation methodologies are used in the preparation of the operating groups' financial information. Overhead expenses are allocated to operating groups using allocation formulas applied on a consistent basis. Operating group net interest income reflects internal funding charges and credits on the groups' assets, liabilities and capital, at market rates, taking into account relevant terms and currency considerations. The offset of the net impact of these charges and credits is reflected in Corporate Services. These inter-group allocations are also applied to the geographical segmentation.

Our results and average assets, grouped by operating segment, are as follows:

| (Canadian $ in millions) | Canadian P&C | U.S. P&C | Wealth Management | BMO CM | Corporate Services (1) | Total |
|---|---|---|---|---|---|---|
| **2018** | | | | | | |
| Net interest income (2) | **5,541** | **3,843** | **826** | **659** | **(556)** | **10,313** |
| Non-interest revenue | **2,171** | **1,140** | **5,468** | **3,696** | **249** | **12,724** |
| Total Revenue | **7,712** | **4,983** | **6,294** | **4,355** | **(307)** | **23,037** |
| Provision for (recovery of) credit losses on impaired loans | **466** | **258** | **6** | **(17)** | **(13)** | **700** |
| Provision for (recovery of) credit losses on performing loans | **3** | **(38)** | **–** | **(1)** | **(2)** | **(38)** |
| Total provision for (recovery of) credit losses | **469** | **220** | **6** | **(18)** | **(15)** | **662** |
| Insurance claims, commissions and changes in policy benefit liabilities | **–** | **–** | **1,352** | **–** | **–** | **1,352** |
| Amortization | **318** | **454** | **231** | **124** | **–** | **1,127** |
| Non-interest expense | **3,487** | **2,558** | **3,278** | **2,727** | **436** | **12,486** |
| Income (loss) before taxes and non-controlling interest in subsidiaries | **3,438** | **1,751** | **1,427** | **1,522** | **(728)** | **7,410** |
| Provision for (recovery of) income taxes | **884** | **357** | **355** | **366** | **(2)** | **1,960** |
| Reported net income (loss) | **2,554** | **1,394** | **1,072** | **1,156** | **(726)** | **5,450** |
| Non-controlling interest in subsidiaries | **–** | **–** | **–** | **–** | **–** | **–** |
| Net Income (loss) attributable to bank shareholders | **2,554** | **1,394** | **1,072** | **1,156** | **(726)** | **5,450** |
| Average Assets | **224,553** | **110,351** | **35,913** | **307,087** | **76,391** | **754,295** |

Notes

| (Canadian $ in millions) | Canadian P&C | U.S. P&C | Wealth Management | BMO CM | Corporate Services (1) | Total |
|---|---|---|---|---|---|---|
| 2017 | | | | | | |
| Net interest income (2) | 5,261 | 3,551 | 722 | 1,233 | (760) | 10,007 |
| Non-interest revenue | 2,182 | 1,066 | 5,492 | 3,336 | 177 | 12,253 |
| Total Revenue | 7,443 | 4,617 | 6,214 | 4,569 | (583) | 22,260 |
| Provision for (recovery of) credit losses (3) | 483 | 289 | 8 | 44 | (78) | 746 |
| Insurance claims, commissions and changes in policy benefit liabilities | – | – | 1,538 | – | – | 1,538 |
| Amortization | 309 | 434 | 241 | 119 | – | 1,103 |
| Non-interest expense | 3,313 | 2,510 | 3,110 | 2,659 | 635 | 12,227 |
| Income (loss) before taxes and non-controlling interest in subsidiaries | 3,338 | 1,384 | 1,317 | 1,747 | (1,140) | 6,646 |
| Provision for (recovery of) income taxes | 827 | 357 | 350 | 472 | (710) | 1,296 |
| Reported net income (loss) | 2,511 | 1,027 | 967 | 1,275 | (430) | 5,350 |
| Non-controlling interest in subsidiaries | – | – | 2 | – | – | 2 |
| Net Income (loss) attributable to bank shareholders | 2,511 | 1,027 | 965 | 1,275 | (430) | 5,348 |
| Average Assets | 217,685 | 104,209 | 32,562 | 302,518 | 65,652 | 722,626 |

