

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 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, 2020, 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, 2020 is set forth on page 144.

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 are 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 1, 2020

Independent Auditors' Report

To the Shareholders of Bank of Montreal

Opinion

We have audited the consolidated financial statements of Bank of Montreal (the Bank), which comprise:

- the consolidated balance sheets as at October 31, 2020 and October 31, 2019
- the consolidated statements of income for each of the years in the three-year period ended October 31, 2020
- the consolidated statements of comprehensive income for each of the years in the three-year period ended October 31, 2020
- the consolidated statements of changes in equity for each of the years in the three-year period ended October 31, 2020
- the consolidated statements of cash flows for each of the years in the three-year period ended October 31, 2020
- and notes to the consolidated financial statements, including a summary of significant accounting policies

(Hereinafter 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, 2020 and October 31, 2019, and its consolidated financial performance and its consolidated cash flows for each of the years in the three-year period ended October 31, 2020 in accordance with International Financial Reporting Standards (IFRS) as issued by the International Accounting Standards Board.

Basis for Opinion

We conducted our audit in accordance with Canadian generally accepted auditing standards. Our responsibilities under those standards are further described in the *Auditors' Responsibilities for the Audit of the Consolidated Financial Statements* section of our auditors' report.

We are independent of the Bank in accordance with the ethical requirements that are relevant to our audit of the consolidated financial statements in Canada and we have fulfilled our other ethical responsibilities in accordance with these requirements.

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

Key Audit Matters

Key audit matters are those matters that, in our professional judgment, were of most significance in our audit of the consolidated financial statements for the year ended October 31, 2020. These matters were addressed in the context of our audit of the consolidated financial statements as a whole, and in forming our opinion thereon, and we do not provide a separate opinion on these matters.

We have determined the matters described below to be the key audit matters to be communicated in our auditors' report.

Assessment of the Allowances for Credit Losses for Loans

Refer to Notes 1 and 4 to the consolidated financial statements.

The Bank's allowance for credit losses (ACL) as at October 31, 2020 was \$3,814 million. The Bank's ACL consists of allowances for impaired loans and allowances for performing loans (APL), both calculated under the IFRS 9 Financial Instruments expected credit losses framework. APL is calculated for each exposure in the loan portfolio as a function of the key modelled inputs being probability of default (PD), exposure at default (EAD) and loss given default (LGD). In establishing APL, the Bank's methodology attaches probability weightings to three economic scenarios, which represent the Bank's judgment about a range of forecast economic variables – a base case scenario being the Bank's view of the most probable outcome, as well as benign and adverse scenarios. Where there has been a significant increase in credit risk, lifetime APL is recorded; otherwise 12 months of APL is generally recorded. The Bank's methodology for determining significant increase in credit risk is based on the change in PD between the origination date and reporting date and is assessed using probability weighted scenarios as well as certain other criteria, such as a 30-day past due and watchlist status. The Bank uses experienced credit judgment (ECJ) to reflect factors not captured in the results produced by the APL models.

We identified the assessment of the ACL for loans as a key audit matter. Significant auditor judgment was required because there was a high degree of measurement uncertainty in the Bank's key modelled inputs, methodology and judgments and their resulting impact on the APL, as described above, including impacts of the COVID-19 pandemic. Assessing the APL also required significant auditor attention and complex auditor judgment to evaluate the results of audit procedures. Further, specialized skills and knowledge, including experience in the industry, were required to apply audit procedures and evaluate the results of those procedures.

The following are the primary procedures we performed to address this key audit matter. We evaluated the design and tested the operating effectiveness of certain internal controls over the Bank's APL process, with the involvement of credit risk, economics, and information technology professionals with specialized skills, industry knowledge and relevant experience. This included internal controls related to (1) monitoring and periodic validation of the models used to derive the key modelled inputs, (2) monitoring of the methodology for identifying significant increase in credit risk, and (3) review of the economic variables, probability weighting of scenarios and ECJ. We also tested the controls over the Bank's APL process related to loan reviews for determination of loan risk grades for wholesale loans. We involved credit risk and economics professionals with specialized skills, industry knowledge and relevant experience, who assisted in evaluating the (1) key modelled inputs and APL methodology including the determination of significant increases in credit risk by evaluating the methodology for compliance with IFRS 9 and re-calculating model monitoring tests in respect of the key modelled inputs and thresholds used for significant increases in credit risk, (2) economic variables and probability weighting of scenarios used in the models by assessing the variables and scenarios against external economic data, and (3) ECJ overlays to the APL used by the Bank by applying our knowledge of the industry and credit judgment to assess management's judgments. For a selection of wholesale loans, we developed an independent estimate of the loan risk grades using the Bank's borrower risk rating scale, and compared that to the Bank's assigned loan risk grade.

Assessment of the Measurement of the Fair Value of Certain Securities

Refer to Notes 1, 3 and 17 to the consolidated financial statements.

The Bank's securities portfolio included \$184,809 million of securities as at October 31, 2020 that are measured at fair value. Included in these amounts are certain securities for which the Bank determines fair value using models and third-party net asset valuations (NAVs) that use significant unobservable market information. Unobservable inputs require the use of significant judgment. Certain of the significant unobservable inputs used in the valuation of such securities are NAVs and prepayment rates.

We identified the assessment of the measurement of the fair value of certain securities as a key audit matter. Significant auditor judgment was required because there was a high degree of measurement uncertainty in the significant unobservable inputs. Significant auditor attention and complex auditor judgment was required to evaluate the results of audit procedures. Further, specialized skills and knowledge, including experience in the industry, were required to apply audit procedures and evaluate the results of those procedures.

The following are the primary procedures we performed to address this key audit matter. We evaluated the design and tested the operating effectiveness of certain internal controls over the Bank's process to determine the fair value of certain securities with the involvement of valuation and information technology professionals with specialized skills, industry knowledge and relevant experience. This included controls related to (1) the assessment of rate sources used in independent price verification, and (2) segregation of duties and access controls. We also evaluated the design and tested the operating effectiveness of the controls related to the 1) review of third-party NAVs, 2) independent price verification, and 3) assessment of fair value hierarchy classification. We tested, with involvement of valuation professionals with specialized skills, industry knowledge and relevant experience, the fair value of a selection of securities, for which prepayment rates are used in valuation, by developing an independent estimate of fair value and comparing it to the fair value determined by the Bank. For a selection of securities, we compared the NAVs to external information.

Assessment of Income Tax Uncertainties

Refer to Notes 1 and 22 to the consolidated financial statements.

In determining the provision for income taxes, the Bank interprets tax legislation, case law and administrative positions, and, based on its judgment, records a provision for an estimate of the amount required to settle tax obligations.

We identified the assessment of income tax uncertainties as a key audit matter. Significant auditor judgment was required because there was a high degree of subjectivity in assessing the need to record a provision, based on interpretation of tax legislation, case law and administrative positions, for these uncertainties and estimating the amount of such provision, if necessary. This required significant auditor attention and complex auditor judgment to evaluate the results of audit procedures. Further, specialized skills and knowledge, including experience in the industry, were required to apply audit procedures and evaluate the results of those audit procedures.

The following are the primary procedures we performed to address this key audit matter. We evaluated the design and tested the operating effectiveness of certain internal controls over the Bank's process for evaluating income tax uncertainties with the involvement of tax professionals with specialized skills, industry knowledge and relevant experience. This included controls related to the 1) identification of tax uncertainties based on interpretation of tax legislation, case law and administrative positions, and 2) determination of the best estimate of the provision required, if any. We involved tax professionals with specialized skills, industry knowledge and relevant experience, who assisted in 1) evaluating, based on their knowledge and experience, the Bank's interpretations of tax legislation, case law and administrative positions and the assessment of certain tax uncertainties and expected outcomes, including, if applicable, the measurement thereof, 2) reading advice obtained by the Bank from external specialists and evaluating its impact on the Bank's provision, if necessary, and 3) reading correspondence with taxation authorities and evaluating its impact on the Bank's provision, if necessary.

Assessment of Insurance-related Liabilities

Refer to Notes 1 and 14 to the consolidated financial statements.

The Bank's insurance-related liabilities as at October 31, 2020 were \$12,441 million. The Bank determines the liabilities for life insurance contracts by applying the Canadian Asset Liability Method for Insurance Contracts, which incorporates best-estimate assumptions. Certain significant assumptions include mortality, policy lapses and future investment yields.

We identified the assessment of insurance-related liabilities as a key audit matter. Significant auditor judgment was required because there was a high degree of measurement uncertainty in the significant assumptions. Significant and complex auditor judgment was required to evaluate the results of audit procedures. Further, specialized skills and knowledge, including experience in the industry, were required to apply audit procedures and evaluate the results of those audit procedures.

The following are the primary procedures we performed to address this key audit matter. With the assistance of actuarial professionals with specialized skills, industry knowledge and relevant experience, we evaluated the design and tested the operating effectiveness of internal control over assessment of the significant assumptions. We involved these actuarial professionals also in testing the significant assumptions by examining the Bank's internal and external experience studies for policy lapses and mortality, and examining management's calculations and comparing certain inputs into the future investment yields to externally available data.

Other Information

Management is responsible for the other information. Other information comprises:

- the information included in Management's Discussion and Analysis filed with the relevant Canadian Securities Commissions.
- the information, other than the consolidated financial statements and the auditors' report thereon, included in a document entitled the "Annual Report".

Our opinion on the consolidated financial statements does not cover the other information and we do not and will not express any form of assurance conclusion thereon.

In connection with our audit of the consolidated financial statements, our responsibility is to read the other information identified above and, in doing so, consider whether the other information is materially inconsistent with the consolidated financial statements or our knowledge obtained in the audit and remain alert for indications that the other information appears to be materially misstated.

We obtained the information included in Management's Discussion and Analysis and the Annual Report filed with the relevant Canadian Securities Commissions as at the date of this auditors' report. If, based on the work we have performed on this other information, we conclude that there is a material misstatement of this other information, we are required to report that fact in the auditors' report. We have nothing to report in this regard.

Responsibilities of Management and Those Charged with Governance for the Consolidated Financial Statements

Management is responsible for the preparation and fair presentation of the consolidated financial statements in accordance with IFRS 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.

In preparing the consolidated financial statements, management is responsible for assessing the Bank's ability to continue as a going concern, disclosing as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the Bank or to cease operations, or has no realistic alternative but to do so.

Those charged with governance are responsible for overseeing the Bank's financial reporting process.

Auditors' Responsibilities for the Audit of the Consolidated Financial Statements

Our objectives are to obtain reasonable assurance about whether the consolidated financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditors' report that includes our opinion.

Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with Canadian generally accepted auditing standards will always detect a material misstatement when it exists.

Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of the consolidated financial statements.

As part of an audit in accordance with Canadian generally accepted auditing standards, we exercise professional judgment and maintain professional skepticism throughout the audit.

We also:

- Identify and assess the risks of material misstatement of the consolidated financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Bank's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Bank's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditors' report to the related disclosures in the consolidated financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditors' report. However, future events or conditions may cause the Bank to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the consolidated financial statements, including the disclosures, and whether the consolidated financial statements represent the underlying transactions and events in a manner that achieves fair presentation.
- Communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.
- Provide those charged with governance with a statement that we have complied with relevant ethical requirements regarding independence, and communicate with them all relationships and other matters that may reasonably be thought to bear on our independence, and where applicable, related safeguards.
- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Bank to express an opinion on the consolidated financial statements. We are responsible for the direction, supervision and performance of the group audit. We remain solely responsible for our audit opinion.
- Determine, from the matters communicated with those charged with governance, those matters that were of most significance in the audit of the consolidated financial statements of the current period and are therefore the key audit matters. We describe these matters in our auditors' report unless law or regulation precludes public disclosure about the matter or when, in extremely rare circumstances, we determine that a matter should not be communicated in our auditors' report because the adverse consequences of doing so would reasonably be expected to outweigh the public interest benefits of such communication.

The logo for KPMG LLP, featuring the letters 'KPMG' in a stylized blue font with a horizontal line underneath, followed by 'LLP' in a smaller blue font.

Chartered Professional Accountants, Licensed Public Accountants

The engagement partner on the audit resulting in this auditors' report is James Edward Newton.

Toronto, Canada

December 1, 2020

Report of Independent Registered Public Accounting Firm

To the Shareholders of Bank of Montreal

Opinion on the Consolidated Financial Statements

We have audited the accompanying consolidated balance sheets of Bank of Montreal (the Bank) as at October 31, 2020 and 2019, 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, 2020, and the related notes (collectively, the consolidated financial statements). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Bank as at October 31, 2020 and 2019, and its financial performance and its cash flows for each of the years in the three-year period ended October 31, 2020, in conformity with International Financial Reporting Standards (IFRS) as issued by the International Accounting Standards Board.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Bank's internal control over financial reporting as of October 31, 2020, based on criteria established in *Internal Control – Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission, and our report dated December 1, 2020 expressed an unqualified opinion on the effectiveness of the Bank's internal control over financial reporting.

Basis for Opinion

These consolidated financial statements are the responsibility of the Bank's management. Our responsibility is to express an opinion on these consolidated financial statements based on our audits. 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.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. We believe that our audits provide a reasonable basis for our opinion.

Critical Audit Matters

The critical audit matters communicated below are matters arising from the current period audit of the consolidated financial statements that were communicated or required to be communicated to the Audit and Conduct Review Committee and that: (1) relate to accounts or disclosures that are material to the consolidated financial statements and (2) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matters below, providing separate opinions on the critical audit matters or on the accounts or disclosures to which they relate.

Assessment of the Allowances for Credit Losses for Loans

As discussed in Notes 1 and 4 to the consolidated financial statements, the Bank's allowance for credit losses (ACL) as at October 31, 2020 was \$3,814 million. The Bank's ACL consists of allowances for impaired loans and allowances for performing loans (APL), both calculated under the IFRS 9 Financial Instruments expected credit losses framework. APL is calculated for each exposure in the loan portfolio as a function of the key modelled inputs being probability of default (PD), exposure at default (EAD) and loss given default (LGD). In establishing APL, the Bank's methodology attaches probability weightings to three economic scenarios, which represent the Bank's judgment about a range of forecast economic variables – a base case scenario being the Bank's view of the most probable outcome, as well as benign and adverse scenarios. Where there has been a significant increase in credit risk, lifetime APL is recorded; otherwise 12 months of APL is generally recorded. The Bank's methodology for determining significant increase in credit risk is based on the change in PD between the origination date and reporting date and is assessed using probability weighted scenarios as well as certain other criteria, such as 30-day past due and watchlist status. The Bank uses experienced credit judgment (ECJ) to reflect factors not captured in the results produced by the APL models.

We identified the assessment of the ACL for loans as a critical audit matter. Significant auditor judgment was required because there was a high degree of measurement uncertainty in the Bank's key modelled inputs, methodology and judgments and their resulting impact on the APL, as described above, including impacts of the COVID-19 pandemic. Assessing the APL also required significant auditor attention and complex auditor judgment to evaluate the results of audit procedures. Further, specialized skills and knowledge, including experience in the industry, were required to apply audit procedures and evaluate the results of those procedures.

The following are the primary procedures we performed to address this critical audit matter. We evaluated the design and tested the operating effectiveness of certain internal controls over the Bank's APL process, with the involvement of credit risk, economics, and information technology professionals with specialized skills, industry knowledge and relevant experience. This included internal controls related to (1) monitoring and periodic validation of the models used to derive the key modelled inputs, (2) monitoring of the methodology for identifying significant increase in credit risk, and (3) review of the economic variables, probability weighting of scenarios and ECJ. We also tested the controls over the Bank's APL process related to loan reviews for determination of loan risk grades for wholesale loans. We involved credit risk and economics professionals with specialized skills, industry knowledge and relevant experience, who assisted in evaluating the (1) key modelled inputs and APL methodology including the determination of significant increases in credit risk by evaluating the methodology for compliance with IFRS 9 and re-calculating model monitoring tests in respect of the key modelled inputs and thresholds used for significant increases in credit risk, (2) economic variables and probability weighting of scenarios used in the models by assessing the variables and scenarios against external economic data, and (3) ECJ overlays

to the APL used by the Bank by applying our knowledge of the industry and credit judgment to assess management's judgments. For a selection of wholesale loans, we developed an independent estimate of the loan risk grades using the Bank's borrower risk rating scale, and compared that to the Bank's assigned loan risk grade.

Assessment of the Measurement of the Fair Value of Certain Securities

As discussed in Notes 1, 3 and 17 to the consolidated financial statements, the Bank's securities portfolio included \$184,809 million of securities as at October 31, 2020 that are measured at fair value. Included in these amounts are certain securities for which the Bank determines fair value using models and third-party net asset valuations (NAVs) that use significant unobservable market information. Unobservable inputs require the use of significant judgment. Certain of the significant unobservable inputs used in the valuation of such securities are NAVs and prepayment rates.

We identified the assessment of the measurement of the fair value of certain securities as a critical audit matter. Significant auditor judgment was required because there was a high degree of measurement uncertainty in the significant unobservable inputs. Significant auditor attention and complex auditor judgment was required to evaluate the results of audit procedures. Further, specialized skills and knowledge, including experience in the industry, were required to apply audit procedures and evaluate the results of those procedures.

The following are the primary procedures we performed to address this critical audit matter. We evaluated the design and tested the operating effectiveness of certain internal controls over the Bank's process to determine the fair value of certain securities with the involvement of valuation and information technology professionals with specialized skills, industry knowledge and relevant experience. This included controls related to (1) the assessment of rate sources used in independent price verification, and (2) segregation of duties and access controls. We also evaluated the design and tested the operating effectiveness of the controls related to the 1) review of third-party NAVs, 2) independent price verification, and 3) assessment of fair value hierarchy classification. We tested, with involvement of valuation professionals with specialized skills, industry knowledge and relevant experience, the fair value of a selection of securities, for which prepayment rates are used in valuation, by developing an independent estimate of fair value and comparing it to the fair value determined by the Bank. For a selection of securities, we compared the NAVs to external information.

Assessment of Income Tax Uncertainties

As discussed in Notes 1 and 22 to the consolidated financial statements, in determining the provision for income taxes, the Bank interprets tax legislation, case law and administrative positions, and, based on its judgment, records a provision for an estimate of the amount required to settle tax obligations.

We identified the assessment of income tax uncertainties as a critical audit matter. Significant auditor judgment was required because there was a high degree of subjectivity in assessing the need to record a provision, based on interpretation of tax legislation, case law and administrative positions, for these uncertainties and estimating the amount of such provision, if necessary. This required significant auditor attention and complex auditor judgment to evaluate the results of audit procedures. Further, specialized skills and knowledge, including experience in the industry, were required to apply audit procedures and evaluate the results of those audit procedures.

The following are the primary procedures we performed to address this critical audit matter. We evaluated the design and tested the operating effectiveness of certain internal controls over the Bank's process for evaluating income tax uncertainties with the involvement of tax professionals with specialized skills, industry knowledge and relevant experience. This included controls related to the 1) identification of tax uncertainties based on interpretation of tax legislation, case law and administrative positions, and 2) determination of the best estimate of the provision required, if any. We involved tax professionals with specialized skills, industry knowledge and relevant experience, who assisted in 1) evaluating, based on their knowledge and experience, the Bank's interpretations of tax legislation, case law and administrative positions and the assessment of certain tax uncertainties and expected outcomes, including, if applicable, the measurement thereof, 2) reading advice obtained by the Bank from external specialists and evaluating its impact on the Bank's provision, if necessary, and 3) reading correspondence with taxation authorities and evaluating its impact on the Bank's provision, if necessary.

Assessment of Insurance-related Liabilities

As discussed in Notes 1 and 14 to the consolidated financial statements, the Bank's insurance-related liabilities as at October 31, 2020 were \$12,441 million. The Bank determines the liabilities for life insurance contracts by applying the Canadian Asset Liability Method for Insurance Contracts, which incorporates best-estimate assumptions. Certain significant assumptions include mortality, policy lapses and future investment yields.

We identified the assessment of insurance-related liabilities as a critical audit matter. Significant auditor judgment was required because there was a high degree of measurement uncertainty in the significant assumptions. Significant and complex auditor judgment was required to evaluate the results of audit procedures. Further, specialized skills and knowledge, including experience in the industry, were required to apply audit procedures and evaluate the results of those audit procedures.

The following are the primary procedures we performed to address this critical audit matter. With the assistance of actuarial professionals with specialized skills, industry knowledge and relevant experience, we evaluated the design and tested the operating effectiveness of internal control over assessment of the significant assumptions. We involved these actuarial professionals also in testing the significant assumptions by examining the Bank's internal and external experience studies for policy lapses and mortality, and examining management's calculations and comparing certain inputs into the future investment yields to externally available data.

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Chartered Professional Accountants, Licensed Public Accountants

We have served as the Bank's auditor since 2004 and as joint auditor for the prior 12 years.

Toronto, Canada
December 1, 2020

Report of Independent Registered Public Accounting Firm

To the Shareholders of Bank of Montreal

Opinion on Internal Control over Financial Reporting

We have audited Bank of Montreal's internal control over financial reporting as of October 31, 2020, 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, Bank of Montreal (the Bank) maintained, in all material respects, effective internal control over financial reporting as of October 31, 2020, based on the criteria established in *Internal Control – Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated balance sheets of the Bank as at October 31, 2020 and 2019, 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, 2020, and the related notes (collectively, the consolidated financial statements) and our report dated December 1, 2020 expressed an 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 121 of Management's Discussion and Analysis. 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.

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.

The logo for KPMG LLP, featuring the letters 'KPMG' in a stylized blue font above 'LLP' in a smaller blue font, with a blue horizontal line underneath.