| (Canadian $ in millions) | Canadian P&C | U.S. P&C | Wealth Management | BMO CM | Corporate Services (1) | Total |
|---|---|---|---|---|---|---|
| 2016 | | | | | | |
| Net interest income (2) | 5,080 | 3,491 | 635 | 1,459 | (793) | 9,872 |
| Non-interest revenue | 1,909 | 1,119 | 5,274 | 2,855 | 58 | 11,215 |
| Total Revenue | 6,989 | 4,610 | 5,909 | 4,314 | (735) | 21,087 |
| Provision for (recovery of) credit losses (3) | 506 | 249 | 9 | 81 | (74) | 771 |
| Insurance claims, commissions and changes in policy benefit liabilities | – | – | 1,543 | – | – | 1,543 |
| Amortization | 276 | 433 | 233 | 105 | – | 1,047 |
| Non-interest expense | 3,224 | 2,481 | 3,104 | 2,469 | 716 | 11,994 |
| Income (loss) before taxes and non-controlling interest in subsidiaries | 2,983 | 1,447 | 1,020 | 1,659 | (1,377) | 5,732 |
| Provision for (recovery of) income taxes | 766 | 396 | 245 | 424 | (730) | 1,101 |
| Reported net income (loss) | 2,217 | 1,051 | 775 | 1,235 | (647) | 4,631 |
| Non-controlling interest in subsidiaries | – | – | 2 | – | 7 | 9 |
| Net Income (loss) attributable to bank shareholders | 2,217 | 1,051 | 773 | 1,235 | (654) | 4,622 |
| Average Assets | 208,018 | 106,111 | 30,642 | 301,623 | 60,728 | 707,122 |

(1) Corporate Services includes Technology and Operations.
(2) Operating groups report on a taxable equivalent basis – see Basis of Presentation section.
(3) 2017 and 2016 have not been restated to reflect the adoption of IFRS 9.
Certain comparative figures have been reclassified to conform with the current year's presentation.

*Geographic Information*

We operate primarily in Canada and the United States, but we also have operations in the United Kingdom, Europe, the Caribbean and Asia, which are grouped in other countries. We allocate our results by geographic region based on the location of the unit responsible for managing the related assets, liabilities, revenues and expenses.

Our results and average assets, grouped by geographic region, are as follows:

| (Canadian $ in millions) | Canada | United States | Other countries | Total |
|---|---|---|---|---|
| **2018** | | | | |
| Total Revenue | **13,733** | **7,315** | **1,989** | **23,037** |
| Income before taxes and non-controlling interest in subsidiaries | **4,838** | **1,870** | **702** | **7,410** |
| Reported net income | **3,795** | **1,099** | **556** | **5,450** |
| Average Assets | **441,376** | **277,764** | **35,155** | **754,295** |

| (Canadian $ in millions) | Canada | United States | Other countries | Total |
|---|---|---|---|---|
| 2017 | | | | |
| Total Revenue | 13,469 | 7,073 | 1,718 | 22,260 |
| Income before taxes and non-controlling interest in subsidiaries | 4,597 | 1,588 | 461 | 6,646 |
| Reported net income | 3,817 | 1,210 | 323 | 5,350 |
| Average Assets | 430,570 | 264,473 | 27,583 | 722,626 |

| (Canadian $ in millions) | Canada | United States | Other countries | Total |
|---|---|---|---|---|
| 2016 | | | | |
| Total Revenue | 12,868 | 6,796 | 1,423 | 21,087 |
| Income before taxes and non-controlling interest in subsidiaries | 3,902 | 1,499 | 331 | 5,732 |
| Reported net income | 3,286 | 1,105 | 240 | 4,631 |
| Average Assets | 420,155 | 260,018 | 26,949 | 707,122 |

Certain comparative figures have been reclassified to conform with the current year's presentation.

# Note 26: Significant Subsidiaries

As at October 31, 2018, the bank, either directly or indirectly through its subsidiaries, controls the following significant operating subsidiaries.

| Significant subsidiaries (1)(2) | Head or principal office | Book value of shares owned by the bank (Canadian $ in millions) |
|---|---|---|
| Bank of Montreal Capital Markets (Holdings) Limited and subsidiaries, including: | London, England | 332 |
| BMO Capital Markets Limited | London, England | |
| Pyrford International Limited | London, England | |
| Bank of Montreal (China) Co. Ltd. | Beijing, China | 448 |
| Bank of Montreal Holding Inc. and subsidiaries, including: | Toronto, Canada | 29,028 |
| Bank of Montreal Mortgage Corporation | Calgary, Canada | |
| BMO Mortgage Corp. | Vancouver, Canada | |
| BMO Investments Limited | Hamilton, Bermuda | |
| BMO Reinsurance Limited | St. Michaels, Barbados | |
| BMO Nesbitt Burns Holdings Corporation | Toronto, Canada | |
| BMO Nesbitt Burns Inc. | Toronto, Canada | |
| BMO Investments Inc. | Toronto, Canada | |
| BMO InvestorLine Inc. | Toronto, Canada | |
| Bank of Montreal Ireland plc | Dublin, Ireland | 1,022 |
| BMO Financial Corp. and subsidiaries, including: | Chicago, United States | 21,893 |
| BMO Asset Management Corp. and subsidiaries | Chicago, United States | |
| BMO Capital Markets Corp. | New York, United States | |
| BMO Harris Bank National Association and subsidiaries, including: | Chicago, United States | |
| BMO Harris Investment Company LLC | Las Vegas, United States | |
| BMO Harris Financial Advisors, Inc. | Chicago, United States | |
| BMO Harris Financing, Inc. and subsidiaries | Chicago, United States | |
| CTC myCFO, LLC | Palo Alto, United States | |
| BMO Global Asset Management (Europe) Limited and subsidiaries, including: | London, England | 692 |
| BMO Asset Management (Holdings) plc and subsidiaries (3) | London, England | |
| BMO Life Insurance Company and subsidiaries, including: | Toronto, Canada | 1,195 |
| BMO Life Holdings (Canada), ULC | Halifax, Canada | |
| BMO Life Assurance Company | Toronto, Canada | |
| BMO Trust Company | Toronto, Canada | 768 |
| BMO Trustee Asia Limited | Hong Kong, China | 2 |
| LGM (Bermuda) Limited and subsidiaries, including: | Hamilton, Bermuda | 147 |
| BMO Global Asset Management (Asia) Limited | Hong Kong, China | |
| LGM Investments Limited | London, England | |

(1) Each subsidiary is incorporated or organized under the laws of the state or country in which the principal office is situated, except for BMO Financial Corp., BMO Asset Management Corp., BMO Capital Markets Corp., BMO Harris Financial Advisors, Inc., BMO Harris Financing, Inc., and CTC myCFO, LLC, which are incorporated under the laws of the state of Delaware, United States. BMO Asset Management (Holdings) plc is incorporated under the laws of Scotland.

(2) Unless otherwise noted, the bank, either directly or indirectly through its subsidiaries, owns 100% of the outstanding voting shares of each subsidiary.

(3) Effective October 31, 2018, F&C Asset Management plc changed its name to BMO Asset Management (Holdings) plc.

## Significant Restrictions

Our ability to transfer funds between our subsidiaries may be restricted by statutory, contractual, capital and regulatory requirements. Restrictions include:

- Assets pledged as security for various liabilities we incur. Refer to Note 24 for details.
- Assets of our consolidated structured entities that are held for the benefit of the note holders. Refer to Note 7 for details.
- Assets held by our insurance subsidiaries. Refer to Note 12 for details.
- Regulatory and statutory requirements that reflect capital and liquidity requirements. Refer to Note 19 for details.
- Funds required to be held with central banks. Refer to Note 2 for details.