Chartered Professional Accountants, Licensed Public Accountants

Toronto, Canada

December 1, 2020

Consolidated Statement of Income

For the Year Ended October 31 (Canadian \$ in millions, except as noted)	2020	2019	2018
Interest, Dividend and Fee Income			
Loans	\$ 17,945	\$ 19,824	\$ 16,275
Securities (Note 3) (1)	4,980	5,541	4,119
Deposits with banks	390	787	641
	23,315	26,152	21,035
Interest Expense			
Deposits	6,239	8,616	6,080
Subordinated debt	265	279	226
Other liabilities (Note 14)	2,840	4,369	3,291
	9,344	13,264	9,597
Net Interest Income	13,971	12,888	11,438
Non-Interest Revenue			
Securities commissions and fees	1,036	1,023	1,025
Deposit and payment service charges	1,221	1,204	1,134
Trading revenues (Note 17)	15	298	705
Lending fees	1,295	1,192	997
Card fees	358	437	428
Investment management and custodial fees	1,807	1,747	1,749
Mutual fund revenues	1,417	1,419	1,473
Underwriting and advisory fees	1,070	975	943
Securities gains, other than trading (Note 3)	124	249	239
Foreign exchange gains, other than trading	127	166	182
Insurance revenue	2,178	3,183	1,879
Investments in associates and joint ventures	161	151	167
Other	406	551	546
	11,215	12,595	11,467
Total Revenue	25,186	25,483	22,905
Provision for Credit Losses (Note 4)	2,953	872	662
Insurance Claims, Commissions and Changes in Policy Benefit Liabilities (Note 14)	1,708	2,709	1,352
Non-Interest Expense			
Employee compensation (Notes 20 and 21)	7,944	8,423	7,461
Premises and equipment (Note 9)	3,202	2,988	2,753
Amortization of intangible assets (Note 11)	620	554	503
Travel and business development	384	545	519
Communications	304	296	282
Professional fees	555	568	572
Other	1,168	1,256	1,387
	14,177	14,630	13,477
Income Before Provision for Income Taxes	6,348	7,272	7,414
Provision for income taxes (Note 22)	1,251	1,514	1,961
Net Income	\$ 5,097	\$ 5,758	\$ 5,453
Earnings Per Common Share (Canadian \$) (Note 23)			
Basic	\$ 7.56	\$ 8.68	\$ 8.19
Diluted	7.55	8.66	8.17
Dividends per common share	4.24	4.06	3.78

(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 \$1,532 million for the year ended October 31, 2020 (\$1,853 million for the year ended October 31, 2019 and \$1,290 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)	2020	2019	2018
Net Income	\$ 5,097	\$ 5,758	\$ 5,453
Other Comprehensive Income (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 debt securities			
Unrealized gains (losses) on fair value through OCI debt securities arising during the year	410	412	(251)
Reclassification to earnings of (gains) in the year	(81)	(72)	(65)
	329	340	(316)
Net change in unrealized gains (losses) on cash flow hedges			
Gains (losses) on derivatives designated as cash flow hedges arising during the year	1,513	1,444	(1,228)
Reclassification to earnings of (gains) losses on derivatives designated as cash flow hedges	(47)	143	336
	1,466	1,587	(892)
Net gains (losses) on translation of net foreign operations			
Unrealized gains (losses) on translation of net foreign operations	373	(11)	417
Unrealized (losses) on hedges of net foreign operations	(96)	(13)	(155)
	277	(24)	262
Items that will not be reclassified to net income			
Gains (losses) on remeasurement of pension and other employee future benefit plans	(255)	(552)	261
Gains (losses) on remeasurement of own credit risk on financial liabilities designated at fair value	(28)	75	(24)
Unrealized gains on fair value through OCI equity securities arising during the year	-	1	-
	(283)	(476)	237
Other Comprehensive Income (Loss), net of taxes (Note 22)	1,789	1,427	(709)
Total Comprehensive Income	\$ 6,886	\$ 7,185	\$ 4,744

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

Consolidated Balance Sheet

As at October 31 (Canadian \$ in millions)	2020	2019
Assets		
Cash and Cash Equivalents (Note 2)	\$ 57,408	\$ 48,803
Interest Bearing Deposits with Banks (Note 2)	9,035	7,987
Securities (Note 3)		
Trading	97,834	85,903
Fair value through profit or loss	13,568	13,704
Fair value through other comprehensive income	73,407	64,515
Debt securities at amortized cost	48,466	24,472
Investments in associates and joint ventures	985	844
	234,260	189,438
Securities Borrowed or Purchased Under Resale Agreements (Note 4)	111,878	104,004
Loans (Notes 4 and 6)		
Residential mortgages	127,024	123,740
Consumer instalment and other personal	70,148	67,736
Credit cards	7,889	8,859
Business and government	243,246	227,609
	448,307	427,944
Allowance for credit losses (Note 4)	(3,303)	(1,850)
	445,004	426,094
Other Assets		
Derivative instruments (Note 8)	36,815	22,144
Customers' liability under acceptances (Note 12)	13,493	23,593
Premises and equipment (Notes 1 and 9)	4,183	2,055
Goodwill (Note 11)	6,535	6,340
Intangible assets (Note 11)	2,442	2,424
Current tax assets	1,260	1,165
Deferred tax assets (Note 22)	1,473	1,568
Other (Note 12)	25,475	16,580
	91,676	75,869
Total Assets	\$ 949,261	\$ 852,195
Liabilities and Equity		
Deposits (Note 13)	\$ 659,034	\$ 568,143
Other Liabilities		
Derivative instruments (Note 8)	30,375	23,598
Acceptances (Note 14)	13,493	23,593
Securities sold but not yet purchased (Note 14)	29,376	26,253
Securities lent or sold under repurchase agreements (Note 6)	88,658	86,656
Securitization and structured entities' liabilities (Notes 6 and 7)	26,889	27,159
Current tax liabilities	126	55
Deferred tax liabilities (Note 22)	108	60
Other (Notes 1 and 14)	36,193	38,607
	225,218	225,981
Subordinated Debt (Note 15)	8,416	6,995
Equity		
Preferred shares and other equity instruments (Note 16)	6,598	5,348
Common shares (Note 16)	13,430	12,971
Contributed surplus	302	303
Retained earnings (Note 1)	30,745	28,725
Accumulated other comprehensive income	5,518	3,729
Total Equity	56,593	51,076
Total Liabilities and Equity	\$ 949,261	\$ 852,195

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

Consolidated Statement of Changes in Equity

For the Year Ended October 31 (Canadian \$ in millions)	2020	2019	2018
Preferred Shares and Other Equity Instruments (Note 16)			
Balance at beginning of year	\$ 5,348	\$ 4,340	\$ 4,240
Issued during the year	1,250	1,008	400
Redeemed during the year	-	-	(300)
Balance at End of Year	6,598	5,348	4,340
Common Shares (Note 16)			
Balance at beginning of year	12,971	12,929	13,032
Issued under the Shareholder Dividend Reinvestment and Share Purchase Plan	471	-	-
Issued under the Stock Option Plan	40	62	99
Repurchased for cancellation or for treasury shares	(52)	(20)	(202)
Balance at End of Year	13,430	12,971	12,929
Contributed Surplus			
Balance at beginning of year	303	300	307
Stock option expense, net of options exercised (Note 20)	(1)	-	(12)
Other	-	3	5
Balance at End of Year	302	303	300
Retained Earnings			
Balance at beginning of year	28,725	25,850	23,700
Impact from adopting IFRS 16 (Note 1)	(59)	na	na
Impact from adopting IFRS 9 (Note 1)	na	na	99
Net income	5,097	5,758	5,453
Dividends on preferred shares and distributions payable on other equity instruments (Note 16)	(247)	(211)	(184)
Dividends on common shares (Note 16)	(2,723)	(2,594)	(2,424)
Equity issue expense	(3)	(8)	(5)
Common shares repurchased for cancellation (Note 16)	-	(70)	(789)
Net discount on sale of treasury shares	(45)	-	-
Balance at End of Year	30,745	28,725	25,850
Accumulated Other Comprehensive Income (Loss) on Fair Value through OCI Securities, net of taxes (Note 22)			
Balance at beginning of year	26	(315)	56
Impact from adopting IFRS 9 (Note 1)	na	na	(55)
Unrealized gains (losses) on fair value through OCI debt securities arising during the year	410	412	(251)
Unrealized gains on fair value through OCI equity securities arising during the year	-	1	-
Reclassification to earnings of (gains) during the year	(81)	(72)	(65)
Balance at End of Year	355	26	(315)
Accumulated Other Comprehensive Income (Loss) on Cash Flow Hedges, net of taxes (Note 22)			
Balance at beginning of year	513	(1,074)	(182)
Gains (losses) on derivatives designated as cash flow hedges arising during the year (Note 8)	1,513	1,444	(1,228)
Reclassification to earnings of (gains) losses on derivatives designated as cash flow hedges in the year	(47)	143	336
Balance at End of Year	1,979	513	(1,074)
Accumulated Other Comprehensive Income on Translation of Net Foreign Operations, net of taxes (Note 22)			
Balance at beginning of year	3,703	3,727	3,465
Unrealized gains (losses) on translation of net foreign operations	373	(11)	417
Unrealized (losses) on hedges of net foreign operations	(96)	(13)	(155)
Balance at End of Year	3,980	3,703	3,727
Accumulated Other Comprehensive Income (Loss) on Pension and Other Employee Future Benefit Plans, net of taxes (Note 22)			
Balance at beginning of year	(383)	169	(92)
Gains (losses) on remeasurement of pension and other employee future benefit plans (Note 21)	(255)	(552)	261
Balance at End of Year	(638)	(383)	169
Accumulated Other Comprehensive (Loss) on Own Credit Risk on Financial Liabilities Designated at Fair Value, net of taxes (Note 22)			
Balance at beginning of year	(130)	(205)	(181)
Gains (losses) on remeasurement of own credit risk on financial liabilities designated at fair value	(28)	75	(24)
Balance at End of Year	(158)	(130)	(205)
Total Accumulated Other Comprehensive Income	5,518	3,729	2,302
Total Equity	\$ 56,593	\$ 51,076	\$ 45,721

na - not applicable due to IFRS 9 adoption on November 1, 2017 or IFRS 16 adoption on November 1, 2019.

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)	2020	2019	2018
Cash Flows from Operating Activities			
Net Income	\$ 5,097	\$ 5,758	\$ 5,453
Adjustments to determine net cash flows provided by (used in) operating activities			
Provision on securities, other than trading (Note 3)	2	1	1
Net (gain) on securities, other than trading (Note 3)	(126)	(250)	(240)
Net (increase) decrease in trading securities	(10,276)	13,816	(2,650)
Provision for credit losses (Note 4)	2,953	872	662
Change in derivative instruments – (Increase) decrease in derivative asset	(12,229)	6,902	6,069
– Increase (decrease) in derivative liability	5,614	(3,774)	(7,481)
Amortization of premises and equipment (Note 9)	801	435	400
Amortization of other assets	197	216	224
Amortization of intangible assets (Note 11)	620	554	503
Net decrease in deferred income tax asset (Note 22)	111	483	832
Net increase (decrease) in deferred income tax liability (Note 22)	26	(15)	2
Net (increase) decrease in current income tax asset	(55)	354	(232)
Net increase (decrease) in current income tax liability	62	6	(87)
Change in accrued interest – (Increase) decrease in interest receivable	178	(299)	(366)
– Increase (decrease) in interest payable	(352)	313	337
Changes in other items and accruals, net	(6,022)	(1,255)	2,078
Net increase in deposits	88,341	48,009	34,138
Net (increase) in loans	(20,420)	(43,381)	(23,089)
Net increase (decrease) in securities sold but not yet purchased	2,972	(2,524)	2,004
Net increase in securities lent or sold under repurchase agreements	824	20,358	452
Net (increase) in securities borrowed or purchased under resale agreements	(7,104)	(19,396)	(2,958)
Net increase (decrease) in securitization and structured entities' liabilities	(378)	2,120	1,860
Net Cash Provided by Operating Activities	50,836	29,303	17,912
Cash Flows from Financing Activities			
Net increase (decrease) in liabilities of subsidiaries	(8,113)	(1,227)	2,203
Proceeds from issuance of covered bonds (Note 13)	4,425	4,168	2,706
Redemption/buyback of covered bonds (Note 13)	(6,231)	(3,765)	(567)
Proceeds from issuance of subordinated debt (Note 15)	1,250	1,000	2,685
Repayment of subordinated debt (Note 15)	–	(1,000)	(900)
Proceeds from issuance of preferred shares and other equity instruments net of issuance cost (Note 16)	1,247	1,000	395
Redemption of preferred shares (Note 16)	–	–	(300)
Net proceeds from issuance (repurchase) of common shares and sale (purchase) of treasury shares	(76)	54	88
Common shares repurchased for cancellation (Note 16)	–	(90)	(991)
Cash dividends and distributions paid	(2,475)	(2,752)	(2,582)
Repayment of lease liabilities (1)	(331)	na	na
Net Cash Provided by (Used in) Financing Activities	(10,304)	(2,612)	2,737
Cash Flows from Investing Activities			
Net (increase) decrease in interest bearing deposits with banks	(979)	329	(1,648)
Purchases of securities, other than trading	(86,659)	(63,496)	(46,749)
Maturities of securities, other than trading	19,982	13,154	14,754
Proceeds from sales of securities, other than trading	36,900	31,561	23,561
Premises and equipment – net (purchases) (Note 9)	(399)	(478)	(330)
Purchased and developed software – net (purchases) (Note 11)	(633)	(650)	(556)
Acquisitions (Note 10)	(186)	–	(365)
Net Cash (Used in) Investing Activities	(31,974)	(19,580)	(11,333)
Effect of Exchange Rate Changes on Cash and Cash Equivalents	47	(450)	227
Net increase in Cash and Cash Equivalents	8,605	6,661	9,543
Cash and Cash Equivalents at Beginning of Year	48,803	42,142	32,599
Cash and Cash Equivalents at End of Year (Note 2)	\$ 57,408	\$ 48,803	\$ 42,142
Supplemental Disclosure of Cash Flow Information			
Net cash provided by operating activities includes:			
Interest paid in the year (2)	\$ 9,679	\$ 12,956	\$ 9,249
Income taxes paid in the year	\$ 1,537	\$ 1,209	\$ 1,261
Interest received in the year	\$ 21,576	\$ 23,966	\$ 18,867
Dividends received in the year	\$ 1,856	\$ 1,740	\$ 1,736

(1) Prior to adoption of IFRS 16, repayments of lease liabilities were included in Net Cash Provided by Operating Activities.

(2) Includes dividends paid on securities sold but not yet purchased.

na – not applicable.

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 or BMO) 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. Our 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 of 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 1, 2020.

Basis of Consolidation

These consolidated financial statements are inclusive of the financial statements of our subsidiaries as at October 31, 2020. 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 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, which are 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. Additional information regarding accounting for investments in associates and joint ventures is included in Note 3.

Significant 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:

Note	Topic	Page	Note	Topic	Page
1	Basis of Presentation	150	16	Equity	184
2	Cash and Interest Bearing Deposits with Banks	155	17	Fair Value of Financial Instruments and Trading-Related Revenue	186
3	Securities	155	18	Offsetting of Financial Assets and Financial Liabilities	194
4	Loans and Allowance for Credit Losses	159	19	Capital Management	194
5	Risk Management	164	20	Employee Compensation – Share-Based Compensation	195
6	Transfer of Assets	165	21	Employee Compensation – Pension and Other Employee Future Benefits	197
7	Structured Entities	166	22	Income Taxes	201
8	Derivative Instruments	168	23	Earnings Per Share	204
9	Premises and Equipment	177	24	Commitments, Guarantees, Pledged Assets, Provisions and Contingent Liabilities	204
10	Acquisitions	178	25	Operating and Geographic Segmentation	207
11	Goodwill and Intangible Assets	178	26	Significant Subsidiaries	210
12	Other Assets	180	27	Related Party Transactions	211
13	Deposits	180			
14	Other Liabilities	181			
15	Subordinated Debt	183			

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 gains (losses) 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 gains, 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 when account maintenance and cash management services are provided, or at a point in time 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 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 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.

Refer to Note 9 for our policy on lessee accounting.

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

Leases

Effective November 1, 2019, we adopted IFRS 16 *Leases* (IFRS 16) whereby lessees are required to recognize a liability for the present value of future lease payments and record a corresponding asset on the balance sheet for most leases. There were minimal changes to the accounting from the lessor's perspective.

The main impact for the bank is recording leases related to real estate on the balance sheet. Previously, most of our real estate leases were classified as operating leases, whereby we recorded the lease expense over the lease term with no asset or liability recorded on the balance sheet other than related leasehold improvements.

On transition, we calculated the right-of-use asset as if we had always applied IFRS 16 for a selection of leases and for the remaining leases, we set the right-of-use asset equal to the lease liability. We will continue to record lease expense for low dollar value leases over the lease term with no corresponding right-of-use asset or lease liability. In addition, we combined lease and non-lease components (for example maintenance and utilities that have fixed payments) in the calculation of right-of-use assets and lease liabilities when applicable. We elected to exclude intangibles from the scope of lease accounting.

On transition, we recognized the cumulative effect of adopting IFRS 16 in opening retained earnings as at November 1, 2019 with no changes to prior periods. The impact to the Consolidated Balance Sheet as at November 1, 2019 was an increase in premises and equipment of \$1,965 million, an increase in other liabilities of \$2,024 million, and a decrease in retained earnings of \$80 million (\$59 million after tax).

The following table sets out a reconciliation of our operating lease commitments, as disclosed under IAS 17 *Leases* as at October 31, 2019, which were used to derive the lease liabilities as at November 1, 2019.

(Canadian \$ in millions)	November 1, 2019
Operating lease commitments at October 31, 2019 as disclosed in our consolidated financial statements	3,800
Discounted using the incremental borrowing rate at November 1, 2019	(310)
Finance lease liabilities recognized as at October 31, 2019	41
Exemption for low-value asset leases	(13)
Extension and termination options reasonably certain to be exercised	37
Executory costs not included in the lease liability	(166)
Leases signed but not yet started	(1,222)
Lease liabilities recognized at November 1, 2019	2,167

When measuring lease liabilities, we discounted lease payments using our incremental borrowing rate at November 1, 2019. The weighted-average rate applied was 2.52%.

Uncertainty Over Income Tax Treatments

Effective November 1, 2019, we adopted IFRIC 23 *Uncertainty Over Income Tax Treatments*. The interpretation clarifies the recognition and measurement requirements in IAS 12 *Income Taxes* when there is uncertainty over income tax treatments. The interpretation had no impact on our financial results on adoption.

Interbank Offered Rate (IBOR) Reform – Phase 1 Amendments

Under IBOR reform, certain benchmark rates may be subject to discontinuance, changes in methodology, increased volatility or decreased liquidity during the transition from IBORs to alternative rates. Banks will cease rate submissions for the calculation of the London Interbank Offered Rates (LIBOR) after December 31, 2021.

Effective November 1, 2019, we early adopted the IASB's Phase 1 amendments to IAS 39 *Financial instruments: recognition and measurement* (IAS 39) and IFRS 7 *Financial instruments: disclosures* (IFRS 7), which provide hedge accounting relief from the uncertainty arising from IBOR reform during the period prior to replacement of IBORs. These amendments modify certain hedge accounting requirements, allowing us to assume the interest rate benchmark which are the basis for cash flows of the hedged item and the hedging instrument are not altered as a result of IBOR reform, thereby allowing hedge accounting to continue. They also provide an exception from the requirement to discontinue hedge accounting if a hedging relationship does not meet the effectiveness requirements solely as a result of IBOR reform.

Application of these amendments will end at the earlier of the discontinuation of the impacted hedge relationship and when there is no longer uncertainty arising from IBOR reform over the timing and amount of IBOR-based cash flows.

In order to manage the transition from IBORs to alternative rates, our enterprise-wide IBOR Transition Office is evaluating potential changes to market infrastructures on our risk framework, models, systems and processes, and reviewing legal documents to ensure the bank is prepared prior to the cessation of IBORs. We will apply judgment with respect to the need for new or revised hedging relationships; however, given market uncertainty, the assessment of the impact on the bank's hedging relationships and its mitigation plans are still in progress. The notional amount of the derivatives likely subject to IBOR reform designated as hedging instruments that mature after December 31, 2021 on adoption of the Phase 1 amendments as at November 1, 2019 was \$85,727 million of USD LIBOR and \$759 million of GBP LIBOR. The notional amount excludes derivatives referencing interest rate benchmarks in multi-rate jurisdictions, including the Canadian Dollar Offered Rate and Euro Interbank Offered Rate. We provide disclosure on our current hedging relationships and the notional amount of derivatives likely subject to IBOR reform in Note 8.

Revenue

Effective November 1, 2018, we adopted IFRS 15 *Revenue from Contracts with Customers* (IFRS 15). We elected to retrospectively present prior periods as if IFRS 15 had always been applied. Under IFRS 15, the primary impact is the reclassification of amounts within the Consolidated Statement of Income. As a result, loyalty rewards and cash promotion costs on cards previously recorded in non-interest expense are presented as a reduction in non-interest revenue. In addition, when customers reimburse us for certain out-of-pocket expenses incurred on their behalf, we now record the reimbursement in non-interest revenue. Previously, these reimbursements were recorded as a reduction in the related expense. There is minimal impact to net income as IFRS 15 does not require discounting of loyalty reward liabilities and we now amortize the costs to obtain card customers, which were previously expensed as incurred.

The following table summarizes the impacts of applying IFRS 15 in our 2018 Consolidated Statement of Income:

(Canadian \$ in millions)	2018
Increase (decrease) in	
Non-Interest Revenue	
Securities commissions and fees	(4)
Deposit and payment service charges	(10)
Card fees	(136)
Investment management and custodial fees	7
Underwriting and advisory fees	7
Other	4
	(132)
Non-Interest Expense	
Employee compensation	2
Travel and business development	(154)
Professional fees	8
Other	8
	(136)
Provision for income taxes	1
Net Income	3

Financial Instruments

Effective November 1, 2017, we adopted IFRS 9 *Financial Instruments* (IFRS 9), which replaced IAS 39 *Financial Instruments: Recognition and Measurement* (IAS 39). IFRS 9 addresses impairment, classification and measurement, and hedge accounting. The impact to equity at November 1, 2017 was an increase of \$70 million (\$44 million after tax) related to the impairment requirements of the standard.

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 and judgments include the allowance for credit losses; financial instruments measured at fair value; pension and other employee future benefits; impairment of securities; income taxes and deferred tax assets; goodwill and intangible assets; insurance-related liabilities; provisions, including legal proceedings and restructuring charges; and leases. We make judgments in assessing the business model for financial assets as well as 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.