# Note 27: Related Party Transactions

Related parties include subsidiaries, associates, joint ventures, employee future benefit plans and key management personnel and their close family members. Close family members include spouses, common-law partners and dependent minors. Transactions with our subsidiaries are eliminated on consolidation, and are not disclosed as related party transactions.

## Key Management Personnel Compensation

Key management personnel is defined as those persons having authority and responsibility for planning, directing and/or controlling the activities of an entity, being the members of our Board of Directors ("directors") and certain senior executives.

The following table presents the compensation of our key management personnel:

| (Canadian $ in millions) | **2018** | 2017 | 2016 |
|---|---|---|---|
| Base salary and incentives | **21** | 23 | 22 |
| Post-employment benefits | **2** | 1 | 2 |
| Share-based payments (1) | **31** | 38 | 32 |
| Total key management personnel compensation | **54** | 62 | 56 |

(1) Amounts included in share-based payments are the fair values of awards granted in the year.

Notes

We offer senior executives market interest rates on credit card balances, a fee-based subsidy on annual credit card fees, and a select suite of customer loan and mortgage products at rates normally accorded to preferred customers. At October 31, 2018, loans to key management personnel totalled $16 million ($10 million in 2017).

Directors receive a specified amount of their annual retainer in deferred stock units. Until a director's shareholdings (including deferred stock units) are eight times greater than their annual retainer, they are required to take 100% of their annual retainer and other fees in the form of either our common shares or deferred stock units. They may elect to receive the remainder of such retainer fees and other remuneration in cash, common shares or deferred stock units.

Directors of our wholly owned subsidiary, BMO Financial Corp., are required to take a specified minimum amount of their annual retainer and other fees in the form of deferred stock units.

### Joint Ventures and Associates

We provide banking services to our joint ventures and associates on the same terms offered to our customers for these services. Our investments in joint ventures of which we own 50% totalled $231 million as at October 31, 2018 ($182 million in 2017). Our investments in associates over which we exert significant influence totalled $471 million as at October 31, 2018 ($444 million in 2017).

The following table presents transactions with our joint ventures and associates:

| (Canadian $ in millions) | **2018** | 2017 |
|---|---|---|
| Loans | **195** | 178 |
| Deposits | **114** | 132 |
| Fees paid for services received | **71** | 66 |

## Note 28: Transition to IFRS 9

The following table shows the pre-transition IAS 39 and corresponding IFRS 9 classification and measurement categories, and reconciles the IAS 39 and IFRS 9 carrying amounts for loans, securities and other financial assets as at November 1, 2017 as a result of adopting IFRS 9. There were no changes to the measurement basis of other financial asset categories or any financial liabilities.