The full extent of the impact that COVID-19, including government and regulatory responses to the outbreak, will have on the Canadian and U.S. economies and the bank's business remains uncertain and difficult to predict at this time. By their very nature, the judgments and estimates we make for the purposes of preparing our financial statements relate to matters that are inherently uncertain. However, we have detailed policies and internal controls that are intended to ensure that these judgments and estimates are well controlled and independently reviewed, and that our policies are consistently applied from period to period. We believe that our estimates of the value of our assets and liabilities are appropriate as at October 31, 2020.

Allowance for Credit Losses

The expected credit loss (ECL) model requires the recognition of credit losses generally based on 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 bank's methodology for determining significant increase in credit risk is based on the change in probability of default (PD) between origination and reporting date, assessed using probability weighted scenarios as well as 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. In cases where borrowers have opted to participate in payment deferral programs we offered in response to the COVID-19 pandemic, deferred payments are not considered to be past due and do not on their own indicate a significant increase in credit risk, consistent with OSFI guidance.

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 (U.S.) 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 Note 4.

Financial Instruments Measured at Fair Value

Fair value measurement techniques are used to value various financial assets and financial liabilities, and are also used in performing impairment testing on certain non-financial assets.

Additional information regarding our fair value measurement techniques is included in Note 17.

Pension and Other Employee Future Benefits

Our pension and other employee future benefit 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 benefit 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 investments in associates and joint ventures 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 investments in associates and joint ventures, 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 and assumptions differ from those of tax 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 or unused tax losses and tax credits may be utilized. We are required to assess whether it is probable that our deferred income tax assets will be realized. 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 remaining expiration period of tax loss carryforwards and tax credits. 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 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

A provision, including for legal proceedings and restructuring charges, is recognized if, as a result of a past event, the bank has a present legal or constructive obligation that can be estimated reliably, and it is probable that an outflow of economic benefits will be required to settle the obligation. Provisions are recorded at the best estimate of the amounts required to settle the obligation as at the balance sheet date, taking into account the risks and uncertainties associated with the obligation. Management and external experts are involved in estimating any provision, as necessary. The actual costs of settling some obligations may be substantially higher or lower than the amounts of the provisions.

Additional information regarding provisions is included in Note 24.

Transfer of Assets and Consolidation of Structured Entities

We enter into transactions in which we transfer assets, typically mortgage loans, mortgage-backed securities, and credit card loans, to a structured entity or third party to obtain alternate sources of funding or as part of our trading activities. We assess whether substantially all of the risks and rewards of or control over the assets have been transferred to determine if they qualify for derecognition. Where we continue to be exposed to substantially all of the repayment, interest rate and/or credit risk associated with the securitized assets, they do not qualify for derecognition. We continue to recognize the assets 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.

Leases

We enter into leases as a lessee for which we recognize a lease liability and a corresponding right-of-use asset. In calculating our lease liability and corresponding right-of-use asset, we assess whether a contract is a lease by determining if we have the right to control the asset based on our ability to make decisions or direct how and for what purpose the asset is used. We evaluate the lease term based on the terms of the lease contract, including any extension or termination options that we are reasonably certain to exercise based on the economic rationale underlying the decision. We make estimates in determining the incremental borrowing rate that is used to discount lease liabilities, based on our expected costs of secured borrowing for the lease term.

Future Changes in IFRS

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.

Insurance Contracts

In June 2020, the IASB issued amendments to IFRS 17 *Insurance Contracts* (IFRS 17), which included a deferral of the effective date, resulting in a new adoption date for the bank of November 1, 2023 instead of November 1, 2022. The amendments also simplify some requirements, such as excluding certain credit cards from the scope of IFRS 17 and providing a policy choice to exclude certain loan contracts from IFRS 17, allowing us to continue accounting for them as we do today. We continue to assess the impact of the standard on our future financial results.

IBOR Reform – Phase 2 amendments

In August 2020, the IASB published Phase 2 of its amendments to IFRS 9, IAS 39, IFRS 7, IFRS 4 *Insurance Contracts* as well as IFRS 16. While the Phase 1 amendments addressed the uncertainty that could arise in the period before IBOR transition, the Phase 2 amendments address issues that arise from implementation of IBOR reform, where IBOR are replaced with alternative benchmark rates.

For financial instruments at amortized cost, the amendments introduce a practical expedient such that if a change in the contractual cash flows is as a result of IBOR reform and occurs on an economically equivalent basis, the change will be accounted for by updating the effective interest rate with no immediate gain or loss recognized. The amendments also provide additional temporary relief from applying specific IAS 39 hedge accounting requirements to hedging relationships affected by IBOR reform. For example, there is an exception from the requirement to discontinue hedge accounting as a result of changes to hedge documentation required solely by IBOR reform. The amendments also require additional disclosure that allow users to understand the effect of IBOR reform on the bank's financial instruments and risk management strategy.

The Phase 2 amendments are effective for our fiscal year beginning November 1, 2021 with early adoption permitted. We are in the process of assessing the impact of these amendments on contracts in scope, including our IBOR-based financial instruments and hedge relationships.

Note 2: Cash and Interest Bearing Deposits with Banks

Cash and Cash Equivalents

(Canadian \$ in millions)	2020	2019
Cash and deposits with banks (1)	55,926	47,598
Cheques and other items in transit, net	1,482	1,205
Total cash and cash equivalents	57,408	48,803

(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 \$111 million as at October 31, 2020 (\$1,895 million in 2019).

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, 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 at 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 of \$11,148 million as at October 31, 2020 (\$10,805 million as at October 31, 2019) is recorded in securities in our Consolidated Balance Sheet. The impact of recording these investments at fair value through profit or loss was an increase of \$281 million in non-interest revenue, insurance revenue, for the year ended October 31, 2020 (increase of \$1,006 million and a decrease of \$372 million for the years ended October 31, 2019 and 2018, respectively).

Securities Mandatorily Measured at FVTPL

Securities managed on a fair value basis, but not held for trading, or debt securities with cash flows that do not represent solely payments of principal and interest and equity securities not held for trading or designated at FVOCI are classified as FVTPL. The fair value of these investments of \$2,420 million as at October 31, 2020 (\$2,899 million as at October 31, 2019) is recorded in securities in our Consolidated Balance Sheet.

Debt securities 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 are subsequently measured at amortized cost using the effective interest method. Impairment losses (recoveries) are recorded in our Consolidated Statement of Income in non-interest revenue, 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 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 any resulting prepayment risk, changes in credit risk, changes in foreign currency risk or changes in funding sources or terms, or in order 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 at FVOCI are equity securities for which 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.

Investments in associates and joint ventures are accounted using the equity method of accounting. Investments in associates are those where we exert significant influence over operating and financing decisions; generally companies in which we own between 20% and 50% of the voting shares. Investments in joint ventures are where we have joint control. Our share of the net income or loss, including any impairment losses, are recorded in investments in associates and joint ventures in our Consolidated Statement of Income. Any other comprehensive income amounts are reflected in the relevant sections 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 at amortized cost or FVOCI are assessed for impairment using the ECL model, with the exception of those determined to have low credit risk, where the allowance for credit losses is measured at a 12-month expected credit loss. A debt security is considered to have low credit risk if it 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.

Debt securities at amortized cost totalling \$48,466 million as at October 31, 2020 (\$24,472 million as at October 31, 2019) are net of allowances for credit losses of \$1 million as at October 31, 2020 (\$1 million as at October 31, 2019).

Debt securities at FVOCI totalling \$73,314 million as at October 31, 2020 (\$64,434 million as at October 31, 2019) are net of allowances for credit losses of \$4 million as at October 31, 2020 (\$2 million as at October 31, 2019).

Fair Value Measurement

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. Where market quotes are not available, we use estimation techniques to determine fair value. Additional information regarding fair value measurement techniques is included in Note 17.

Remaining Term to Maturity of Securities

The following table shows the remaining term to maturities of securities.

	Term to maturity						2020	2019
	Within 1 year	1 to 3 years	3 to 5 years	5 to 10 years	Over 10 years	No maturity	Total	Total
(Canadian \$ in millions, except as noted)								
Trading Securities								
Issued or guaranteed by:								
Canadian federal government	1,658	2,502	2,727	2,739	1,274	-	10,900	8,330
Canadian provincial and municipal governments	1,768	1,063	678	1,153	3,673	-	8,335	7,527
U.S. federal government	1,403	2,560	1,981	2,253	221	-	8,418	8,763
U.S. states, municipalities and agencies	127	110	32	186	48	-	503	674
Other governments	1,156	500	481	246	133	-	2,516	1,585
NHA MBS, U.S. agency MBS and CMO (1)	95	186	138	183	11,695	-	12,297	11,046
Corporate debt	2,982	1,438	2,390	2,276	1,955	-	11,041	7,718
Trading loans	-	6	36	25	-	-	67	103
Corporate equity	-	-	-	-	-	43,757	43,757	40,157
Total trading securities	9,189	8,365	8,463	9,061	18,999	43,757	97,834	85,903
FVTPL Securities								
Issued or guaranteed by:								
Canadian federal government	438	30	3	10	120	-	601	517
Canadian provincial and municipal governments	10	58	11	62	1,288	-	1,429	1,279
U.S. federal government	44	-	-	-	-	-	44	48
Other governments	-	42	52	-	-	-	94	49
NHA MBS, U.S. agency MBS and CMO (1)	1	2	-	-	-	-	3	5
Corporate debt	205	92	279	949	6,372	-	7,897	8,217
Corporate equity	-	-	-	-	-	3,500	3,500	3,589
Total FVTPL securities	698	224	345	1,021	7,780	3,500	13,568	13,704
FVOCI Securities								
Issued or guaranteed by:								
Canadian federal government	9,002	6,299	6,481	458	-	-	22,240	11,876
Amortized cost	9,014	6,363	6,590	483	-	-	22,450	11,944
Fair value	1.20	1.63	1.54	1.99	-	-	1.44	1.72
Yield (%)	1,723	1,078	1,298	529	-	-	4,628	5,907
Canadian provincial and municipal governments	1,727	1,111	1,356	553	-	-	4,747	6,012
Amortized cost	0.43	2.06	2.14	1.89	-	-	1.46	2.34
Fair value	1,723	1,078	1,298	529	-	-	4,628	5,907
Yield (%)	908	3,494	4,644	7,835	-	-	16,881	15,363
U.S. federal government	915	3,644	5,079	8,056	-	-	17,694	15,975
Amortized cost	1.45	2.18	2.52	1.09	-	-	1.73	2.42
Fair value	592	1,202	1,085	1,162	1,091	-	5,132	4,091
Yield (%)	597	1,238	1,128	1,211	1,102	-	5,276	4,161
U.S. states, municipalities and agencies	1.98	2.28	2.00	2.15	1.35	-	1.96	2.58
Other governments	1,997	3,149	1,714	362	-	-	7,222	7,179
Amortized cost	2,008	3,251	1,763	359	-	-	7,381	7,335
Fair value	1.20	2.13	1.28	1.34	-	-	1.63	2.38
Yield (%)	15	615	953	-	-	-	1,583	1,953
NHA MBS (1)	15	633	981	-	-	-	1,629	1,970
Amortized cost	0.54	2.05	1.64	-	-	-	1.79	2.18
Fair value	-	114	475	2,344	7,667	-	10,600	11,966
Yield (%)	-	117	507	2,440	7,839	-	10,903	12,030
U.S. agency MBS and CMO (1)	-	1.99	2.89	1.95	1.44	-	1.62	2.14
Amortized cost	743	1,214	883	243	70	-	3,153	4,899
Fair value	739	1,243	933	247	72	-	3,234	5,007
Yield (%)	1.05	1.65	2.26	1.81	2.73	-	1.72	2.48
Corporate debt	-	-	-	-	-	90	90	79
Cost	-	-	-	-	-	93	93	81
Fair value	14,980	17,165	17,533	12,933	8,828	90	71,529	63,313
Total cost or amortized cost	14,980	17,165	17,533	12,933	8,828	90	71,529	63,313
Total fair value	15,015	17,600	18,337	13,349	9,013	93	73,407	64,515
Yield (%)	1.15	1.93	1.93	1.43	1.44	-	1.61	2.23
Amortized Cost Securities								
Issued or guaranteed by:								
Canadian federal government	697	1,158	3,729	654	-	-	6,238	4,532
Amortized cost	694	1,165	3,743	658	-	-	6,260	4,534
Fair value	54	1,415	2,282	1,899	-	-	5,650	3,553
Canadian provincial and municipal governments	39	1,434	2,321	1,912	-	-	5,706	3,576
Amortized cost	3,270	1,748	2,079	1,688	-	-	8,785	6,213
Fair value	3,269	1,751	2,088	1,697	-	-	8,805	6,214
U.S. federal government	133	769	498	80	-	-	1,480	1,049
Amortized cost	128	771	504	82	-	-	1,485	1,049
Fair value	229	223	2,175	3,926	18,216	-	24,769	8,274
NHA MBS, U.S. agency MBS and CMO (1)	223	224	2,220	4,047	18,484	-	25,198	8,398
Amortized cost	115	702	464	190	73	-	1,544	851
Fair value	102	712	473	193	75	-	1,555	851
Corporate debt	4,498	6,015	11,227	8,437	18,289	-	48,466	24,472
Total amortized cost	4,498	6,015	11,227	8,437	18,289	-	48,466	24,472
Total fair value	4,455	6,057	11,349	8,589	18,559	-	49,009	24,622
Investments in associates and joint ventures								
Carrying value	-	-	-	-	-	985	985	844
Total carrying value or amortized cost of securities	29,365	31,769	37,568	31,452	53,896	48,332	232,382	188,236
Total value of securities	29,400	32,204	38,372	31,868	54,081	48,335	234,260	189,438
Total by Currency (in Canadian \$ equivalent)								
Canadian dollar	17,347	14,758	19,506	9,492	14,578	24,863	100,544	85,905
U.S. dollar	9,584	17,300	18,575	22,214	39,300	18,822	125,795	100,573
Other currencies	2,469	146	291	162	203	4,650	7,921	2,960
Total securities	29,400	32,204	38,372	31,868	54,081	48,335	234,260	189,438

(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 table 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.

Unrealized Gains and Losses on FVOCI Securities

The following table summarizes the unrealized gains and losses:

(Canadian \$ in millions)	2020				2019			
	Cost or amortized cost	Gross unrealized gains	Gross unrealized losses	Fair value	Cost or amortized cost	Gross unrealized gains	Gross unrealized losses	Fair value
Issued or guaranteed by:								
Canadian federal government	22,240	211	1	22,450	11,876	72	4	11,944
Canadian provincial and municipal governments	4,628	119	-	4,747	5,907	106	1	6,012
U.S. federal government	16,881	844	31	17,694	15,363	617	5	15,975
U.S. states, municipalities and agencies	5,132	147	3	5,276	4,091	74	4	4,161
Other governments	7,222	168	9	7,381	7,179	158	2	7,335
NHA MBS	1,583	46	-	1,629	1,953	18	1	1,970
U.S. agency MBS and CMO	10,600	307	4	10,903	11,966	106	42	12,030
Corporate debt	3,153	91	10	3,234	4,899	110	2	5,007
Corporate equity	90	3	-	93	79	2	-	81
Total	71,529	1,936	58	73,407	63,313	1,263	61	64,515

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 Statement of Income as follows, excluding investments in associates and joint ventures and trading securities. Related income for trading securities is included under Trading-Related Revenue in Note 17.

(Canadian \$ in millions)	2020	2019	2018
FVTPL	17	34	16
FVOCI	959	1,585	1,118
Amortized cost	573	268	172
Total	1,549	1,887	1,306

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)	2020	2019	2018
FVTPL securities	30	164	93
FVOCI securities (1)			
Gross realized gains	109	209	363
Gross realized (losses)	(13)	(123)	(216)
Impairment losses	(2)	(1)	(1)
Securities gains, other than trading (2)	124	249	239

(1) Gains (losses) are net of (losses) gains on hedge contracts.

(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 \$416 million, \$407 million and \$354 million for the years ended October 31, 2020, 2019 and 2018, respectively; securities gains, other than trading, from FVOCI securities of \$19 million, \$11 million and \$1 million for the years ended October 31, 2020, 2019 and 2018, respectively; and securities gains, other than trading, from securities designated at FVTPL of \$281 million, \$1,006 million and \$(372) million for the years ended October 31, 2020, 2019 and 2018, respectively.

Gains and losses on trading securities are included in trading-related revenue in Note 17.

Note 4: Loans and Allowance for Credit Losses

Loans

Loans are initially measured at fair value plus directly attributable costs, and are subsequently measured at amortized cost using the effective interest method where the cash flows of those loans represent solely payments of principal and interest, otherwise those loans are measured at FVTPL. Where the loans are held with the objective of both collecting contractual cash flows and selling the loans, and the cash flows represent solely payments of principal and interest, these loans are measured at FVOCI. 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 primarily 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 (Stage 3) 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 continues 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 has 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.

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 as interest income. Interest income on impaired loans of \$96 million was recognized for the year ended October 31, 2020 (\$80 million in 2019 and \$67 million in 2018).

During the year ended October 31, 2020, we recorded a net loss of \$46 million before tax (gains of \$11 million in 2019 and \$4 million in 2018) 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 \$3,814 million as at October 31, 2020 (\$2,094 million in 2019), of which \$3,303 million (\$1,850 million in 2019) was recorded in loans and \$511 million (\$244 million in 2019) was recorded in other liabilities in our Consolidated Balance Sheet.

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

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 generally 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 bank's methodology for determining significant increase in credit risk is based on the change in probability of default (PD) between origination and reporting date, assessed using probability weighted scenarios as well as certain other criteria, such as 30-day past due and watchlist status.

For each exposure, ECL is a function of the 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 based 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 determining 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. We have applied experienced credit judgment to reflect the impact of the extraordinary and highly uncertain environment on credit conditions and the economy as a result of the COVID-19 pandemic.

Allowance on Impaired Loans

We maintain an allowance on individually identified impaired loans (Stage 3) of \$727 million as at October 31, 2020 (\$463 million as at October 31, 2019) on our gross impaired loans of \$3,638 million as at October 31, 2020 (\$2,629 million as at October 31, 2019), to reduce their carrying value to an expected recoverable amount of \$2,911 million as at October 31, 2020 (\$2,166 million as at October 31, 2019).

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 and consumer instalment and other personal loans are individually insignificant and may be assessed individually or collectively 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, FVOCI or FVTPL as at October 31, 2020 and 2019. Stage 1 represents those performing loans carried with up to 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)	2020				2019			
	Stage 1	Stage 2	Stage 3	Total	Stage 1	Stage 2	Stage 3	Total
Loans: Residential mortgages								
Exceptionally low	1	-	-	1	-	-	-	-
Very low	79,295	429	-	79,724	79,011	242	-	79,253
Low	24,490	2,481	-	26,971	20,853	2,821	-	23,674
Medium	11,560	6,461	-	18,021	13,651	4,578	-	18,229
High	172	446	-	618	124	397	-	521
Not rated	1,132	148	-	1,280	1,531	118	-	1,649
Impaired	-	-	409	409	-	-	414	414
Allowance for credit losses	51	75	16	142	15	32	17	64
Carrying amount	116,599	9,890	393	126,882	115,155	8,124	397	123,676
Loans: Consumer instalment and other personal								
Exceptionally low	1,550	31	-	1,581	21,023	25	-	21,048
Very low	26,645	37	-	26,682	16,491	194	-	16,685
Low	20,935	585	-	21,520	9,894	346	-	10,240
Medium	10,324	4,334	-	14,658	10,510	4,264	-	14,774
High	429	1,470	-	1,899	397	1,423	-	1,820
Not rated	3,372	96	-	3,468	2,594	107	-	2,701
Impaired	-	-	340	340	-	-	468	468
Allowance for credit losses	134	429	105	668	82	318	136	536
Carrying amount	63,121	6,124	235	69,480	60,827	6,041	332	67,200
Loans: Credit cards (1)								
Exceptionally low	2,252	-	-	2,252	2,418	-	-	2,418
Very low	1,106	15	-	1,121	1,214	16	-	1,230
Low	899	148	-	1,047	970	158	-	1,128
Medium	1,611	899	-	2,510	2,020	876	-	2,896
High	58	377	-	435	140	440	-	580
Not rated	524	-	-	524	606	1	-	607
Impaired	-	-	-	-	-	-	-	-
Allowance for credit losses	61	272	-	333	43	193	-	236
Carrying amount	6,389	1,167	-	7,556	7,325	1,298	-	8,623
Loans: Business and government (2)								
Acceptable								
Investment grade	127,525	3,242	-	130,767	134,587	1,028	-	135,615
Sub-investment grade	84,356	30,106	-	114,462	96,731	11,553	-	108,284
Watchlist	-	8,621	-	8,621	-	5,556	-	5,556
Impaired	-	-	2,889	2,889	-	-	1,747	1,747
Allowance for credit losses	510	1,044	606	2,160	263	441	310	1,014
Carrying amount	211,371	40,925	2,283	254,579	231,055	17,696	1,437	250,188
Commitments and financial guarantee contracts								
Acceptable								
Investment grade	138,141	1,628	-	139,769	134,920	884	-	135,804
Sub-investment grade	41,650	20,421	-	62,071	45,178	6,435	-	51,613
Watchlist	-	4,861	-	4,861	-	2,133	-	2,133
Impaired	-	-	1,261	1,261	-	-	324	324
Allowance for credit losses	211	288	12	511	119	103	22	244
Carrying amount (3)(4)	179,580	26,622	1,249	207,451	179,979	9,349	302	189,630

(1) Credit card loans are immediately written off when principal or interest payments are 180 days past due, and as a result are not reported as impaired in Stage 3.

(2) Includes customers' liability under acceptances.

(3) Represents the total contractual amounts of undrawn credit facilities and other off-balance sheet exposures, excluding personal lines of credit and credit cards that are unconditionally cancellable at our discretion.

(4) Certain commercial borrower commitments are conditional and may include recourse with other parties.

The following table shows the continuity in the loss allowance, by product type, for the years ended October 31, 2020 and 2019. Transfers represent the amount of ECL that moved between stages during the year, for example, moving from a 12-month (Stage 1) to a lifetime (Stage 2) ECL measurement basis. Net remeasurements represent the ECL impact due to transfers between stages, and changes in economic forecasts and credit quality. Model changes includes new calculation models or methodologies.

(Canadian \$ in millions)	2020				2019			
	Stage 1	Stage 2	Stage 3	Total	Stage 1	Stage 2	Stage 3	Total
Loans: Residential mortgages								
Balance as at beginning of year	15	33	38	86	20	38	44	102
Transfer to Stage 1	25	(22)	(3)	-	27	(25)	(2)	-
Transfer to Stage 2	(3)	10	(7)	-	(2)	7	(5)	-
Transfer to Stage 3	-	(5)	5	-	-	(8)	8	-
Net remeasurement of loss allowance	6	70	22	98	(35)	26	15	6
Loan originations	14	-	-	14	7	-	-	7
Derecognitions and maturities	(3)	(6)	-	(9)	(2)	(4)	-	(6)
Model changes	(3)	(5)	-	(8)	-	-	-	-
Total Provision for Credit Losses (PCL) (1)	36	42	17	95	(5)	(4)	16	7
Write-offs (2)	-	-	(11)	(11)	-	-	(19)	(19)
Recoveries of previous write-offs	-	-	8	8	-	-	13	13
Foreign exchange and other	-	-	(26)	(26)	-	(1)	(16)	(17)
Balance as at end of year	51	75	26	152	15	33	38	86
Loans: Consumer instalment and other personal								
Balance as at beginning of year	89	333	136	558	90	326	144	560
Transfer to Stage 1	189	(180)	(9)	-	174	(161)	(13)	-
Transfer to Stage 2	(25)	86	(61)	-	(18)	85	(67)	-
Transfer to Stage 3	(4)	(96)	100	-	(5)	(109)	114	-
Net remeasurement of loss allowance	(148)	315	196	363	(183)	232	167	216
Loan originations	49	-	-	49	48	-	-	48
Derecognitions and maturities	(18)	(38)	-	(56)	(16)	(40)	-	(56)
Model changes	16	33	-	49	-	-	-	-
Total PCL (1)	59	120	226	405	-	7	201	208
Write-offs (2)	-	-	(320)	(320)	-	-	(306)	(306)
Recoveries of previous write-offs	-	-	87	87	-	-	118	118
Foreign exchange and other	-	1	(24)	(23)	(1)	-	(21)	(22)
Balance as at end of year	148	454	105	707	89	333	136	558
Loans: Credit cards								
Balance as at beginning of year	80	225	-	305	74	219	-	293
Transfer to Stage 1	152	(152)	-	-	107	(107)	-	-
Transfer to Stage 2	(32)	32	-	-	(21)	21	-	-
Transfer to Stage 3	(1)	(178)	179	-	(1)	(173)	174	-
Net remeasurement of loss allowance	(100)	429	82	411	(96)	288	72	264
Loan originations	18	-	-	18	20	-	-	20
Derecognitions and maturities	(6)	(25)	-	(31)	(4)	(24)	-	(28)
Model changes	(1)	(10)	-	(11)	-	-	-	-
Total PCL (1)	30	96	261	387	5	5	246	256
Write-offs (2)	-	-	(333)	(333)	-	-	(339)	(339)
Recoveries of previous write-offs	-	-	85	85	-	-	93	93
Foreign exchange and other	-	-	(13)	(13)	1	1	-	2
Balance as at end of year	110	321	-	431	80	225	-	305
Loans: Business and government								
Balance as at beginning of year	338	496	311	1,145	298	408	209	915
Transfer to Stage 1	180	(172)	(8)	-	201	(187)	(14)	-
Transfer to Stage 2	(184)	195	(11)	-	(50)	65	(15)	-
Transfer to Stage 3	(8)	(285)	293	-	(1)	(66)	67	-
Net remeasurement of loss allowance	227	1,106	744	2,077	(214)	353	250	389
Loan originations	208	-	-	208	199	-	-	199
Derecognitions and maturities	(85)	(128)	-	(213)	(102)	(82)	-	(184)
Model changes	(30)	8	-	(22)	-	-	-	-
Total PCL (1)	308	724	1,018	2,050	33	83	288	404
Write-offs (2)	-	-	(716)	(716)	-	-	(203)	(203)
Recoveries of previous write-offs	-	-	72	72	-	-	66	66
Foreign exchange and other	12	38	(77)	(27)	7	5	(49)	(37)
Balance as at end of year	658	1,258	608	2,524	338	496	311	1,145
Total as at end of year	967	2,108	739	3,814	522	1,087	485	2,094
Comprised of: Loans	756	1,820	727	3,303	403	984	463	1,850
Other credit instruments (3)	211	288	12	511	119	103	22	244

(1) Excludes PCL on other assets of \$16 million for the year ended October 31, 2020 (\$3 million for the year ended October 31, 2019).

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

(3) Other credit instruments, including off-balance sheet items, are recorded in other liabilities on the Consolidated Balance Sheet.

Loans and allowance for credit losses by geographic region as at October 31, 2020 and 2019 are as follows:

(Canadian \$ in millions)	2020				2019			
	Gross amount	Allowance for credit losses on impaired loans (2)	Allowance for credit losses on performing loans (3)	Net amount	Gross amount	Allowance for credit losses on impaired loans (2)	Allowance for credit losses on performing loans (3)	Net amount
By geographic region (1):								
Canada	276,868	303	1,323	275,242	258,842	207	740	257,895
United States	160,192	410	1,225	158,557	158,454	256	630	157,568
Other countries	11,247	14	28	11,205	10,648	-	17	10,631
Total	448,307	727	2,576	445,004	427,944	463	1,387	426,094

(1) Geographic region is based upon the country of ultimate risk.

(2) Excludes allowance for credit losses on impaired loans of \$12 million for other credit instruments, which is included in other liabilities (\$22 million in 2019).

(3) Excludes allowance for credit losses on performing loans of \$499 million for other credit instruments, which is included in other liabilities (\$222 million in 2019).

Impaired (Stage 3) loans, including the related allowances, as at October 31, 2020 and 2019 are as follows:

(Canadian \$ in millions)	2020			2019		
	Gross impaired amount (3)	Allowance for credit losses on impaired loans (4)	Net impaired amount (3)	Gross impaired amount (3)	Allowance for credit losses on impaired loans (4)	Net impaired amount (3)
Residential mortgages	409	16	393	414	17	397
Consumer instalment and other personal	340	105	235	468	136	332
Business and government (1)	2,889	606	2,283	1,747	310	1,437
Total	3,638	727	2,911	2,629	463	2,166
By geographic region (2):						
Canada	1,343	303	1,040	914	207	707
United States	2,211	410	1,801	1,715	256	1,459
Other countries	84	14	70	-	-	-
Total	3,638	727	2,911	2,629	463	2,166

(1) Includes customers' liability under acceptances.

(2) Geographic region is based upon the country of ultimate risk.

(3) Gross impaired loans and net impaired loans exclude purchased credit impaired loans.

(4) Excludes allowance for credit losses on impaired loans of \$12 million for other credit instruments, which is included in other liabilities (\$22 million in 2019).

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 loans which are held at fair value. The following table presents loans that are past due but not classified as impaired as at October 31, 2020 and 2019.

(Canadian \$ in millions)	2020				2019			
	1 to 29 days	30 to 89 days	90 days or more	Total	1 to 29 days	30 to 89 days	90 days or more	Total
Residential mortgages	806	543	43	1,392	806	465	16	1,287
Credit card, consumer instalment and other personal	2,136	345	65	2,546	1,590	426	87	2,103
Business and government	180	330	22	532	351	207	59	617
Total	3,122	1,218	130	4,470	2,747	1,098	162	4,007

Fully secured loans with amounts past due between 90 and 180 days that we have not classified as impaired totalled \$53 million and \$54 million as at October 31, 2020 and 2019, respectively.

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.

As at October 31, 2020, the base case economic forecast used to calculate the allowance depicts a contracting Canadian economy with the U.S. economy following a similar trajectory. This is in contrast to the base case economic forecast as at October 31, 2019, which depicted moderate economic growth in Canada and the United States over the projection period. 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 \$2,375 million as at October 31, 2020 (\$1,325 million in 2019) compared to the reported allowance for performing loans of \$3,075 million (\$1,609 million in 2019).

As at October 31, 2020, the adverse case economic forecast depicts a more severe contraction of the Canadian and U.S. economy for the remainder of 2020 with a further decline in 2021 before recovering in 2022. This is in contrast to the adverse scenario forecast as at October 31, 2019, which depicted a more typical recession followed by a steady recovery through the end of the projection period. 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 \$4,875 million as at October 31, 2020 (\$2,800 million in 2019) compared to the reported allowance for performing loans of \$3,075 million (\$1,609 million in 2019).

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 used to estimate the allowance on performing loans during the forecast period. The values shown represent the national annual average values for calendar 2020 for the base case scenario, calendar 2021 and 2022 for all scenarios. While the values disclosed below are national variables, we use regional variables in our underlying models and consider factors impacting particular industries where considered appropriate.

All figures are average annual values	As at October 31, 2020							As at October 31, 2019						
	Benign scenario		Base scenario			Adverse scenario		Benign scenario		Base scenario			Adverse scenario	
	2021	2022	2020	2021	2022	2021	2022	2020	2021	2019	2020	2021	2020	2021
Real GDP growth rates (1)														
Canada	9.0%	4.0%	(5.5)%	6.0%	3.0%	(2.1)%	0.8%	2.9%	2.5%	1.5%	1.7%	1.6%	(2.3)%	0.5%
United States	7.0%	3.7%	(4.5)%	4.0%	3.0%	(2.9)%	0.8%	2.4%	2.4%	2.3%	1.8%	1.9%	(2.0)%	0.6%
Corporate BBB 10-year spread														
Canada	1.8%	2.0%	2.3%	2.2%	2.2%	4.5%	4.0%	2.0%	2.1%	2.1%	2.3%	2.3%	4.5%	4.1%
United States	1.6%	1.8%	2.2%	2.0%	2.1%	4.4%	3.7%	1.8%	2.0%	1.9%	2.3%	2.4%	4.1%	3.6%
Unemployment rates														
Canada	6.4%	5.9%	9.6%	8.0%	7.1%	13.8%	13.9%	5.1%	5.0%	5.7%	5.7%	5.9%	8.5%	9.0%
United States	5.2%	4.6%	8.5%	6.8%	5.6%	12.6%	12.7%	3.3%	3.2%	3.7%	3.7%	3.8%	6.1%	6.8%
Housing Price Index (1)														
Canada (2)	9.6%	5.4%	7.2%	4.5%	2.5%	(9.1)%	(4.6)%	3.7%	3.7%	0.5%	2.0%	2.5%	(12.3)%	(4.7)%
United States (3)	4.7%	4.2%	3.9%	1.4%	2.7%	(7.3)%	(2.2)%	4.4%	4.2%	3.4%	3.0%	2.7%	(5.7)%	(2.2)%

(1) Real gross domestic product (GDP) and housing price index are year-over-year growth rates.

(2) In Canada, we use the HPI Benchmark Composite.

(3) In the United States, we use the National Case-Shiller House Price Index.

The ECL approach requires the recognition of credit losses generally based on 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 \$2,300 million compared to the reported allowance for performing loans of \$3,075 million as at October 31, 2020 (\$1,050 million compared to the reported allowance for performing loans of \$1,609 million as at October 31, 2019).

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 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 continues to apply.

The carrying value of loans with lifetime allowance for credit losses modified during the year ended October 31, 2020 was \$8,649 million (\$209 million in 2019), including modifications for COVID-19 payment deferrals of \$8,485 million. Modified loans of \$49 million (\$36 million in 2019 and \$53 million in 2018) were written off during the year ended October 31, 2020. As at October 31, 2020, \$1,469 million (\$66 million as at October 31, 2019) of loans previously modified saw their loss allowance during the year change from lifetime to 12-month expected credit loss.

Foreclosed Assets

Property or other assets that we received from borrowers to satisfy their loan commitments are classified as either held for use or held for sale according to management's intention, recorded initially at fair value for own use assets and lower of carrying value or fair value less costs to sell for any assets held for sale. Assets held for own use are subsequently accounted for in accordance with the relevant asset classification and assets held for sale are assessed for impairment.

During the year ended October 31, 2020, we foreclosed on impaired loans and received \$44 million of real estate properties that we classified as held for sale (\$87 million in 2019). As at October 31, 2020, real estate properties held for sale totalled \$27 million (\$55 million in 2019). These properties are disposed of when considered appropriate.

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 84 to 85 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. The COVID-19 pandemic has resulted in an increase in certain risks outlined in the Enterprise Wide Risk Management section of our Management's Discussion and Analysis and where those risks are related to financial instruments, they have been included in the blue-tinted font as referenced below.

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 blue-tinted font in the Enterprise-Wide Risk Management section of Management's Discussion and Analysis on pages 84 to 91 of this report. Additional information on credit risk related to loans and derivatives is included 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, as well as in our structural banking activities.

Our market risk management practices and key measures are disclosed in the blue-tinted font in the Enterprise-Wide Risk Management section of Management's Discussion and Analysis on pages 92 to 96 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 enterprise soundness and safety, depositor confidence and earnings stability.

Our liquidity and funding risk management practices and key measures are disclosed in the blue-tinted font in the Enterprise-Wide Risk Management section of Management's Discussion and Analysis on pages 97 to 105 of this report.

Note 6: Transfer of Assets

Loan Securitization

We sell Canadian residential mortgages 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 (NHA MBS) program and under our own program. We assess whether substantially all of the risks and rewards of or control over the loans have been transferred to determine whether 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 mortgages that were sold, over the yield paid to investors, less credit losses and other costs. We also act as counterparty in interest rate swap agreements where we pay the interest due to Canadian Mortgage Bond holders and receive the interest on the underlying mortgages, which are converted into MBS through the NHA MBS program and sold to the Canada Housing Trust. Since we continue to be exposed to substantially all the prepayment, interest rate and credit risk associated with the securitized mortgages, they do not qualify for derecognition. We continue to recognize the mortgages 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, are recorded in net interest income using the effective interest method over the term of the securitization. Credit losses associated with the mortgages are recorded in the provision for credit losses. During the year ended October 31, 2020, we sold \$6,644 million of mortgages to these programs (\$6,692 million in 2019).

In the second quarter, we participated in the Insured Mortgage Purchase Program (IMPP), launched by the Government of Canada as part of its response to COVID-19. Under the IMPP, we assessed whether substantially all of the risks and rewards of the loans have been transferred, in order to determine if the mortgages qualify for derecognition. These loans do not qualify for derecognition as we continue to be exposed to substantially all of the risks and rewards of ownership associated with these securitized mortgages. We continue to recognize the loans in our Consolidated Balance Sheet and the related cash proceeds are recognized as secured financing as part of securitization and structured entities' liabilities.

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

(Canadian \$ in millions)	2020		2019	
	Carrying amount (1)	Fair value	Carrying amount (1)	Fair value
Assets				
Trading securities (2)	345		165	
Residential mortgages	8,453		6,357	
Other related assets (3)	10,363		10,872	
Total	19,161	19,357	17,394	17,418
Associated liabilities (4)	18,617	19,213	16,993	17,202

(1) Carrying amount of loans is net of allowance, where applicable.

(2) Trading securities represent collateralized mortgage obligations issued by third party sponsored vehicles, where we do not substantially transfer all the risks and rewards of ownership to third party investors.

(3) Other related assets represent payments received on account of mortgages pledged under securitization programs that have not yet been applied against the associated liabilities. The payments received are held in permitted instruments 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.

(4) Associated liabilities are recognized in Securitization and structured entities' liabilities in our Consolidated Balance Sheet.

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

Transferred Financial Assets

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, 2020, we sold and derecognized \$720 million (\$460 million in 2019 and \$936 million in 2018) and recognized a \$33 million gain (\$15 million in 2019 and \$21 million in 2018) in non-interest revenue, other. We retain mortgage servicing rights for these loans, which represent our continuing involvement. As at October 31, 2020, the carrying value of the mortgage servicing right was \$29 million (\$43 million as at October 31, 2019) and the fair value was \$30 million (\$46 million as at October 31, 2019).

In addition, we hold U.S. government agency CMOs issued by third party sponsored vehicles, which we may further securitize by packaging them into new CMOs prior to selling to third party investors. Where we do not substantially transfer all the risks and rewards of ownership to third party investors, we continue to recognize these CMOs and the related cash proceeds as secured financing in our Consolidated Balance Sheet. Also, we sold CMOs that qualified for derecognition, where retained interests represent our continuing involvement and are managed as part of larger portfolios held for either trading, liquidity or hedging purposes. Where we sold these CMOs, associated gains and losses are recognized in non-interest revenue, trading revenue. As at October 31, 2020, we held \$28 million of CMOs carried at fair value, classified as part of our trading securities in our Consolidated Balance Sheet (\$1 million as at October 31, 2019), representing our continuing involvement. Refer to Note 3 for further information.

In the second quarter of 2020, the Canadian Government launched the Canada Emergency Business Account Program as part of its response to COVID-19, in which we issue loans that are funded by the government. We determined these loans qualify for derecognition as substantially all the risks and rewards were transferred; therefore, we do not recognize these loans in our Consolidated Balance Sheet.

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 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 carrying value of these securities approximates the carrying value of the associated liabilities due to their short-term nature. As at October 31, 2020, the carrying values of securities lent and securities sold under repurchase agreements were \$7,696 million and \$80,962 million, respectively (\$12,960 million and \$73,696 million, respectively, as at October 31, 2019). The interest expense related to these liabilities is recorded on an accrual basis in interest expense, other liabilities, in our Consolidated Statement of Income.

Note 7: Structured Entities

We enter into certain transactions in the ordinary course of business which involve the establishment of SEs to facilitate or secure customer transactions and to obtain alternate sources of funding. We are required to consolidate a SE if we control the entity. We control a 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 a 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 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. Information regarding our basis of consolidation is included in Note 1.

Consolidated Structured Entities

Bank Securitization Vehicles

We use securitization vehicles to securitize our Canadian credit card loans, Canadian real estate lines of credit, Canadian auto loans and U.S. equipment 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 (ABS) 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 amounts and fair values of transferred assets that did not qualify for derecognition and the associated liabilities issued by our bank securitization vehicles:

(Canadian \$ in millions)	2020		2019	
	Carrying amount (1)	Fair value	Carrying amount (1)	Fair value
Assets				
Credit cards	6,825	6,825	7,747	7,747
Consumer instalment and other personal (2)	6,291	6,312	5,872	5,876
Business and government	484	484	716	721
Total	13,600	13,621	14,335	14,344
Associated liabilities (3)	8,272	8,416	10,166	10,209

(1) Carrying amount of loans is net of allowance.

(2) Includes real estate lines of credit and auto loans.

(3) Associated liabilities are recognized in Securitization and structured entities' liabilities in our Consolidated Balance Sheet.

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, 2020 was \$7,340 million (\$6,733 million at October 31, 2019).

Capital and Funding Vehicles

During the year, we established a Trust in connection with the issuance of \$1,250 million 4.3% Limited Recourse Capital Notes Series 1 (LRCN), which holds \$1,250 million of BMO issued Non-cumulative, 5-year Rate Reset Class B Preferred Shares, Series 48 (Non-Viability Contingent Capital (NVCC)), issued concurrently with the LRCN. We determined that we control and therefore consolidate this vehicle as we are exposed to its variable returns and have key decision-making powers over its activities. Refer to Note 16 for further information.

We have a funding vehicle, created under the covered bond program, that was established to guarantee payments due to bondholders on bonds issued by us. We sell assets to this funding vehicle in exchange for an intercompany loan. Refer to Note 13 for further information on our covered bond deposit liabilities.

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, 2020, \$120 million of guarantee-linked notes issued by these vehicles were included in deposits in our Consolidated Balance Sheet (\$325 million at October 31, 2019).

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 Notes 13 and 24, respectively.

Unconsolidated Structured Entities

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

	2020			2019		
	Canadian customer securitization vehicles (1)	Capital vehicles	Securitization vehicles	Canadian customer securitization vehicles (1)	Capital vehicles	Securitization vehicles
Interests recorded on our consolidated balance sheet						
Cash and cash equivalents	46	1,173	-	66	547	-
Trading securities	75	-	72	8	-	35
FVTPL securities	158	-	-	567	-	-
FVOCI securities	291	-	-	616	-	-
Amortized cost securities	-	-	102	-	-	102
Derivatives	22	-	-	-	-	-
Other	-	39	-	-	15	-
	592	1,212	174	1,257	562	137
Deposits	46	1,173	-	66	547	-
Other	-	25	-	-	9	-
	46	1,198	-	66	556	-
Exposure to loss (2)	7,015	1	174	7,453	-	137
Total assets of the entities	5,265	1,198	2,560	4,854	556	875

(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. 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.

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 as at October 31, 2020 was \$6,469 million (\$6,262 million as at October 31, 2019).

Capital Vehicles

We 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. In 2019, one of our capital vehicles redeemed a note issued by us. Additional information is provided in Note 16.

Securitization Vehicles

Securitization vehicles include holdings in asset-backed securitizations. Where we are a sponsor of certain SEs that securitize MBS into CMOs, we may have interests through our holdings of CMOs but do not consolidate them as we do not have power to direct their relevant activities. These include government-sponsored agency securities such as U.S. government agency issuances. In determining whether we are a sponsor of a SE, we consider both qualitative and quantitative factors, including the purpose and nature of the entity, and our initial and continuing involvement. Subsequent to the securitization, we sell the CMOs to third parties. Our maximum exposure to loss is limited to our on-balance sheet investments in these entities, included in the table above.

Where the asset-backed instruments in these securitizations are transferred to third parties but do not qualify for derecognition, we continue to recognize the transferred assets. Where the Bank retains substantially all risks and rewards related to the transferred assets, we recognize the related cash proceeds as secured financing in our Consolidated Balance Sheet. As at October 31, 2020, these transferred assets were carried at fair value totalling \$69 million (\$35 million as at October 31, 2019) with \$nil (\$nil as at October 31, 2019) recognized in securitization and structured entities' liabilities, also carried at fair value.