| (Canadian $ in millions) | IAS 39 measurement category | IFRS 9 measurement category | IAS 39 carrying amount | Reclassification | Remeasurement | IFRS 9 carrying amount |
|---|---|---|---|---|---|---|
| **Financial Assets** | | | | | | |
| Securities | | | | | | |
| | Trading | Trading | 99,069 | (8,534) | – | 90,535 |
| | | FVTPL | – | 8,534 | – | 8,534 |
| | Available-for-sale | na | 54,075 | (54,075) | – | – |
| | | FVOCI | – | 51,909 | – | 51,909 |
| | | FVTPL | – | 2,081 | – | 2,081 |
| | | Amortized cost | – | 85 | – | 85 |
| | Held-to-maturity | Amortized cost | 9,094 | – | (2) | 9,092 |
| | Other | Other | 960 | (333) | – | 627 |
| | | FVTPL | – | 333 | – | 333 |
| Total Securities | | | 163,198 | – | (2) | 163,196 |
| Loans | | | | | | |
| Residential mortgages | Amortized cost | Amortized cost | 115,258 | – | – | 115,258 |
| Consumer instalment and other | Amortized cost | Amortized cost | 61,944 | – | – | 61,944 |
| Credit cards | Amortized cost | Amortized cost | 8,071 | – | – | 8,071 |
| Business and government | Amortized cost | Amortized cost | 175,067 | (2,372) | – | 172,695 |
| | | FVTPL | – | 2,372 | – | 2,372 |
| Total Loans | | | 360,340 | – | – | 360,340 |
| Allowance for credit losses | | | (1,833) | – | 154 | (1,679) |
| | | | 358,507 | – | 154 | 358,661 |
| Remaining financial assets (1) | | | 127,706 | – | (6) | 127,700 |
| **Financial Liabilities** | | | | | | |
| Allowance for credit losses on off-balance sheet exposures | | | 163 | – | 76 | 239 |
| **Total pre-tax impact of IFRS 9 adoption** | | | na | – | 70 | na |
| **Total after-tax Accumulated Other Comprehensive Income** | | | 3,066 | (55) | – | 3,011 |
| **Total after-tax Retained Earnings** (2)(3) | | | 23,709 | 55 | 44 | 23,808 |
| **Total after-tax Shareholders' Equity** | | | 44,354 | – | 44 | 44,398 |

(1) Represents cash and cash equivalents, interest bearing deposits with banks, securities borrowed or purchased under resale agreements and other assets. Remeasurement represents the impact of the impairment provisions of IFRS 9 on these remaining financial assets.

(2) Reclassification amount represents the after-tax impact ($105 million pre-tax) that resulted from the reclassification of equity securities from available-for-sale under IAS 39 to fair value through profit or loss under IFRS 9.

(3) Remeasurement represents the after-tax impact ($70 million pre-tax) of the adoption of the impairment provisions of IFRS 9.

na – not applicable due to IFRS 9 adoption.

The securities balances by measurement category following the adoption of IFRS 9 as at November 1, 2017 were:

| (Canadian $ in millions) | November 1, 2017 |
|---|---|
| Trading | 90,535 |
| FVTPL | 10,948 |
| FVOCI | 51,909 |
| Amortized cost | 9,177 |
| Other | 627 |
| Total | 163,196 |

The primary impact as a result of adopting the classification and measurement provisions of IFRS 9 relates to securities held by the bank.

On transition, our existing held-to-maturity securities continued to qualify for amortized cost treatment, as they are held with the intent to collect contractual cash flows and those cash flows represent solely payments of principal and interest.

Our available-for-sale portfolio was reclassified based on the result of the business model and contractual cash flow tests. All available-for-sale securities that represented equity instruments were reclassified as fair value through profit or loss. Available-for-sale securities that represented investments in debt instruments were generally classified as fair value through other comprehensive income. Certain available-for-sale debt securities were classified as fair value through profit or loss, as their contractual cash flows did not represent solely payments of principal and interest. Certain available-for-sale debt securities were classified as amortized cost, as they are held with the intent to collect contractual cash flows and those cash flows represent only payments of principal and interest. On transition, investments held in our merchant banking business are classified as fair value through profit or loss and no longer require designation under the fair value option.

Our lending portfolios continue to be recorded at amortized cost, with the exception of certain business and government loans, whose contractual cash flows did not represent only payments of principal and interest, and were classified as fair value through profit or loss.

The following table illustrates the impact of transition to IFRS 9 on the allowance for credit loss as of November 1, 2017.