Where the asset-backed instruments in these securitizations are transferred to third parties and qualify for derecognition, we record the related gains or losses in non-interest revenue, trading revenue. We may also retain an interest in the CMOs sold, which represents our continuing involvement. As at October 31, 2020, we held \$3 million carried at fair value on our Consolidated Balance Sheet (\$nil as at October 31, 2019).

During the year ended October 31, 2020, we sold \$5,797 million of MBS to these sponsored securitization vehicles (\$810 million in 2019), where we divested all interests in the securitized MBSs and any gains and losses were recorded in non-interest revenue, trading revenue.

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 \$1,718 million at October 31, 2020 (\$1,728 million in 2019), with \$444 million included in FVTPL securities and \$1,274 million included in trading securities as at October 31, 2020 (\$469 million and \$1,259 million, respectively, in 2019) in our Consolidated Balance Sheet.

Other Structured Entities

We purchase and hold investments in a variety of third-party SEs, including exchange-traded funds, mutual funds, limited partnerships investment trusts and government-sponsored ABS vehicles which are recorded in securities in our Consolidated Balance Sheet. 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 a SE if we are involved in its design, legal set-up or marketing. We may also be deemed to be the sponsor of a SE if market participants would reasonably associate the entity with us. Any interests in securitization vehicles we have sponsored are disclosed in the interests in unconsolidated structured entities table above.

Financial Support Provided to Structured Entities

During the years ended October 31, 2020 and 2019, we did not provide any financial or non-financial support to any consolidated or unconsolidated SEs when we were not contractually obligated to do so. Furthermore, we have no intention of providing such support in the future.

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 a financial liability 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, 2020 was \$6,560 million (\$5,736 million in 2019), for which we have posted collateral of \$5,967 million (\$5,660 million in 2019).

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 we enter into 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 exposure to 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 generally recorded in non-interest revenue, trading revenues, in our Consolidated Statement of Income. Unrealized gains and losses on derivatives used to economically hedge certain exposures may be recorded in the Consolidated Statement of Income in the same line as the unrealized gains and losses arising from the exposures. 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)	2020			2019		
	Gross assets	Gross liabilities	Net	Gross assets	Gross liabilities	Net
Trading						
Interest Rate Contracts						
Swaps	10,510	(7,585)	2,925	7,588	(5,834)	1,754
Forward rate agreements	29	(276)	(247)	44	(157)	(113)
Futures	3	(18)	(15)	1	(4)	(3)
Purchased options	667	-	667	632	-	632
Written options	-	(714)	(714)	-	(403)	(403)
Foreign Exchange Contracts (1)						
Cross-currency swaps	2,080	(1,428)	652	2,394	(1,383)	1,011
Cross-currency interest rate swaps	4,151	(4,207)	(56)	3,471	(4,950)	(1,479)
Forward foreign exchange contracts	3,611	(2,954)	657	2,796	(2,379)	417
Purchased options	346	-	346	188	-	188
Written options	-	(312)	(312)	-	(203)	(203)
Commodity Contracts						
Swaps	2,162	(1,733)	429	754	(1,273)	(519)
Futures	53	(144)	(91)	122	(40)	82
Purchased options	373	-	373	270	-	270
Written options	-	(456)	(456)	-	(367)	(367)
Equity Contracts						
Purchased	11	(6)	5	2	(98)	(96)
Written	-	(8)	(8)	47	(4)	43
Total fair value - trading derivatives	32,457	(26,355)	6,102	19,508	(20,094)	(586)
Hedging						
Interest Rate Contracts (2)						
Cash flow hedges - swaps	2,602	(43)	2,559	1,393	(121)	1,272
Fair value hedges - swaps	1,118	(2,257)	(1,139)	799	(1,435)	(636)
Total swaps	3,720	(2,300)	1,420	2,192	(1,556)	636
Foreign Exchange Contracts						
Cash flow hedges	638	(1,710)	(1,072)	420	(1,948)	(1,528)
Fair value hedges	-	(1)	(1)	-	-	-
Total foreign exchange contracts	638	(1,711)	(1,073)	420	(1,948)	(1,528)
Equity Contracts						
Cash flow hedges	-	(9)	(9)	24	-	24
Total equity contracts	-	(9)	(9)	24	-	24
Total fair value - hedging derivatives (3)	4,358	(4,020)	338	2,636	(3,504)	(868)
Total fair value - trading and hedging derivatives	36,815	(30,375)	6,440	22,144	(23,598)	(1,454)
Less: impact of master netting agreements	(19,302)	19,302	-	(13,538)	13,538	-
Total	17,513	(11,073)	6,440	8,606	(10,060)	(1,454)

(1) Gold contracts are included with foreign exchange contracts.

(2) The fair value of bond futures designated in fair value hedge relationships rounds down to \$nil as at October 31, 2020 (we held no bond futures as at October 31, 2019).

(3) 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.

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)	2020			2019		
	Exchange traded	Over-the-counter	Total	Exchange traded	Over-the-counter	Total
Interest Rate Contracts						
Swaps	-	4,148,257	4,148,257	-	4,209,193	4,209,193
Forward rate agreements	-	517,332	517,332	-	491,437	491,437
Purchased options	24,683	57,833	82,516	13,737	42,084	55,821
Written options	3,796	64,728	68,524	16,446	49,487	65,933
Futures	297,578	-	297,578	225,747	-	225,747
Total interest rate contracts	326,057	4,788,150	5,114,207	255,930	4,792,201	5,048,131
Foreign Exchange Contracts (1)						
Cross-currency swaps	-	47,805	47,805	-	47,977	47,977
Cross-currency interest rate swaps	-	534,752	534,752	-	499,571	499,571
Forward foreign exchange contracts	-	494,640	494,640	-	453,711	453,711
Purchased options	1,673	39,067	40,740	3,295	37,397	40,692
Written options	2,346	41,327	43,673	2,502	42,075	44,577
Futures	1,608	-	1,608	882	-	882
Total foreign exchange contracts	5,627	1,157,591	1,163,218	6,679	1,080,731	1,087,410
Commodity Contracts						
Swaps	-	30,613	30,613	-	24,722	24,722
Purchased options	4,846	5,728	10,574	3,615	6,608	10,223
Written options	6,514	3,704	10,218	5,230	4,371	9,601
Futures	39,011	-	39,011	32,422	-	32,422
Total commodity contracts	50,371	40,045	90,416	41,267	35,701	76,968
Equity Contracts	110,274	60,202	170,476	39,952	50,910	90,862
Credit Contracts						
Purchased	-	7,407	7,407	-	5,361	5,361
Written	-	1,795	1,795	-	2,068	2,068
Total	492,329	6,055,190	6,547,519	343,828	5,966,972	6,310,800

(1) Gold contracts are included with foreign exchange contracts.

Table excludes loan commitment derivatives with notionals of \$2,603 million (\$2,613 million in 2019).

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 95 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 96. 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 to be 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 amounts of deposits designated as hedging instruments, by term to maturity, hedge type, and risk type, where applicable.

(Canadian \$ in millions, except as noted)	Remaining term to maturity					2020	2019
	Within 1 year	1 to 3 years	3 to 5 years	5 to 10 years	Over 10 years	Total	Total
Cash Flow Hedges							
Interest rate risk – Interest rate swaps							
Notional amount (1)	16,332	29,011	30,395	16,040	518	92,296	93,611
Average fixed interest rate	1.04%	1.60%	1.51%	1.14%	1.57%	1.39%	2.01%
Foreign exchange risk – Cross-currency swaps and foreign exchange forwards (2)							
CAD-USD pair							
Notional amount	8,405	15,218	12,435	7,072	251	43,381	40,154
Average fixed interest rate	1.86%	1.96%	2.10%	1.53%	3.02%	1.92%	1.95%
Average exchange rate: CAD-USD	1.3378	1.3140	1.3076	1.3458	1.3122	1.3219	1.3034
CAD-EUR pair							
Notional amount	4,621	10,553	1,924	–	201	17,299	20,357
Average fixed interest rate	2.27%	2.07%	2.41%	–	2.97%	2.17%	2.21%
Average exchange rate: CAD-EUR	1.4671	1.5088	1.5395	–	1.4870	1.5008	1.4892
Other currency pairs (3)							
Notional amount (4)	365	4,426	2,077	236	–	7,104	7,849
Average fixed interest rate	2.83%	2.80%	2.35%	1.62%	–	2.63%	2.57%
Average exchange rate: CAD-Non USD/EUR	0.7725	1.3338	1.2744	1.4753	–	1.2923	1.3348
Equity price risk – Total return swap							
Notional amount	302	–	–	–	–	302	316
Fair Value Hedges							
Interest rate risk – Interest rate swaps							
Notional amount (5)	19,571	31,221	28,393	15,553	–	94,738	93,467
Average fixed interest rate	0.85%	1.69%	1.68%	1.40%	–	1.47%	2.23%
Interest rate risk – Bond futures (Exchange-traded derivatives)							
Notional amount	48	–	–	–	–	48	–
Average price in dollars	126	–	–	–	–	126	–
Foreign exchange risk – Cross-currency swaps							
USD-GBP pair							
Notional amount (6)	–	–	39	–	–	39	–
Average fixed interest rate	–	–	0.66%	–	–	0.66%	–
Average exchange rate: USD-GBP	–	–	1.3024	–	–	1.3024	–
Net Investment Hedges							
Foreign exchange risk							
USD denominated deposit – carrying amount	8,219	–	–	–	–	8,219	6,495
GBP denominated deposit – carrying amount	892	–	–	–	–	892	685

(1) The notional amount of the interest rate swaps likely subject to IBOR reform that mature after December 31, 2021 was \$48,825 million of USD LIBOR as at October 31, 2020.

(2) 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.

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

(4) The notional amount of the cross-currency swaps likely subject to IBOR reform that mature after December 31, 2021 was \$718 million of GBP LIBOR as at October 31, 2020.

(5) The notional amount of the interest rate swaps likely subject to IBOR reform that mature after December 31, 2021 was \$55,130 million of USD LIBOR, and \$41 million of GBP LIBOR as at October 31, 2020.

(6) The notional amount of the cross-currency swaps likely subject to IBOR reform that mature after December 31, 2021 was \$39 million of USD LIBOR as at October 31, 2020.

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 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. In general, we do not terminate our foreign exchange hedges before maturity.

For 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.

The effectiveness of our net investment hedge is determined 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 tables contain information related to items designated as hedging instruments, hedged items and hedge ineffectiveness for the years ended October 31, 2020 and October 31, 2019.

2020

(Canadian \$ in millions)	Carrying amount of hedging instruments (1)		Hedge ineffectiveness		
	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	2,602	(43)	2,516	(2,520)	4
Foreign exchange risk - Cross-currency swaps and foreign exchange forwards	638	(1,710)	(315)	315	-
Equity price risk - Total return swaps	-	(9)	(108)	108	-
	3,240	(1,762)	2,093	(2,097)	4
Net investment hedges					
Foreign exchange risk - Deposit liabilities	-	(9,111)	(131)	131	-
Total	3,240	(10,873)	1,962	(1,966)	4

(1) Represents the unrealized gains (losses) recorded as part of the derivative instruments in assets and liabilities, respectively, in our Consolidated Balance Sheet.

2019

(Canadian \$ in millions)	Carrying amount of hedging instruments (1)		Hedge ineffectiveness		
	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	1,393	(121)	3,142	(3,118)	15
Foreign exchange risk - Cross-currency swaps and foreign exchange forwards	420	(1,948)	(1,195)	1,195	-
Equity price risk - Total return swaps	24	-	15	(15)	-
	1,837	(2,069)	1,962	(1,938)	15
Net investment hedges					
Foreign exchange risk - Deposit liabilities	-	(7,180)	(17)	17	-
Total	1,837	(9,249)	1,945	(1,921)	15

(1) Represents the unrealized gains (losses) recorded as part of the derivative instruments in assets and liabilities, respectively, in our Consolidated Balance Sheet.

For cash flow hedges and net investment hedges, the following tables contain information related to impacts in our Consolidated Statement of Other Comprehensive Income, on a pre-tax basis, for the years ended October 31, 2020 and October 31, 2019.

(Canadian \$ in millions)	2020					
	Balance October 31, 2019	Gains / (losses) recognized in OCI	Amount reclassified to net income as the hedged item affects net income	Balance in cash flow hedge AOCI / net foreign operations AOCI		
				Balance October 31, 2020 (1)	Active hedges	Discontinued hedges
Cash flow hedges						
Interest rate risk	1,156	2,512	(139)	3,529	2,359	1,170
Foreign exchange risk	(444)	(350)	35	(759)	(759)	-
Equity price risk	17	(108)	41	(50)	(50)	-
	729	2,054	(63)	2,720	1,550	1,170
Net investment hedges						
Foreign exchange risk	(1,808)	(131)	-	(1,939)	(1,939)	-
Total	(1,079)	1,923	(63)	781	(389)	1,170

(1) Tax balance related to cash flow hedge accumulated other comprehensive income (AOCI) is \$(741) million.

(Canadian \$ in millions)	2019					
	Balance November 1, 2018	Gains / (losses) recognized in OCI	Amount reclassified to net income as the hedged item affects net income	Balance in cash flow hedge AOCI / net foreign operations AOCI		
				Balance October 31, 2019 (1)	Active hedges	Discontinued hedges
Cash flow hedges						
Interest rate risk	(2,211)	3,127	240	1,156	1,150	6
Foreign exchange risk	751	(1,177)	(18)	(444)	(444)	-
Equity price risk	30	15	(28)	17	17	-
	(1,430)	1,965	194	729	723	6
Net investment hedges						
Foreign exchange risk	(1,791)	(17)	-	(1,808)	(1,808)	-
Total	(3,221)	1,948	194	(1,079)	(1,085)	6

(1) Tax balance related to cash flow hedge AOCI is \$(216) million.

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 cross currency swaps, interest rate swaps, and bond futures to hedge foreign exchange risk and interest rate risk, including benchmark interest rates, inherent in fixed rate securities, a portfolio of mortgages, deposits and subordinated debt and other liabilities.

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 years ended October 31, 2020 and 2019 are as follows:

(Canadian \$ in millions)

2020

	Carrying amount of hedging derivatives (1)		Hedge ineffectiveness			Carrying amount of the hedged item (2)	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		Active hedges	Discontinued hedges
Fair value hedge (3)								
Interest rate swaps	1,118	(2,257)	-	-	-	-	-	-
Cross currency swaps	-	(1)	-	-	-	-	-	-
Securities and loans	-	-	(1,791)	1,794	3	58,608	2,762	25
Deposits, subordinated debt and other liabilities	-	-	622	(620)	2	(39,950)	(943)	8
Total	1,118	(2,258)	(1,169)	1,174	5	18,658	1,819	33

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

(2) Represents the carrying value in 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.

(3) For bond futures designated in fair value hedge relationships, all amounts in the table round down to \$nil as at October 31, 2020 (we held no bond futures as at October 31, 2019).

(Canadian \$ in millions)

2019

	Carrying amount of hedging derivatives (1)		Hedge ineffectiveness			Carrying amount of the hedged item (2)	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		Active hedges	Discontinued hedges
Fair value hedge								
Interest rate swaps	799	(1,435)	-	-	-	-	-	-
Cross currency swaps	-	-	-	-	-	-	-	-
Securities and loans	-	-	(2,072)	2,058	(14)	53,672	1,249	8
Deposits, subordinated debt and other liabilities	-	-	1,269	(1,255)	14	(41,277)	(609)	308
Total	799	(1,435)	(803)	803	-	12,395	640	316

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

(2) Represents the carrying value in 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.

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

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 tables below are as follows:

Replacement cost captures the loss that would occur if a counterparty were to default in the present or at a future time, assuming that the closeout and replacement of transactions occur instantaneously, assuming no recovery on the value of those transactions in bankruptcy.

Credit risk equivalent represents the total replacement cost plus an amount representing the potential future credit exposure adjusted by a multiplier 1.4, 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)	2020						2019
	Replacement cost (1)	Credit risk equivalent (1)	Risk-weighted assets	Replacement cost (1)	Credit risk equivalent (1)	Risk-weighted assets	
Interest Rate Contracts							
Over-the-counter							
Swaps	5,228	10,713	3,380	3,233	8,114	2,300	
Forward rate agreements	1,153	3,332	1,479	102	1,162	236	
Purchased options	2	55	12	11	62	39	
Written options	68	206	150	38	154	98	
	6,451	14,306	5,021	3,384	9,492	2,673	
Exchange traded							
Futures	22	83	2	90	161	3	
Purchased options	45	66	1	28	40	1	
Written options	3	4	-	3	6	-	
	70	153	3	121	207	4	
Total interest rate contracts	6,521	14,459	5,024	3,505	9,699	2,677	
Foreign Exchange Contracts (2)							
Over-the-counter							
Swaps	872	5,581	794	1,184	6,248	989	
Forward foreign exchange contracts	1,032	7,859	823	1,753	7,225	1,260	
Purchased options	68	196	95	40	167	46	
Written options	5	76	27	10	119	29	
	1,977	13,712	1,739	2,987	13,759	2,324	
Exchange traded							
Futures	1	2	-	13	20	-	
Purchased options	12	17	-	13	24	-	
Written options	12	18	-	-	2	-	
	25	37	-	26	46	-	
Total foreign exchange contracts	2,002	13,749	1,739	3,013	13,805	2,324	
Commodity Contracts							
Over-the-counter							
Swaps	1,424	4,215	2,119	213	2,154	629	
Purchased options	117	746	257	98	472	125	
Written options	1	234	74	116	370	204	
	1,542	5,195	2,450	427	2,996	958	
Exchange traded							
Futures	635	1,612	33	393	1,079	22	
Purchased options	373	562	11	378	567	11	
Written options	221	363	7	1	52	1	
	1,229	2,537	51	772	1,698	34	
Total commodity contracts	2,771	7,732	2,501	1,199	4,694	992	
Equity Contracts							
Over-the-counter	563	8,010	2,399	197	4,572	1,246	
Exchange traded	5,958	10,135	203	1,083	2,580	52	
Total equity contracts	6,521	18,145	2,602	1,280	7,152	1,298	
Credit Contracts							
	272	741	75	277	496	34	
Total	18,087	54,826	11,941	9,274	35,846	7,325	

(1) Replacement cost and credit risk equivalent are presented after the impact of master netting agreements and calculated using the Standardized Approach Counterparty Credit Risk (SA-CCR) in accordance with the Capital Adequacy Requirements (CAR) Guideline issued by OSFI. Table therefore excludes loan commitment derivatives.

(2) Gold contracts are included in foreign exchange contracts.

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					2020	2019
	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	1,605,404	1,235,423	802,411	526,599	165,454	4,335,291	4,396,272
Forward rate agreements, futures and options	787,563	134,021	30,870	11,245	2,299	965,998	838,938
Total interest rate contracts	2,392,967	1,369,444	833,281	537,844	167,753	5,301,289	5,235,210
Foreign Exchange Contracts (1)							
Swaps	155,542	215,827	138,246	100,254	27,632	637,501	604,728
Forward foreign exchange contracts	480,223	11,892	2,209	289	27	494,640	453,711
Futures	1,580	28	-	-	-	1,608	882
Options	76,721	6,490	1,202	-	-	84,413	85,269
Total foreign exchange contracts	714,066	234,237	141,657	100,543	27,659	1,218,162	1,144,590
Commodity Contracts							
Swaps	9,591	18,447	2,296	279	-	30,613	24,722
Futures	15,300	20,536	2,878	297	-	39,011	32,422
Options	9,180	10,583	1,012	17	-	20,792	19,824
Total commodity contracts	34,071	49,566	6,186	593	-	90,416	76,968
Equity Contracts							
	118,139	38,527	11,758	2,071	283	170,778	91,178
Credit Contracts (2)							
	944	615	3,395	3,815	433	9,202	7,429
Total notional amount	3,260,187	1,692,389	996,277	644,866	196,128	6,789,847	6,555,375

(1) Gold contracts are included with foreign exchange contracts.

(2) Under the SA-CCR, excludes loan commitment derivatives.

Note 9: Premises and Equipment

We record all owned premises and equipment at cost less accumulated depreciation, 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 depreciated 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 depreciated over each component's estimated useful life. The maximum estimated useful lives we use to depreciate our assets are as follows:

Buildings	10 to 40 years
Computer equipment and operating system software	5 to 7 years
Other equipment	10 years
Leasehold improvements	Lease term to a maximum of 10 years

Depreciation 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 write-downs of computer equipment of \$4 million due to impairment during the year ended October 31, 2020 (\$nil in 2019 and 2018). Gains and losses on disposal are included in non-interest expense, premises and equipment, in our Consolidated Statement of Income.

Leases

When we enter into a new arrangement as a lessee, a right-of-use asset is recognized equal to the lease liability, which is calculated based on the future lease payments discounted at our incremental borrowing rate over the lease term. The lease term is based on the non-cancellable period and includes any options to extend or terminate which we are reasonably certain to exercise.

The right-of-use asset is depreciated on a straight-line basis, based on the shorter of the useful life of the underlying asset or the lease term, and is adjusted for impairment losses, if any.

The lease liability accretes interest over the lease term, using the effective interest method, with the associated interest expense recognized in interest expense, other liabilities, in our Consolidated Statement of Income. The lease liability is remeasured when decisions are made to exercise options under the lease arrangement or when the likelihood of exercising an option within the lease changes. Refer to Note 14 for further information.

Amounts relating to leases of low value are expensed when incurred in non-interest expense, premises and equipment, in our Consolidated Statement of Income.

Prior to the adoption of IFRS 16, net rent expense reported in non-interest expense, premises and equipment, in our Consolidated Statement of Income for the years ended October 31, 2019 and 2018 was \$600 million and \$530 million, respectively.

The total cost and associated accumulated depreciation for premises and equipment owned and leased are set out below:

	2020						2019						
	Land	Buildings	Computer equipment	Other equipment	Leasehold improvements	Right-of-use assets (1)	Total	Land	Buildings	Computer equipment	Other equipment	Leasehold improvements	Total
Cost													
Balance at beginning of year	109	1,534	2,470	973	1,615	na	6,701	145	1,627	2,229	933	1,514	6,448
Impact from adopting IFRS 16 (1)(2)	-	(23)	(65)	-	-	2,053	1,965	na	na	na	na	na	na
Additions/lease modifications	8	53	168	41	167	559	996	10	86	343	57	124	620
Disposals (3)	(6)	(116)	(104)	(122)	(28)	(22)	(398)	(45)	(179)	(102)	(15)	(24)	(365)
Foreign exchange and other	1	6	12	12	15	(10)	36	(1)	-	-	(2)	1	(2)
Balance at end of year	112	1,454	2,481	904	1,769	2,580	9,300	109	1,534	2,470	973	1,615	6,701
Accumulated Depreciation and Impairment													
Balance at beginning of year	-	961	1,786	742	1,157	na	4,646	-	1,016	1,662	704	1,080	4,462
Impact from adopting IFRS 16 (1)	-	-	(27)	-	-	27	-	na	na	na	na	na	na
Disposals (2)	-	(93)	(100)	(120)	(25)	(22)	(360)	-	(114)	(101)	(12)	(20)	(247)
Depreciation	-	64	218	52	107	360	801	-	59	227	51	98	435
Foreign exchange and other	-	4	11	6	11	(2)	30	-	-	(2)	(1)	(1)	(4)
Balance at end of year	-	936	1,888	680	1,250	363	5,117	-	961	1,786	742	1,157	4,646
Net carrying value	112	518	593	224	519	2,217	4,183	109	573	684	231	458	2,055

(1) Effective November 1, 2019, we adopted IFRS 16 Leases, recognizing the cumulative effect of adoption in opening retained earnings with no changes to prior periods (Note 1).

(2) Includes net book value of buildings transferred to right-of-use assets.

(3) Includes fully depreciated assets written off.

na - not applicable due to IFRS 16 adoption.

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.

Clearpool Group Inc. (Clearpool)

On April 6, 2020, we completed the acquisition of Clearpool, a New York-based provider of electronic trading solutions, operating in the United States and Canada, for cash consideration of US\$139 million (CAD\$196 million) plus contingent consideration of approximately US\$7 million (CAD\$11 million) based on meeting certain revenue targets over four years. 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 \$85 million and goodwill of \$132 million. The intangible assets are being amortized over three to eight years. Goodwill related to this acquisition is not 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)	Clearpool
Goodwill and intangible assets	217
Other assets	44
Total assets	261
Liabilities	54
Purchase price	207

The purchase price allocation for Clearpool has been completed.

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 2.5% (2.5% in 2019). The discount rates we applied in determining the

recoverable amounts in 2020 ranged from 6.0% to 10.3% (8.0% to 11.0% in 2019), 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, 2020, 2019 or 2018.

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 the 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, 2020 and 2019 is as follows:

(Canadian \$ in millions)	Personal and Commercial Banking			Traditional Wealth Management		BMO Wealth Management	BMO Capital Markets	Total
	Canadian P&C	U.S. P&C	Total	Management	Insurance	Total		
Balance – October 31, 2018	97	3,797	3,894	2,129	2	2,131	348	6,373
Foreign exchange and other (1)	–	(1)	(1)	16	–	16	(48)	(33)
Balance – October 31, 2019	97	3,796	3,893	2,145	2	2,147	300	6,340
Acquisitions during the year	–	–	–	–	–	–	132	132
Foreign exchange and other (1)	–	45	45	23	–	23	(5)	63
Balance – October 31, 2020	97 (2)	3,841 (3)	3,938	2,168 (4)	2 (5)	2,170	427 (6)	6,535

(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 Limited, 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, KGS-Alpha Capital Markets and Clearpool.

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, 2018	688	951	191	4,127	496	384	6,837
Additions (disposals)	–	–	–	718	(91)	30	657
Foreign exchange and other	72	–	–	(9)	(3)	33	93
Cost as at October 31, 2019	760	951	191	4,836 (1)	402	447	7,587
Additions (disposals)	–	–	–	562	(124)	(17)	421
Foreign exchange and other	7	11	2	18	2	(2)	38
Cost as at October 31, 2020	767	962	193	5,416 (1)	280	428	8,046

(1) Includes \$4,458 million of internally generated software as at October 31, 2020 (\$3,969 million as at October 31, 2019).

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, 2018	475	830	191	2,970	–	99	4,565
Amortization	60	48	–	395	–	51	554
Disposals	–	–	–	(11)	–	–	(11)
Foreign exchange and other	16	–	–	7	–	32	55
Accumulated amortization at October 31, 2019	551	878	191	3,361 (1)	–	182	5,163
Amortization	52	46	–	478	–	44	620
Disposals	–	–	–	(173)	–	(38)	(211)
Foreign exchange and other	13	9	2	15	–	(7)	32
Accumulated amortization at October 31, 2020	616	933	193	3,681 (1)	–	181	5,604
Carrying value at October 31, 2020	151	29	–	1,735	280	247	2,442
Carrying value at October 31, 2019	209	73	–	1,475	402	265	2,424

(1) Includes \$2,909 million of internally generated software as at October 31, 2020 (\$2,594 million as at October 31, 2019).

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 \$172 million as at October 31, 2020 (\$168 million as at October 31, 2019) 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.

There were write-downs of software-related intangible assets of \$5 million during the year ended October 31, 2020 (\$10 million in 2019 and \$13 million in 2018).

Note 12: Other Assets

Customers' Liability under Acceptances

Acceptances represent a form of negotiable short-term debt issued by our customers, which we guarantee for a fee. The fees earned are recorded in non-interest revenue, 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 in 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 in our Consolidated Balance Sheet.

Other

The components of other within other assets are as follows:

(Canadian \$ in millions)	2020	2019
Accounts receivable, prepaid expenses and other items	2,942	2,700
Accrued interest receivable	1,586	1,755
Bank owned life insurance policies	4,352	4,242
Leased vehicles, net of accumulated amortization	677	870
Cash collateral	6,344	3,722
Due from clients, dealers and brokers	161	177
Insurance-related assets	1,507	1,163
Other employee future benefits assets (Note 21)	38	46
Pension asset (Note 21)	124	186
Precious metals (1)	7,744	1,719
Total	25,475	16,580

(1) Precious metals are recorded at their fair value based on quoted prices in active markets.
Certain comparative figures have been reclassified to conform with the current year's presentation.

Note 13: Deposits

(Canadian \$ in millions)	Payable on demand				2020	2019
	Interest bearing	Non-interest bearing	Payable after notice	Payable on a fixed date (3)		
Deposits by:						
Banks (1)	3,594	2,460	1,231	31,540	38,825	23,816
Business and government	44,111	44,258	124,813	187,497	400,679	343,157
Individuals	4,661	30,369	111,905	72,595	219,530	201,170
Total (2) (4)	52,366	77,087	237,949	291,632	659,034	568,143
Booked in:						
Canada	41,855	67,873	112,543	185,655	407,926	349,714
United States	8,818	9,170	124,129	78,175	220,292	189,546
Other countries	1,693	44	1,277	27,802	30,816	28,883
Total	52,366	77,087	237,949	291,632	659,034	568,143

(1) Includes regulated and central banks.

(2) Includes structured notes designated at FVTPL.

(3) Includes \$25,651 million of senior unsecured debt as at October 31, 2020 subject to the Bank Recapitalization (Bail-In) regime (\$16,248 million as at October 31, 2019). The Bail-In regime provides certain statutory powers to the Canada Deposit Insurance Corporation, including the ability to convert specified eligible shares and liabilities into common shares if the bank becomes non-viable.

(4) Included in deposits as at October 31, 2020 and 2019 are \$322,951 million and \$279,860 million, respectively, of deposits denominated in U.S. dollars, and \$32,254 million and \$36,680 million, respectively, of deposits denominated in other foreign currencies.

Deposits payable on demand are comprised primarily of our customers' chequing accounts, on some of which we pay interest. 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 retail and small business term deposits, wholesale funding, and guaranteed investment certificates. Deposits totalling \$27,353 million as at October 31, 2020 (\$30,051 million as at October 31, 2019) can be early redeemed (either fully or partially) by customers without penalty. As we do not expect a significant amount to be redeemed before maturity, we have classified them based on their remaining contractual maturities.
- Commercial paper, which totalled \$8,358 million as at October 31, 2020 (\$9,495 million as at October 31, 2019).
- Covered bonds, which totalled \$24,699 million as at October 31, 2020 (\$25,465 million as at October 31, 2019).

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

(Canadian \$ in millions)	Within 1 year	1 to 2 years	2 to 3 years	3 to 4 years	4 to 5 years	Over 5 years	Total
As at October 31, 2020	192,617	27,855	30,053	18,260	9,683	13,164	291,632
As at October 31, 2019	183,952	34,401	23,855	21,735	16,959	13,991	294,893

We have unencumbered liquid assets of \$306,120 million to support these and other deposit liabilities (\$249,650 million in 2019).

The following table presents deposits payable on a fixed date greater than one hundred thousand dollars:

(Canadian \$ in millions)	Canada	United States	Other	Total
As at October 31, 2020	158,475	72,186	27,799	258,460
As at October 31, 2019	152,499	79,682	26,681	258,862

Comparative figures have been reclassified to conform with the current period's presentation.

The following table presents the maturity schedule for deposits greater than one hundred thousand dollars booked in Canada:

(Canadian \$ in millions)	Less than 3 months	3 to 6 months	6 to 12 months	Over 12 months	Total
As at October 31, 2020	18,081	29,679	28,109	82,606	158,475
As at October 31, 2019	26,234	8,400	31,155	86,710	152,499

Comparative figures have been reclassified to conform with the current period's presentation.

Most of our structured note liabilities included in deposits have been designated at fair value through profit or loss, which aligns the accounting result with the way the portfolio is managed. The change in fair value of these structured notes is recorded in non-interest revenue, trading revenues with the changes in fair value due to own credit risk recognized in other comprehensive income. The impact of changes in our own credit risk is measured based on movements in our own credit spread year over year.

The following table presents fair value and changes in fair value of structured note liabilities:

(Canadian \$ in millions)	Fair value	Notional amount due at contractual maturity	Change in fair value recorded in the Consolidated Statement of Income (1)	Change in fair value due to own credit risk recorded in OCI (before tax)	Cumulative change in fair value due to own credit risk recorded in AOCI (before tax)
As at October 31, 2020	18,073	19,175	1,319	(26)	(168)
As at October 31, 2019	15,829	15,431	(1,414)	114	(141)

(1) Change in fair value may be offset by related change in fair value on hedge contracts.

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 non-interest revenue, 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 in 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 in 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 securities borrowed or purchased under resale agreements or other liabilities, securities lent or sold under repurchase agreements, 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 at fair value in securities sold but not yet purchased, 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.

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 programs. Additional information on our securitization programs 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)	2020	2019
Accounts payable, accrued expenses and other items	8,719	8,613
Accrued interest payable	1,359	1,693
Cash collateral	6,596	5,128
Insurance-related liabilities	12,441	11,581
Lease Liabilities (1)	2,409	na
Liabilities of subsidiaries, other than deposits	-	7,934
Other employee future benefits liability (Note 21)	1,147	1,125
Payable to brokers, dealers and clients	2,969	2,204
Pension liability (Note 21)	553	329
Total	36,193	38,607

(1) Effective November 1, 2019, we adopted IFRS 16 Leases, recognizing the cumulative effect of adoption in opening retained earnings with no changes to prior periods (Note 1).

Insurance-Related Liabilities

We are engaged in insurance businesses related to life insurance, annuities, which includes pension risk, accident and sickness, creditor insurance, 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 change in fair value of these investment contract liabilities is recorded in insurance claims, commissions and changes in policy benefit liabilities with the exception of changes in our own credit risk recognized in other comprehensive income. The impact of changes in our own credit risk 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.

The following table presents fair value and changes in fair value in our investment contract liabilities.

(Canadian \$ in millions)	Fair value	Notional amount due at contractual maturity	Change in fair value recorded in the Consolidated Statement of Income	Change in fair value due to own credit risk recorded in OCI (before tax)	Cumulative change in fair value due to own credit risk recognized in AOCI (before tax)
As at October 31, 2020	1,168	1,594	88	(12)	(46)
As at October 31, 2019	1,043	1,529	119	(12)	(33)

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)	2020	2019
Insurance-related liabilities, beginning of year	11,581	9,585
Increase (decrease) in life insurance policy benefit liabilities from:		
New business	476	706
In-force policies	182	906
Changes in actuarial assumptions and methodology	(58)	23
Net increase in life insurance policy benefit liabilities	600	1,635
Change in other insurance-related liabilities	260	361
Insurance-related liabilities, end of year	12,441	11,581

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, 2020, 2019 and 2018, as shown in the table below:

(Canadian \$ in millions)	2020	2019	2018
Direct premium income	1,582	1,944	1,976
Ceded premiums	(154)	(158)	(148)
	1,428	1,786	1,828

Lease Liabilities

Beginning November 1, 2019, when we enter into leases we record lease liabilities representing the present value of future lease payments over the lease term. Interest expense recorded on lease liabilities for the year ended October 31, 2020 was \$53 million. Total cash outflow for lease liabilities for the year ended October 31, 2020 was \$384 million. Variable lease payments (for example maintenance, utilities and property taxes) not included in the measurement of lease liabilities for the year ended October 31, 2020 was \$219 million. IFRS 16 was adopted on November 1, 2019, prior period amounts are not applicable.

The maturity profile of our undiscounted lease liabilities is \$380 million for 2021, \$332 million for 2022, \$293 million for 2023, \$275 million for 2024, \$234 million for 2025 and \$1,234 million thereafter.

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	2020 Total	2019 Total
Debentures Series 20	150	December 2025 to 2040	8.25	Not redeemable	146	145
Series H Medium-Term Notes, Second Tranche (8)	1,000	December 2025	3.34	December 2020 (1)	961	983
Series I Medium-Term Notes, First Tranche (8)	1,250	June 2026	3.32	June 2021 (2)	1,242	1,230
Series I Medium-Term Notes, Second Tranche (8)	850	June 2027	2.57	June 2022 (3)	833	820
3.803% Subordinated Notes due 2032 (8)	US 1,250	December 2032	3.80	December 2027 (4)	1,771	1,646
4.338% Subordinated Notes due 2028 (8)	US 850	October 2028	4.34	October 2023 (5)	1,219	1,180
Series J Medium-Term Notes, First Tranche (8)	1,000	September 2029	2.88	September 2024 (6)	996	991
Series J Medium-Term Notes, Second Tranche (8)(9)	1,250	June 2030	2.08	June 2025 (7)	1,248	-
Total (10)					8,416	6,995

(1) 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. On November 2, 2020, we announced our intention to redeem all of our \$1,000 million Series H Medium-Term Notes, Second Tranche on December 8, 2020.

(2) 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.

(3) 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.

(4) Redeemable at par on December 15, 2027 together with accrued and unpaid interest to, but excluding, the redemption date.

(5) Redeemable at par on October 5, 2023 together with accrued and unpaid interest to, but excluding, the redemption date.

(6) Redeemable at par on September 17, 2024 together with accrued and unpaid interest to, but excluding, the redemption date.

(7) Redeemable at par on June 17, 2025 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, they 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 applying the multiplier.

(9) On June 17, 2020, we issued \$1,250 million of Series J Medium-Term Notes, Second Tranche.

(10) Certain amounts of subordinated debt were issued at a premium or discount and include fair value hedge adjustments, which together increased their carrying value as at October 31, 2020 by \$119 million (decreased by \$20 million in 2019); see Note 8 for further details on hedge adjustments. The carrying value is also adjusted for our subordinated debt holdings, held for market-making purposes.

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 104 to 105 of this report.

Note 16: Equity

Preferred and Common Shares Outstanding and Other Equity Instruments

(Canadian \$ in millions, except as noted)

	2020			2019		
	Number of shares	Amount	Dividends declared per share	Number of shares	Amount	Dividends declared per share
Preferred Shares – Classified as Equity						
Class B – Series 25	9,425,607	236	0.45	9,425,607	236	0.45
Class B – Series 26	2,174,393	54	0.52	2,174,393	54	0.70
Class B – Series 27	20,000,000	500	0.96	20,000,000	500	0.98
Class B – Series 29	16,000,000	400	0.91	16,000,000	400	0.96
Class B – Series 31	12,000,000	300	0.96	12,000,000	300	0.95
Class B – Series 33	8,000,000	200	0.90	8,000,000	200	0.95
Class B – Series 35 (6)	6,000,000	150	1.25	6,000,000	150	1.25
Class B – Series 36 (6)	600,000	600	58.50	600,000	600	58.50
Class B – Series 38	24,000,000	600	1.21	24,000,000	600	1.21
Class B – Series 40	20,000,000	500	1.13	20,000,000	500	1.13
Class B – Series 42	16,000,000	400	1.10	16,000,000	400	1.10
Class B – Series 44	16,000,000	400	1.21	16,000,000	400	1.44
Class B – Series 46 (1)	14,000,000	350	1.28	14,000,000	350	0.77
Preferred Shares – Classified as Equity		4,690			4,690	
Other Equity Instruments						
4.8% Additional Tier 1 Capital Notes (2)		658			658	
4.3% Limited Recourse Capital Notes, Series 1 (3)		1,250			-	
Preferred Shares and Other Equity Instruments		6,598			5,348	
Common Shares						
Balance at beginning of year	639,232,276	12,971		639,329,625	12,929	
Issued under the Shareholder Dividend Reinvestment and Share Purchase Plan	6,746,237	471		-	-	
Issued/cancelled under the Stock Option Plan and other stock-based compensation plans (Note 20)	563,613	40		902,651	62	
Repurchased for cancellation and/or treasury shares sold/purchased (4)(5)	(652,730)	(52)		(1,000,000)	(20)	
Balance at End of Year	645,889,396	13,430	4.24	639,232,276	12,971	4.06

(1) On April 17, 2019, we issued 14 million Non-Cumulative 5-Year Rate Reset Class B Preferred Shares, Series 46, at a price of \$25.00 cash per share for gross proceeds of \$350 million.

(2) On July 30, 2019, we issued US\$500 million 4.8% Additional Tier 1 Capital Notes.

(3) On September 16, 2020, we issued \$1,250 million 4.3% Limited Recourse Capital Notes, Series 1.

(4) Common shares are net of 652,730 treasury shares as at October 31, 2020.

(5) During fiscal 2020, we did not purchase any of our common shares under the normal course issuer bid (NCIB). During fiscal 2019, we repurchased and cancelled 1 million of our common shares as part of the NCIB at an average cost of \$90.00 per share, totalling \$90 million.

(6) Series 35 and Series 36 were redeemed and final dividends were paid on November 25, 2020.

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	\$ 0.24075 (2)	2.33%	May 25, 2024 (3)(4)	Class B – Series 28 (8)(9)
Class B – Series 29	25.00	\$ 0.2265 (2)	2.24%	August 25, 2024 (3)(4)	Class B – Series 30 (8)(9)
Class B – Series 31	25.00	\$0.240688 (2)	2.22%	November 25, 2024 (3)(4)	Class B – Series 32 (8)(9)
Class B – Series 33	25.00	\$0.190875 (2)	2.71%	August 25, 2025 (3)(4)	Class B – Series 34 (8)(9)
Class B – Series 35	25.00	\$ 0.3125 (6)	Does not reset	August 25, 2020 (6)	Not convertible (6)
Class B – Series 36	1,000.00	\$ 14.6250 (6)	4.97%	November 25, 2020 (6)	Class B – Series 37 (6)
Class B – Series 38	25.00	\$0.303125 (2)	4.06%	February 25, 2022 (3)(4)	Class B – Series 39 (8)(9)
Class B – Series 40	25.00	\$ 0.28125 (2)	3.33%	May 25, 2022 (3)(4)	Class B – Series 41 (8)(9)
Class B – Series 42	25.00	\$ 0.2750 (2)	3.17%	August 25, 2022 (3)(4)	Class B – Series 43 (8)(9)
Class B – Series 44	25.00	\$0.303125 (2)	2.68%	November 25, 2023 (3)(4)	Class B – Series 45 (8)(9)
Class B – Series 46	25.00	\$ 0.31875 (2)	3.51%	May 25, 2024 (3)(4)	Class B – Series 47 (8)(9)

(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, the shares will become floating rate preferred shares.

(5) Convertible on the date noted and every five years thereafter if not redeemed. If converted, the shares will become fixed rate preferred shares.

(6) Series 35 and Series 36 were redeemed and final dividends were paid on November 25, 2020.

(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.

(9) The shares issued include a non-viability contingent capital provision, which is necessary for the shares to qualify as regulatory capital under Basel III. Refer to the Non-Viability Contingent Capital paragraph below for details.

On November 25, 2020, BMO redeemed all of its 6 million issued and outstanding Non-Cumulative Perpetual Class B Preferred Shares, Series 35 (Non-Viability Contingent Capital (NVCC)) for an aggregate total of \$156 million and all of its 600,000 issued and outstanding Non-Cumulative 5-Year Rate Reset Class B Preferred Shares, Series 36 (NVCC) for an aggregate total of \$600 million.

On June 29, 2020, we announced that we did not intend to exercise our right to redeem the current outstanding Non-Cumulative 5-Year Rate Reset Class B Preferred Shares, Series 33 (Preferred Shares Series 33) on August 25, 2020. As a result, subject to certain conditions, the holders of Preferred Shares Series 33 had the right, at their option, by August 10, 2020, to convert any or all of their Preferred Shares Series 33 on a one-for-one basis into Non-Cumulative Floating Rate Class B Preferred Shares, Series 34 (Preferred Shares Series 34). During the conversion period, which ran from July 27, 2020 to August 10, 2020, 118,563 Preferred Shares Series 33 were tendered for conversion into Preferred Shares Series 34, which is less than the minimum 1,000,000 required to give effect to the conversion, as described in the Preferred Shares Series 33 prospectus supplement dated May 29, 2015. As a result, no Preferred Shares Series 34 were issued and holders of Preferred Shares Series 33 retained their shares. The dividend rate for the Preferred Shares Series 33 for the five-year period commencing on August 25, 2020, and ending on August 24, 2025, is 3.054%.