| (Canadian $ in millions) | IAS 39 collective allowance | IAS 39 specific allowance | IAS 39 allowance | Remeasurement | IFRS 9 allowance | IFRS 9 Stage 1 | IFRS 9 Stage 2 | IFRS 9 Stage 3 |
|---|---|---|---|---|---|---|---|---|
| Loans | | | | | | | | |
| Residential mortgages | 69 | 24 | **93** | (20) | **73** | 16 | 33 | 24 |
| Consumer instalment and other | 343 | 136 | **479** | 71 | **550** | 70 | 344 | 136 |
| Credit cards | 243 | – | **243** | 41 | **284** | 63 | 221 | – |
| Business and government | 785 | 233 | **1,018** | (246) | **772** | 205 | 334 | 233 |
| Total allowance for credit losses | 1,440 | 393 | **1,833** | (154) | **1,679** | 354 | 932 | 393 |
| Allowance for credit losses on remaining financial assets (1) | – | – | **–** | 8 | **8** | 7 | 1 | – |
| Allowance for credit losses on off-balance sheet exposures | 136 | 27 | **163** | 76 | **239** | 89 | 123 | 27 |
| Total | 1,576 | 420 | **1,996** | (70) | **1,926** | 450 | 1,056 | 420 |

(1) Represents cash and cash equivalents, interest bearing deposits with banks, securities, securities borrowed or purchased under resale agreements and other assets.

## Accounting Policies for Financial Instruments under IAS 39, *Financial Instruments: Recognition and Measurement*

The following accounting policies apply to comparative information for 2017 and 2016 in our consolidated financial statements as we did not restate prior periods on adoption of IFRS 9.

*Classification and Measurement of Securities*

Securities are divided into four types: trading securities designated at FVTPL, available-for-sale securities, held-to-maturity and other securities.

**Trading securities** are securities that we purchase for resale over a short period of time. We classify trading securities and securities designated under the fair value option at fair value through profit or loss.

We record the transaction costs, gains and losses realized on disposal and unrealized gains and losses due to changes in fair value in our Consolidated Statement of Income in trading revenues. Securities designated at FVTPL are financial instruments that are accounted for at fair value, with changes in fair value recorded in income provided they meet certain criteria.

**Available-for-sale securities** consist of debt and equity securities that may be sold in response to or in anticipation of changes in interest rates and resulting prepayment risk, changes in credit risk, changes in foreign currency risk, changes in funding sources or terms, or in order to meet liquidity needs.

Available-for-sale securities are initially recorded at fair value plus transaction costs. They are subsequently measured at fair value, with unrealized gains and losses recorded in unrealized gains (losses) on available-for-sale securities in our Consolidated Statement of Comprehensive Income until the security is sold. Gains and losses on disposal and impairment losses (recoveries) are recorded in our Consolidated Statement of Income in non-interest revenue, securities gains, other than trading. Interest income earned and dividends received on available-for-sale securities are recorded in our Consolidated Statement of Income in interest, dividend and fee income, securities.

**Held-to-maturity securities** are debt securities that we have the intention and ability to hold to maturity and that do not meet the definition of a loan. These securities are initially recorded at fair value plus transaction costs and subsequently measured at amortized cost using the effective interest method. Impairment losses are recorded in our Consolidated Statement of Income in securities gains (losses), other than trading. Interest income earned and amortization of premiums or discounts on these debt securities are recorded in our Consolidated Statement of Income in interest, dividend and fee income, securities.

**Other securities** are investments in companies where we exert significant influence over operating, investing and financing decisions (generally companies in which we own between 20% and 50% of the voting shares). We account for these other securities using the equity method of accounting. Other securities also include certain securities held by our merchant banking business.

*Impairment of Securities*

We review held-to-maturity, available-for-sale and other securities at each quarter-end reporting period to identify and evaluate investments that show indications of possible impairment.

For held-to-maturity, available-for-sale and other securities, impairment losses are recognized if there is objective evidence of impairment as a result of an event that reduces the estimated future cash flows from the security and the impact can be reliably estimated.

We do not record impairment write-downs on debt securities when impairment is due to changes in market interest rates if future contractual cash flows associated with the debt security are still expected to be recovered.

The impairment loss on available-for-sale securities is the difference between the security's amortized cost and its current fair value, less any previously recognized impairment losses. If there is objective evidence of impairment, a write-down is transferred from our Consolidated Statement of Comprehensive Income, unrealized gains (losses) on available-for-sale securities, to our Consolidated Statement of Income in securities gains, other than trading.