Other Equity Instruments

On September 16, 2020, we issued \$1,250 million 4.3% Limited Recourse Capital Notes Series 1 (LRCN) (NVCC), which are classified as equity and form part of our Additional Tier 1 non-viability contingent capital. Upon the occurrence of a recourse event, the noteholders will have recourse to assets held in a consolidated trust managed by a third party trustee. The trust assets are currently comprised of \$1,250 million of BMO issued Non-Cumulative, 5-Year Rate Reset Class B Preferred Shares, Series 48 (NVCC) (Preferred Shares Series 48) issued concurrently with the LRCN. As the Preferred Shares Series 48 eliminate on consolidation, they do not currently form part of our Additional Tier 1 capital.

On July 30, 2019, we issued US\$500 million 4.8% Additional Tier 1 Capital Notes (NVCC) (AT1 notes), which are also classified as equity and form part of our additional Tier 1 capital.

Both the LRCN and AT1 notes are compound financial instruments that have both equity and liability features. On the date of issuance, we assigned an insignificant value to the liability components of both types of instrument and, as a result, the full amount of proceeds have been classified as equity. Semi-annual distributions on the LRCN and AT1 notes will be recorded when payable. The LRCN and AT1 notes are subordinate to the claims of the depositors and certain other creditors in right of payment. The following table shows the details of our AT1 notes and LRCN as at October 31, 2020 and 2019.

(Canadian \$ in millions, except as noted)					2020	2019
	Face value	Interest rate (%)	Redeemable at our option	Convertible to	Total	Total
4.8% Additional Tier 1 Capital Notes	US\$500	4.8 (1)	August 2024 (2)	Variable number of common shares (3)	658	658
4.3% Limited Recourse Capital Notes	\$1,250	4.3 (4)	November 2025 (2)	Variable number of common shares (4)	1,250	–
Total					1,908	658

(1) Non-cumulative interest is payable semi-annually in arrears, at the bank's discretion.

(2) The notes are redeemable at a redemption price equal to 100% of the principal amount plus any accrued and unpaid interest, in whole or in part, at our option on any interest payment date on or after the first interest reset date or following certain regulatory or tax events. The bank may, at any time, purchase the notes at any price in the open market.

(3) The notes issued include a non-viability contingent capital provision, which is necessary for the notes to qualify as regulatory capital under Basel III. Refer to the Non-Viability Contingent Capital paragraph below for details.

(4) Non-deferrable interest is payable semi-annually on these notes, at the bank's discretion. Non-payment of interest will result in a recourse event, with the noteholders' sole remedy being the holders' proportionate share of trust assets comprised of our NVCC Preferred Shares Series 48. In such an event, the delivery of the trust assets will represent the full and complete extinguishment of our obligations under the LRCN. In circumstances under which non-viability contingent capital, including the Preferred Shares Series 48, would be converted into common shares of the bank (described below), the LRCN would be redeemed, with noteholders' sole remedy being the holders' proportionate share of trust assets comprised of common shares of the bank received by the trust on conversion of the Preferred Shares Series 48.

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 in 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. 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 the 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, Class B – Series 44 and Class B – Series 46 preferred share issues as well as the AT1 notes and by virtue of the recourse to the Preferred Shares Series 48, the LRCN include a non-viability contingent capital provision, which is necessary for them to qualify as regulatory capital under Basel III. As such, they 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 or other equity instrument 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 value of the preferred share or other equity instrument issuance, including declared and unpaid dividends on such preferred share or other equity instrument issuance, by the conversion price and then applying the multiplier.

Normal Course Issuer Bid

Our previous normal course issuer bid (NCIB) expired on June 2, 2020. Our plan, subject to the approval of OSFI and the Toronto Stock Exchange, was to establish a new NCIB permitting us to purchase for cancellation up to 12 million common shares over a 12-month period, commencing on or about June 3, 2020. The renewal process was put on hold in light of OSFI's announcement on March 13, 2020 that all share buybacks by Federally Regulated Financial Institutions should be halted for the time being.

During fiscal 2020, we did not purchase any of our common shares under the NCIB. During fiscal 2019, we repurchased and cancelled 1 million of our common shares as part of the NCIB at an average cost of \$90.00 per share, totalling \$90 million.

Share Redemption and Dividend Restrictions

OSFI must approve any plan to redeem any of our preferred share issues or other equity instruments 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 and, in certain circumstances Class B preferred share dividends cannot be paid unless dividends on our Preferred Shares Series 48 have been paid.

In addition, if the bank does not pay the interest in full on the Additional Tier 1 Capital Notes, the bank will not declare dividends on its common shares or preferred shares or redeem, purchase or otherwise retire such shares until the month commencing after the bank resumes full interest payments on the Additional Tier 1 Capital Notes.

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.

In the first and second quarters of fiscal 2020, common shares to supply the DRIP were purchased on the open market. In the third and fourth quarters of fiscal 2020, common shares to supply the dividend reinvestment feature of the DRIP were issued from treasury at a 2% discount from their then-current market price. During fiscal 2019, common shares to supply the DRIP were purchased on the open market.

Potential Share Issuances

As at October 31, 2020, we had reserved 33,200,910 common shares (39,947,147 in 2019) for potential issuance in respect of the DRIP. We have also reserved 6,446,110 common shares (6,108,307 in 2019) 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 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 carried out 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.

Mortgage-Backed Securities and Collateralized Mortgage Obligations

The fair value of mortgage-backed securities and collateralized mortgage obligations is determined using prices obtained from independent third-party vendors, 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, default 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 third party vendors.

Trading Loans

The fair value of trading loans is determined by referring to current market prices for the same or similar instruments.

Corporate Equity Securities

The fair value of corporate 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 our privately issued securities includes net asset values published by third-party fund managers as applicable.

Prices from dealers, brokers and third party vendors 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 vendors employ a valuation model that 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, other than credit card loans, we discount the remaining contractual cash flows, adjusted for estimated prepayment, at market interest rates currently offered for loans with similar terms and credit risks. For credit card performing loans, fair value is considered to be equal to carrying value, due to their short-term nature.

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.

The fair value of loans is not adjusted for the value of any credit protection purchased to mitigate credit risk.

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, foreign 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 models calculate fair value based on inputs specific to the type of contract, which may include stock prices, correlation for multiple assets, interest rates, foreign currency exchange rates, yield curves and volatilities.

We calculate a credit valuation adjustment (CVA) to recognize the credit risk that the bank's counterparty may not ultimately be able to fulfill its derivative 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 our own 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 related to these deposits, adjusted for expected redemptions, at market interest rates currently offered for deposits with similar terms and risks. The 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 flow models that use market interest rate yield curves and funding spreads.
- For fixed rate deposits with no defined maturities, we consider fair value to equal carrying value, since carrying value is 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 considered to equal carrying value.

Certain 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 our 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

Carrying value is considered 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.

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 in our Consolidated Balance Sheet.

(Canadian \$ in millions)

2020

	Carrying value	Fair value	Valued using quoted market prices	Valued using models (with observable inputs)	Valued using models (without observable inputs)
Securities (1)					
Amortized cost	48,466	49,009	18,831	30,178	-
Loans (1)					
Residential mortgages	126,882	128,815	-	128,815	-
Consumer instalment and other personal	69,480	70,192	-	70,192	-
Credit cards	7,556	7,556	-	7,556	-
Business and government (2)	238,239	239,929	-	239,929	-
	442,157	446,492	-	446,492	-
Deposits (3)	640,961	643,156	-	643,156	-
Securitization and structured entities' liabilities	26,889	27,506	-	27,506	-
Subordinated debt	8,416	8,727	-	8,727	-

(1) Carrying value is net of allowance.

(2) Excludes \$2,890 million of loans classified as FVTPL and \$51 million of loans classified as FVOCI.

(3) Excludes \$18,073 million of structured note liabilities designated at FVTPL.

This table excludes certain 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.

	Carrying value	Fair value	Valued using quoted market prices	Valued using models (with observable inputs)	Valued using models (without observable inputs)
Securities (1)					
Amortized cost	24,472	24,622	13,612	11,010	-
Loans (1)					
Residential mortgages	123,676	124,093	-	124,093	-
Consumer instalment and other personal	67,200	67,516	-	67,516	-
Credit cards	8,623	8,623	-	8,623	-
Business and government (2)	224,442	225,145	-	225,145	-
	423,941	425,377	-	425,377	-
Deposits (3)	552,314	553,444	-	553,444	-
Securitization and structured entities' liabilities	27,159	27,342	-	27,342	-
Subordinated debt	6,995	7,223	-	7,223	-

(1) Carrying value is net of allowance.

(2) Excludes \$2,156 million of loans classified as FVTPL and \$22 million of loans classified as FVOCI.

(3) Excludes \$15,829 million of structured note liabilities designated at FVTPL.

This table excludes certain 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.

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 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 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, business and government loans classified as FVTPL, fair value liabilities, derivative assets and derivative liabilities is presented in the following table:

(Canadian \$ in millions)	2020				2019			
	Valued using quoted market prices	Valued using models (with observable inputs)	Valued using models (without observable inputs)	Total	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	6,529	4,371	-	10,900	6,959	1,371	-	8,330
Canadian provincial and municipal governments	1,868	6,467	-	8,335	3,871	3,656	-	7,527
U.S. federal government	5,702	2,716	-	8,418	8,001	762	-	8,763
U.S. states, municipalities and agencies	16	487	-	503	48	626	-	674
Other governments	1,021	1,495	-	2,516	888	697	-	1,585
NHA MBS and U.S. agency MBS and CMO	7	11,487	803	12,297	14	10,494	538	11,046
Corporate debt	3,767	7,274	-	11,041	2,620	5,091	7	7,718
Trading loans	-	67	-	67	-	103	-	103
Corporate equity	43,757	-	-	43,757	40,155	2	-	40,157
	62,667	34,364	803	97,834	62,556	22,802	545	85,903
FVTPL Securities								
Issued or guaranteed by:								
Canadian federal government	452	149	-	601	410	107	-	517
Canadian provincial and municipal governments	180	1,249	-	1,429	364	915	-	1,279
U.S. federal government	-	44	-	44	-	48	-	48
Other governments	-	94	-	94	-	49	-	49
NHA MBS and U.S. agency MBS and CMO	-	3	-	3	-	5	-	5
Corporate debt	70	7,827	-	7,897	146	8,071	-	8,217
Corporate equity	1,587	10	1,903	3,500	1,536	69	1,984	3,589
	2,289	9,376	1,903	13,568	2,456	9,264	1,984	13,704
FVOCI Securities								
Issued or guaranteed by:								
Canadian federal government	20,765	1,685	-	22,450	11,168	776	-	11,944
Canadian provincial and municipal governments	2,604	2,143	-	4,747	3,798	2,214	-	6,012
U.S. federal government	14,852	2,842	-	17,694	15,068	907	-	15,975
U.S. states, municipalities and agencies	8	5,267	1	5,276	1	4,159	1	4,161
Other governments	3,643	3,738	-	7,381	4,396	2,939	-	7,335
NHA MBS and U.S. agency MBS and CMO	-	12,532	-	12,532	-	14,000	-	14,000
Corporate debt	792	2,442	-	3,234	2,205	2,802	-	5,007
Corporate equity	-	-	93	93	-	-	81	81
	42,664	30,649	94	73,407	36,636	27,797	82	64,515
Business and Government Loans								
	-	996	1,945	2,941	-	442	1,736	2,178
Precious Metals								
	7,744	-	-	7,744	1,719	-	-	1,719
Fair Value Liabilities								
Securities sold but not yet purchased	19,740	9,636	-	29,376	22,393	3,860	-	26,253
Structured note liabilities	-	18,073	-	18,073	-	15,829	-	15,829
Investment contract liabilities	-	1,168	-	1,168	-	1,043	-	1,043
	19,740	28,877	-	48,617	22,393	20,732	-	43,125
Derivative Assets								
Interest rate contracts	13	14,916	-	14,929	14	10,443	-	10,457
Foreign exchange contracts	1	10,825	-	10,826	7	9,262	-	9,269
Commodity contracts	123	2,465	-	2,588	329	817	-	1,146
Equity contracts	750	7,711	-	8,461	226	997	-	1,223
Credit default swaps	-	11	-	11	-	49	-	49
	887	35,928	-	36,815	576	21,568	-	22,144
Derivative Liabilities								
Interest rate contracts	22	10,871	-	10,893	11	7,943	-	7,954
Foreign exchange contracts	3	10,609	-	10,612	20	10,843	-	10,863
Commodity contracts	350	1,983	-	2,333	218	1,462	-	1,680
Equity contracts	456	6,067	-	6,523	103	2,896	-	2,999
Credit default swaps	-	10	4	14	-	101	1	102
	831	29,540	4	30,375	352	23,245	1	23,598

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

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, 2020 (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)	
					Low	High
Private equity (2)	Corporate equity	1,903	Net asset value EV/EBITDA	Net asset value Multiple	na 5x	na 17x
Loans (3)	Business and government loans	1,945	Discounted cash flows	Discount margin	65 bps	141 bps
NHA MBS and U.S. agency MBS and CMO	NHA MBS and U.S. agency MBS and CMO	803	Discounted cash flows Market Comparable	Prepayment rate Comparability Adjustment (4)	6% (4.93)	62% 5.74

(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 each 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) Included in private equity is \$487 million of U.S. Federal Reserve Bank and U.S. Federal Home Loan Bank shares that we carry at cost, which approximates fair value, and hold to meet regulatory requirements.

(3) The impact of assuming a 10 basis point increase or decrease in discount margin for business and government loans is \$3 million.

(4) Range of input values represents price per security adjustment.

na - not applicable

As at October 31, 2019 (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)	
					Low	High
Private equity (2)	Corporate equity	1,984	Net asset value EV/EBITDA	Net asset value Multiple	na 5x	na 16x
Loans (3)	Business and government loans	1,736	Discounted cash flows	Discount margin	70 bps	115 bps
NHA MBS and U.S. agency MBS and CMO	NHA MBS and U.S. agency MBS and CMO	538	Discounted cash flows Market Comparable	Prepayment rate Comparability Adjustment (4)	2% (5.91)	30% 8.57

(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 each 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) Included in private equity is \$829 million of Federal Reserve Bank and U.S. Federal Home Loan Bank shares that we carry at cost, which approximates fair value, and hold to meet regulatory requirements.

(3) The impact of assuming a 10 basis point increase or decrease in discount margin for business and government loans is \$3 million.

(4) Range of input values represents price per security adjustment.

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, such as government bonds, have high credit quality ratings and similar maturities. The discount margin therefore represents a market return that accounts for uncertainty in future cash flows. Generally, a higher or lower discount margin will result in a lower or higher fair value.

Prepayment Rates

Discounted cash flow models are used to fair value our NHA MBS and U.S. agency MBS and CMOs. The cash flow model includes assumptions related to conditional prepayment rates, constant default rates and percentage loss on default. Prepayment rates impact our estimate of future cash flows. Changes in the prepayment rate tend to be negatively correlated with interest rates. In other words, an increase in the prepayment rate will result in a higher fair value when the asset interest rate is lower than the current reinvestment rate. A decrease in the prepayment rate will result in a lower fair value when the asset interest rate is higher than the current reinvestment rate.

Comparability Adjustment

Market comparable pricing is used to evaluate the fair value of NHA MBS and U.S. agency MBS and CMOs. This technique involves sourcing prices from third parties for similar instruments and applying adjustments to reflect recent transaction prices and instrument specific characteristics.

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. Transfers from Level 1 to Level 2 were due to reduced observability of the inputs used to value the securities. Transfers from Level 2 to Level 1 were due to increased availability of quoted prices in active markets.

The following table presents significant transfers between Level 1 and Level 2 for the years ended October 31, 2020 and October 31, 2019.

(Canadian \$ in millions)

	2020		2019	
	Level 1 to Level 2	Level 2 to Level 1	Level 1 to Level 2	Level 2 to Level 1
Trading Securities	6,582	5,930	5,831	7,985
FVTPL Securities	667	334	715	808
FVOCI Securities	12,193	13,425	11,014	7,309
Securities sold but not yet purchased	7,781	3,871	9,973	7,898

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, 2020 and 2019, including realized and unrealized gains (losses) included in earnings and other comprehensive income as well as transfers into and out of Level 3. Transfers from Level 2 to Level 3 were due to an increase in unobservable market inputs used in pricing the securities. Transfers out of Level 3 to Level 2 were due to an increase in observable market inputs used in pricing the securities.

For the year ended October 31, 2020 (Canadian \$ in millions)	Change in fair value							Fair value as at October 31, 2020	Change in unrealized gains (losses) recorded in income for instruments still held (3)	
	Balance October 31, 2019	Included in earnings	Included in other comprehensive income (1)	Purchases/ Issuances	Sales (2)	Maturities/ Settlement	Transfers into Level 3			Transfers out of Level 3
Trading Securities										
NHA MBS and U.S. agency MBS and CMO	538	(351)	9	1,338	(715)	-	225	(241)	803	(232)
Corporate debt	7	10	(2)	50	(68)	-	3	-	-	(1)
Total trading securities	545	(341)	7	1,388	(783)	-	228	(241)	803	(233)
FVTPL Securities										
Corporate equity	1,984	4	17	356	(459)	-	1	-	1,903	35
Total FVTPL securities	1,984	4	17	356	(459)	-	1	-	1,903	35
FVOCI Securities										
Issued or guaranteed by:										
U.S. states, municipalities and agencies	1	-	-	-	-	-	-	-	1	na
Corporate equity	81	-	1	11	-	-	-	-	93	na
Total FVOCI securities	82	-	1	11	-	-	-	-	94	na
Business and Government Loans	1,736	(3)	156	1,803	-	(1,747)	-	-	1,945	-
Fair Value Liabilities										
Securities sold but not yet purchased	-	-	-	-	-	-	-	-	-	-
Total fair value liabilities	-	-	-	-	-	-	-	-	-	-
Derivative Liabilities										
Equity contracts	-	-	-	-	-	-	-	-	-	-
Credit default swaps	1	-	-	-	-	-	4	(1)	4	-
Total derivative liabilities	1	-	-	-	-	-	4	(1)	4	-

(1) Foreign exchange translation on trading securities held by foreign subsidiaries is included in other comprehensive income, net foreign operations.

(2) Includes proceeds received on securities sold but not yet purchased.

(3) Changes in unrealized gains (losses) on FVTPL securities still held on October 31, 2020 are included in earnings for the year.

Unrealized gains (losses) recognized on Level 3 financial instruments may be offset by (losses) gains on economic hedge contracts.

na - not applicable

For the year ended October 31, 2019 (Canadian \$ in millions)	Change in fair value							Fair value as at October 31, 2019	Change in unrealized gains (losses) recorded in income for instruments still held (3)	
	Balance October 31, 2018	Included in earnings	Included in other compre- hensive income (1)	Purchases/ Issuances	Sales (2)	Maturities/ Settlement	Transfers into Level 3			Transfers out of Level 3
Trading Securities										
NHA MBS and U.S. agency MBS and CMO	255	(46)	1	654	(399)	-	159	(86)	538	(16)
Corporate debt	7	-	-	44	(43)	-	-	(1)	7	-
Total trading securities	262	(46)	1	698	(442)	-	159	(87)	545	(16)
FVTPL Securities										
Corporate equity	1,825	21	(2)	421	(280)	(1)	-	-	1,984	58
Total FVTPL securities	1,825	21	(2)	421	(280)	(1)	-	-	1,984	58
FVOCI Securities										
Issued or guaranteed by:										
U.S. states, municipalities and agencies	1	-	-	-	-	-	-	-	1	na
Corporate equity	62	-	2	17	-	-	-	-	81	na
Total FVOCI securities	63	-	2	17	-	-	-	-	82	na
Business and Government Loans	1,450	7	8	1,410	-	(1,139)	-	-	1,736	-
Fair Value Liabilities										
Securities sold but not yet purchased	-	-	-	(7)	7	-	-	-	-	na
Total fair value liabilities	-	-	-	(7)	7	-	-	-	-	-
Derivative Liabilities										
Equity contracts	1	-	-	-	-	-	-	(1)	-	-
Credit default swaps	1	-	-	-	-	-	1	(1)	1	-
Total derivative liabilities	2	-	-	-	-	-	1	(2)	1	-

(1) Foreign exchange translation on trading securities held by foreign subsidiaries is included in other comprehensive income, net foreign operations.

(2) Includes proceeds received on securities sold but not yet purchased.

(3) Changes in unrealized gains (losses) on trading securities, derivative assets and derivative liabilities still held on October 31, 2019 are included in earnings for the year.

Unrealized gains (losses) recognized on Level 3 financial instruments may be offset by (losses) gains on economic hedge contracts.

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 our 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 our 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)	2020	2019	2018
Interest rates	1,199	700	437
Foreign exchange	474	401	377
Equities	(32)	269	449
Commodities	271	145	63
Other	34	6	95
Total trading revenue	1,946	1,521	1,421
Reported as:			
Net interest income	1,931	1,223	716
Non-interest revenue - trading revenue	15	298	705
Total trading revenue	1,946	1,521	1,421

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)

2020

	Gross amounts	Amounts offset in the balance sheet	Net amounts presented in the balance sheet	Amounts not offset in the balance sheet			Net amount (3)
				Impact of master netting agreements	Securities received/pledged as collateral (1)(2)	Cash collateral	
Financial Assets							
Securities borrowed or purchased under resale agreements	115,863	3,985	111,878	17,302	92,066	194	2,316
Derivative instruments	37,164	349	36,815	19,302	3,318	4,799	9,396
	153,027	4,334	148,693	36,604	95,384	4,993	11,712
Financial Liabilities							
Derivative instruments	30,724	349	30,375	19,302	3,011	3,301	4,761
Securities lent or sold under repurchase agreements	92,643	3,985	88,658	17,302	70,374	263	719
	123,367	4,334	119,033	36,604	73,385	3,564	5,480

(Canadian \$ in millions)

2019

	Gross amounts	Amounts offset in the balance sheet	Net amounts presented in the balance sheet	Amounts not offset in the balance sheet			Net amount (3)
				Impact of master netting agreements	Securities received/pledged as collateral (1)(2)	Cash collateral	
Financial Assets							
Securities borrowed or purchased under resale agreements	104,949	945	104,004	9,919	93,062	82	941
Derivative instruments	22,423	279	22,144	13,538	1,740	2,750	4,116
	127,372	1,224	126,148	23,457	94,802	2,832	5,057
Financial Liabilities							
Derivative instruments	23,877	279	23,598	13,538	1,940	2,971	5,149
Securities lent or sold under repurchase agreements	87,601	945	86,656	9,919	76,501	4	232
	111,478	1,224	110,254	23,457	78,441	2,975	5,381

(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; underpins our operating groups' business strategies; supports depositor, investor and regulator confidence, while building long-term shareholder value; and is consistent with our target credit ratings.