The impairment loss on held-to-maturity securities is the difference between a security's carrying amount and the present value of its estimated future cash flows discounted at the original effective interest rate. If there is objective evidence of impairment, a write-down is recorded in our Consolidated Statement of Income in securities gains, other than trading.

For available-for-sale debt securities, a previous impairment loss is reversed through net income if an event occurs after the impairment was recognized that can be objectively attributed to an increase in fair value, to a maximum of the original impairment charge. For available-for-sale equity securities, previous impairment losses are not reversed through net income, and any subsequent increases in fair value are recorded in other comprehensive income. Reversals of impairment losses on held-to-maturity securities are recorded to a maximum of the amortized cost of the investment before the original impairment charge.

*Loans*

Loans are initially measured at fair value plus directly attributable costs, and are subsequently measured at amortized cost using the effective interest method. The effective interest method allocates interest income over the expected term of the loan by applying the effective interest rate to the carrying amount of the loan. The effective interest rate is defined as the rate that exactly discounts future cash receipts through the expected term of the loan to the net carrying amount of the loan. Under the effective interest method, the amount recognized in interest, dividend and fee income, loans, varies over the term of the loan based on the principal outstanding.

*Allowance for Credit Losses*

The allowance for credit losses adjusts the value of loans to reflect their estimated realizable value. In assessing their estimated realizable value, we must rely on estimates and exercise judgment regarding matters for which the ultimate outcome is unknown. These include economic factors, developments affecting companies in particular industries, and specific issues with respect to single borrowers. Changes in circumstances may cause future assessments of credit risk to be materially different from current assessments, which could result in an increase or decrease in the allowance for credit losses.

The allowance is comprised of a specific allowance and a collective allowance.

*Specific Allowance*

These allowances are recorded for individually identified impaired loans to reduce their carrying value to the expected recoverable amount. We review our loans on an ongoing basis to assess whether any loans should be classified as impaired and whether an allowance or write-off should be recorded (excluding credit card loans, which are classified as impaired and written off when principal or interest payments are 180 days past due, as discussed under Impaired Loans). The review of individually significant problem loans is conducted at least quarterly by the account managers, each of whom assesses the ultimate collectability and estimated recoveries for a specific loan based on all events and conditions that are relevant to the loan. This assessment is then reviewed and approved by an independent credit officer.

**Individually Significant Impaired Loans**

To determine the amount we expect to recover from an individually significant impaired loan, we use the value of the estimated future cash flows discounted at the loan's original effective interest rate. The determination of estimated future cash flows of a collateralized impaired loan reflects the expected realization of the underlying security, net of expected costs and any amounts legally required to be paid to the borrower. Security can vary by type of loan and may include cash, securities, real estate properties, accounts receivable, guarantees, inventory or other capital assets.

**Individually Insignificant Impaired Loans**

Residential mortgages, consumer instalment and other personal loans are individually insignificant and may be individually assessed or collectively assessed for losses at the time of impairment, taking into account historical loss experience.

*Collective Allowance*

We maintain a collective allowance in order to cover impairment in the existing portfolio for loans that have not yet been individually identified as impaired. Our approach to establishing and maintaining the collective allowance is based on the requirements of IAS 39, considering guidelines issued by OSFI.

The collective allowance methodology incorporates both quantitative and qualitative factors to determine an appropriate level for the collective allowance. For the purpose of calculating the collective allowance, we group loans on the basis of similarities in credit risk characteristics. The loss factors for groups of loans are determined based on a minimum of five years of historical data and a one-year loss emergence period, except for credit cards, where a seven-month loss emergence period is used. The loss factors are back-tested and calibrated on a regular basis to ensure that they continue to reflect our best estimate of losses that have been incurred but not yet identified, on an individual basis, within the pools of loans. Historical loss experience data is also reviewed in the determination of loss factors. Qualitative factors are based on current observable data, such as current macroeconomic and business conditions, portfolio-specific considerations and model risk factors.