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 for the bank are determined in accordance with OSFI's Capital Adequacy Requirements Guideline, which is based on the Basel III framework developed by the Basel Committee on Banking Supervision. To address the market disruption posed by the COVID-19 pandemic, OSFI announced a suite of modifications to capital requirements effective from the second quarter of 2020.

Common Equity Tier 1 (CET1) capital is the most permanent form of capital. It is comprised of common shareholders' equity and may include a portion of expected credit loss provisions, less deductions for goodwill, intangible assets and certain other items. Tier 1 capital is primarily comprised of CET1, preferred shares and other equity instruments, less regulatory deductions.

Tier 2 capital is primarily comprised of subordinated debentures and may include a portion of expected credit loss provisions, less 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 CET1 capital divided by risk-weighted assets.
- The Tier 1 Capital Ratio is defined as Tier 1 capital divided by risk-weighted assets.
- The Total Capital Ratio is defined as Total capital divided by risk-weighted assets.
- The Leverage Ratio is defined as Tier 1 capital divided by leverage exposures, which consists of on-balance sheet items and specified off-balance sheet items, net of specified adjustments.

As at October 31, 2020, 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 1.0% Domestic Stability Buffer.

Regulatory Capital Measures, Risk-Weighted Assets and Leverage Exposures ⁽¹⁾

(Canadian \$ in millions, except as noted)	2020	2019
CET1 Capital	40,077	36,071
Tier 1 Capital	45,840	41,201
Total Capital	54,661	48,340
Risk-Weighted Assets	336,607	317,029
Leverage Exposures	953,640	956,493
CET1 Capital Ratio	11.9%	11.4%
Tier 1 Capital Ratio	13.6%	13.0%
Total Capital Ratio	16.2%	15.2%
Leverage Ratio	4.8%	4.3%

(1) Reflects modifications to capital requirements announced by OSFI in response to the COVID-19 pandemic in the second quarter of fiscal 2020 which remain in effect.

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 vest in equal tranches of 50% on the third and fourth anniversaries of their grant date. Each tranche is treated as a separate award with a different vesting period. In general, 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)	2020		2019		2018	
	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	6,108,307	76.59	6,095,201	72.19	7,525,296	72.05
Granted	976,087	101.47	931,047	89.90	705,398	100.63
Exercised	563,613	61.89	902,651	60.21	1,513,307	58.40
Forfeited/cancelled	34,052	97.10	4,756	98.96	152,417	86.85
Expired	40,619	82.78	10,534	103.79	469,769	153.40
Outstanding at end of year	6,446,110	81.50	6,108,307	76.59	6,095,201	72.19
Exercisable at end of year	3,595,744	69.16	3,507,803	64.57	3,782,481	61.39
Available for grant	13,575,259		2,487,645		3,405,239	

(1) The weighted-average exercise prices reflect the conversion of foreign currency denominated options at the exchange rate as at October 31, 2020, October 31, 2019 and October 31, 2018, 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, 2020, 2019 and 2018 was \$9 million, \$9 million and \$7 million before tax, respectively (\$8 million, \$8 million and \$7 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, 2020, 2019 and 2018 was \$42 million, \$130 million and \$162 million, respectively. The aggregate intrinsic value of stock options exercisable at October 31, 2020, 2019 and 2018 was \$42 million, \$116 million and \$140 million, respectively.

Options outstanding and exercisable at October 31, 2020 by range of exercise price were as follows:

(Canadian \$, except as noted)	Options outstanding			Options exercisable		
Range of exercise prices	Number of stock options	Weighted-average remaining contractual life (years)	Weighted-average exercise price	Number of stock options	Weighted-average remaining contractual life (years)	Weighted-average exercise price
\$50.01 to \$60.00	866,275	0.9	56.37	866,275	0.9	56.37
\$60.01 to \$70.00	1,394,952	2.6	64.53	1,394,952	2.6	64.53
\$70.01 to \$80.00	1,009,522	4.7	77.57	1,009,522	4.7	77.57
\$80.01 to \$90.00	909,310	8.1	89.90	–	–	–
\$90.01 and over	2,266,051	7.7	99.93	324,995	6.1	96.94

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

(Canadian \$ in millions, except as noted)	2020	2019	2018
Unrecognized compensation cost for non-vested stock option awards	7	6	5
Total intrinsic value of stock options exercised	18	36	67
Cash proceeds from stock options exercised	35	54	88
Weighted-average share price for stock options exercised (in dollars)	94.44	99.84	102.55

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, 2020, 2019 and 2018 was \$9.46, \$10.23 and \$11.30, 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:

	2020	2019	2018
Expected dividend yield	4.3%	5.7%	4.1%
Expected share price volatility	15.4%	20.0% – 20.1%	17.0% – 17.3%
Risk-free rate of return	1.9% – 2.0%	2.5%	2.1%
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, 2020, 2019 and 2018 was \$101.47, \$89.90 and \$100.63, 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 contributions as employee compensation expense when they are contributed to the plan.

Employee compensation expense related to these plans for the years ended October 31, 2020, 2019 and 2018 was \$58 million, \$54 million and \$51 million, respectively. There were 19.2 million, 18.0 million and 17.8 million common shares held in these plans for the years ended October 31, 2020, 2019 and 2018, 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 \$1,523 million as at October 31, 2020 (\$1,752 million in 2019).

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, 2020, 2019 and 2018 totalled 5.7 million, 6.3 million and 5.9 million, respectively.

The grant date fair value of these awards as at October 31, 2020, 2019 and 2018 was \$568 million, \$616 million and \$581 million, respectively, for which we recorded employee compensation expense of \$363 million, \$610 million and \$595 million before tax, respectively (\$269 million, \$448 million and \$437 million after tax, respectively). We hedge the impact of the change in market value of our common shares by entering into total return swaps. We also enter into foreign currency swaps to manage the foreign exchange translation from our U.S. businesses. Gains (losses) on total return swaps and foreign currency swaps recognized for the years ended October 31, 2020, 2019 and 2018 were \$(175) million, \$20 million and \$51 million, respectively, resulting in net employee compensation expense of \$538 million, \$590 million and \$544 million, respectively.

A total of 17.0 million, 17.2 million and 17.1 million mid-term incentive plan units were outstanding as at October 31, 2020, 2019 and 2018, respectively, and the intrinsic value of those awards which had vested was \$1,019 million, \$1,251 million and \$1,269 million, respectively. Cash payments made in relation to these liabilities were \$635 million, \$642 million and \$598 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, 2020, 2019 and 2018 totalled 0.3 million, 0.3 million and 0.3 million, respectively, and the grant date fair value of these units was \$23 million, \$32 million and \$33 million, respectively.

Liabilities related to these plans are recorded in other liabilities in our Consolidated Balance Sheet and totalled \$379 million and \$478 million as at October 31, 2020 and 2019, respectively. Payments made under these plans for the years ended October 31, 2020, 2019 and 2018 were \$58 million, \$59 million and \$60 million, respectively.

Employee compensation expense related to these plans for the years ended October 31, 2020, 2019 and 2018 was \$(62) million, \$17 million and \$27 million before tax, respectively (\$46 million, \$12 million and \$20 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 (losses) on these derivatives recognized for the years ended October 31, 2020, 2019 and 2018 were \$(67) million, \$4 million and \$8 million before tax, respectively. These gains (losses) resulted in net employee compensation expense for the years ended October 31, 2020, 2019 and 2018 of \$5 million, \$13 million and \$19 million before tax, respectively (\$3 million, \$10 million and \$14 million after tax, respectively).

A total of 4.7 million, 4.8 million and 4.9 million deferred incentive plan units were outstanding as at October 31, 2020, 2019 and 2018, 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.

During the year ended October 31, 2018, we announced changes to our other employee future benefit 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. In 2018, 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.

Effective December 31, 2020, the primary defined benefit pension plan for employees in Canada will be closed to new employees hired after that date. Employees hired effective January 1, 2021 and onwards will be eligible to participate in a defined contribution pension plan after a six-month waiting period.

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 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 fair market values at October 31, are as follows:

	Pension benefit plans		
	Target range 2020	Actual 2020	Actual 2019
Equities	20% – 45%	30%	32%
Fixed income investments	35% – 60%	47%	51%
Alternative strategies	15% – 45%	23%	17%

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 expenses 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 the supplementary pension plan in the U.S. is unfunded.

Our other employee future benefit plans in Canada and the United States are either 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, 2020 and the most recent funding valuation for our primary U.S. pension plan was performed as at January 1, 2020.

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

(Canadian \$ in millions)	Pension benefit plans			Other employee future benefit plans		
	2020	2019	2018	2020	2019	2018
Defined benefit obligation	10,493	9,866	8,311	1,290	1,254	1,113
Fair value of plan assets	10,064	9,723	8,719	181	175	153
Surplus (deficit) and net defined benefit asset (liability)	(429)	(143)	408	(1,109)	(1,079)	(960)
Surplus (deficit) is comprised of:						
Funded or partially funded plans	(266)	36	573	38	46	37
Unfunded plans	(163)	(179)	(165)	(1,147)	(1,125)	(997)
Surplus (deficit) and net defined benefit asset (liability)	(429)	(143)	408	(1,109)	(1,079)	(960)

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		
	2020	2019	2018	2020	2019	2018
Annual benefits expense						
Current service cost	249	193	210	11	9	26
Net interest (income) expense on net defined benefit (asset) liability	1	(20)	(10)	32	37	45
Past service cost (income)	-	(5)	7	-	-	(277)
Administrative expenses	5	5	5	-	-	-
Remeasurement of other long-term benefits	-	-	-	10	6	(10)
Benefits expense	255	173	212	53	52	(216)
Canada and Quebec pension plan expense	87	82	76	-	-	-
Defined contribution expense	169	170	153	-	-	-
Total annual pension and other employee future benefit expenses recognized in the Consolidated Statement of Income	511	425	441	53	52	(216)

Weighted-Average Assumptions

	Pension benefit plans			Other employee future benefit plans		
	2020	2019	2018	2020	2019	2018
Defined Benefit Expenses						
Discount rate at beginning of year (2)(3)	3.0%	4.0%	3.5%	3.0%	4.1%	3.6%
Rate of compensation increase	2.1%	2.4%	2.4%	2.0%	2.0%	2.0%
Assumed overall health care cost trend rate	na	na	na	4.9% (1)	4.9% (1)	4.9% (1)
Defined Benefit Obligation						
Discount rate at end of year	2.7%	3.0%	4.0%	2.7%	3.0%	4.1%
Rate of compensation increase	2.1%	2.1%	2.4%	2.0%	2.0%	2.0%
Assumed overall health care cost trend rate	na	na	na	4.8% (1)	4.9% (1)	4.9% (1)

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

(2) The pension benefit current service cost was calculated using a separate discount rate of 3.10%, 4.10% and 3.70% for 2020, 2019 and 2018, respectively.

(3) The other employee future benefit plans current service cost was calculated using a separate discount rate of 3.20%, 4.20% and 3.76% for 2020, 2019 and 2018, 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	
	2020	2019	2020	2019
Life expectancy for those currently age 65				
Males	23.8	23.7	21.7	21.7
Females	24.1	24.1	23.1	23.0
Life expectancy at age 65 for those currently age 45				
Males	24.7	24.7	22.9	22.8
Females	25.1	25.0	24.3	24.2

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	
	2020	2019	2020	2019
Defined benefit obligation				
Defined benefit obligation at beginning of year	9,866	8,311	1,254	1,113
U.S. plan merger (1)	-	46	-	-
Current service cost	249	193	11	9
Past service (income)	-	(5)	-	-
Interest cost	286	324	37	44
Benefits paid	(516)	(456)	(48)	(53)
Employee contributions	17	17	5	5
Actuarial (gains) losses due to:				
Changes in demographic assumptions	16	(9)	14	(22)
Changes in financial assumptions	484	1,345	50	161
Plan member experience	59	92	(35)	(3)
Foreign exchange and other	32	8	2	-
Defined benefit obligation at end of year	10,493	9,866	1,290	1,254
Wholly or partially funded defined benefit obligation	10,330	9,687	143	129
Unfunded defined benefit obligation	163	179	1,147	1,125
Total defined benefit obligation	10,493	9,866	1,290	1,254
Fair value of plan assets				
Fair value of plan assets at beginning of year	9,723	8,719	175	153
U.S. plan merger (1)	-	43	-	-
Interest income	285	344	5	7
Return on plan assets (excluding interest income)	235	795	6	23
Employer contributions	296	256	36	40
Employee contributions	17	17	5	5
Benefits paid	(516)	(456)	(48)	(53)
Administrative expenses	(5)	(5)	-	-
Foreign exchange and other	29	10	2	-
Fair value of plan assets at end of year	10,064	9,723	181	175
(Deficit) and net defined benefit (liability) at end of year	(429)	(143)	(1,109)	(1,079)
Recorded in:				
Other assets	124	186	38	46
Other liabilities	(553)	(329)	(1,147)	(1,125)
(Deficit) and net defined benefit (liability) at end of year	(429)	(143)	(1,109)	(1,079)
Actuarial (losses) recognized in other comprehensive income				
Net actuarial gains on plan assets	235	795	6	23
Actuarial gains (losses) on defined benefit obligation due to:				
Changes in demographic assumptions	(16)	9	(12)	21
Changes in financial assumptions	(484)	(1,345)	(45)	(153)
Plan member experience	(59)	(92)	38	3
Foreign exchange and other	(6)	(9)	-	-
Actuarial (losses) recognized in other comprehensive income for the year	(330)	(642)	(13)	(106)

(1) In 2019, the benefit obligation and assets related to employees formerly included in a multi-employer plan, which was accounted for as a defined contribution plan, merged with the U.S. defined benefit pension plan. The impact of the merger was recognized as a remeasurement of the U.S. defined benefit pension plan.

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)	2020			2019		
	Quoted	Unquoted	Total	Quoted	Unquoted	Total
Cash and money market funds	208	-	208	156	6	162
Securities issued or guaranteed by:						
Canadian federal government	17	54	71	1	57	58
Canadian provincial and municipal governments	308	404	712	334	368	702
U.S. federal government	393	7	400	345	-	345
Pooled funds	1,331	3,442	4,773	1,450	3,204	4,654
Derivative instruments	1	(16)	(15)	-	8	8
Corporate debt	2	1,363	1,365	-	1,354	1,354
Corporate equity	1,255	-	1,255	1,219	-	1,219
	3,515	5,254	8,769	3,505	4,997	8,502

No plan assets are directly invested in the bank's or related parties' securities as at October 31, 2020 and 2019. As at October 31, 2020, our primary Canadian plan indirectly held, through pooled funds, approximately \$9 million (\$10 million in 2019) of our common shares and fixed income securities. The plans do not hold any property we occupy or other assets we use.

The plans paid \$3 million in the year ended October 31, 2020 (\$3 million in 2019) 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.

(Canadian \$ in millions, except as noted)	Defined benefit obligation	
	Pension benefit plans	Other employee future benefit plans
Discount rate (%)	2.7	2.7
Impact of: 1% increase (\$)	(1,161)	(120)
1% decrease (\$)	1,479	148
Rate of compensation increase (%)	2.1	2.0
Impact of: 0.25% increase (\$)	55	-(1)
0.25% decrease (\$)	(54)	-(1)
Mortality		
Impact of: 1 year shorter life expectancy (\$)	(202)	(32)
1 year longer life expectancy (\$)	199	32
Assumed overall health care cost trend rate (%)	na	4.8 (2)
Impact of: 1% increase (\$)	na	53
1% decrease (\$)	na	(51)

(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)	2020	2019
Canadian pension plans	15.4	15.2
U.S. pension plans	9.9	7.9
Canadian other employee future benefit plans	14.3	14.5

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		
	2020	2019	2018	2020	2019	2018
Contributions to defined benefit plans	251	203	154	-	-	-
Contributions to defined contribution plans	169	170	153	-	-	-
Benefits paid directly to pensioners	45	53	59	36	40	35
	465	426	366	36	40	35

Our best estimate of the contributions and benefits paid directly to pensioners we expect to make for the year ending October 31, 2021 is approximately \$300 million for our defined benefit pension plans and \$45 million for our other employee future benefit plans. Benefit payments for the year ending October 31, 2021 are estimated to be \$550 million.

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 equity when the taxes relate to amounts recorded in other comprehensive income or 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 net 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 equity. Current and deferred taxes are offset only when they are levied by the same tax authority, on the same entity or group of entities, and when there is a legal right to offset.

Included in deferred income tax assets is \$20 million (\$26 million in 2019) related to Canadian tax loss carryforwards that will expire in 2037, \$75 million (\$289 million in 2019) related to both U.S. tax loss carryforwards and tax credits that will expire in various amounts in U.S. taxation years from 2021 through 2040 and \$16 million (\$19 million in 2019) related to United Kingdom (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, 2020 is \$113 million (\$127 million in 2019), of which \$7 million (\$3 million in 2019) 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 these assets will be realized.

Components of Deferred Income Tax Balances

(Canadian \$ in millions)

Deferred Income Tax Asset (Liability)	Net asset, November 1, 2019 (1)	Benefit (expense) to income statement	Benefit (expense) to equity	Translation and other	Net asset, October 31, 2020
Allowance for credit losses	511	334	-	4	849
Employee future benefits	325	11	1	-	337
Deferred compensation benefits	483	(69)	-	2	416
Other comprehensive income	(143)	-	(218)	3	(358)
Tax loss carryforwards	145	(59)	-	1	87
Tax credits	189	(189)	-	31	31
Premises and equipment	(282)	(78)	-	(1)	(361)
Pension benefits	27	(35)	86	-	78
Goodwill and intangible assets	(217)	(18)	-	(2)	(237)
Securities	50	(39)	-	-	11
Other	441	55	-	16	512
Net deferred tax assets (liabilities)	1,529	(87)	(131)	54	1,365
Comprising					
Deferred tax assets	1,589				1,473
Deferred tax liabilities	(60)				(108)
Net deferred tax assets (liabilities)	1,529				1,365

(Canadian \$ in millions)

Deferred Income Tax Asset (Liability)	Net asset, November 1, 2018	Benefit (expense) to income statement	Benefit (expense) to equity	Translation and other	Net asset, October 31, 2019
Allowance for credit losses	484	23	-	4	511
Employee future benefits	282	12	31	-	325
Deferred compensation benefits	494	(12)	-	1	483
Other comprehensive income	195	-	(331)	(7)	(143)
Tax loss carryforwards	606	(462)	-	1	145
Tax credits	415	(228)	-	2	189
Premises and equipment	(515)	234	-	(1)	(282)
Pension benefits	(121)	(18)	166	-	27
Goodwill and intangible assets	(201)	(14)	-	(2)	(217)
Securities	38	12	-	-	50
Other	288	123	-	9	420
Net deferred tax assets (liabilities)	1,965	(330)	(134)	7	1,508
Comprising					
Deferred tax assets	2,039				1,568
Deferred tax liabilities	(74)				(60)
Net deferred tax assets (liabilities)	1,965				1,508

(1) Includes IFRS 16 adoption adjustment of \$21 million (refer to Note 1).

The Canada Revenue Agency (CRA) has reassessed us for additional income tax and interest in an amount of approximately \$941 million, to date, in respect of certain 2011–2015 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 were prospectively addressed in the 2015 and 2018 Canadian federal budgets. In the future, we expect to be reassessed for significant income tax for similar activities in subsequent years. We remain of the view that our tax filing positions were appropriate and intend to challenge all reassessments. However, if such challenges are unsuccessful, the additional expense would negatively impact our net income.

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 equity for the year ended October 31, 2018.

Note 23: Earnings Per Share

Basic earnings per share is calculated by dividing net income, after deducting dividends on preferred shares and distributions on other equity instruments, 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 Common Share (Canadian \$ in millions, except as noted)	2020	2019	2018
Net income	5,097	5,758	5,453
Dividends on preferred shares and distributions on other equity instruments	(247)	(211)	(184)
Net income available to common shareholders	4,850	5,547	5,269
Weighted-average number of common shares outstanding (in thousands)	641,424	638,881	642,930
Basic earnings per common share (Canadian \$)	7.56	8.68	8.19
Diluted Earnings Per Common Share			
Net income available to common shareholders adjusted for impact of dilutive instruments	4,850	5,547	5,269
Weighted-average number of common shares outstanding (in thousands)	641,424	638,881	642,930
Effect of dilutive instruments			
Stock options potentially exercisable (1)	3,433	5,326	5,876
Common shares potentially repurchased	(2,729)	(3,847)	(3,893)
Weighted-average number of diluted common shares outstanding (in thousands)	642,128	640,360	644,913
Diluted earnings per common share (Canadian \$)	7.55	8.66	8.17

(1) In computing diluted earnings per share, we excluded average stock options outstanding of 3,146,040, 1,177,152 and 1,101,938 with weighted-average exercise prices of \$99.57, \$101.83 and \$127.45 for the years ended October 31, 2020, 2019 and 2018, 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 our 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)	2020	2019
Financial Guarantees		
Standby letters of credit	23,144	21,395
Credit default swaps (1)	1,795	2,068
Other Credit Instruments		
Backstop liquidity facilities	5,601	5,550
Securities lending	4,349	4,102
Documentary and commercial letters of credit	1,034	1,272
Commitments to extend credit (2)	175,689	158,533
Other commitments	5,302	5,181
Total	216,914	198,101

(1) The fair value of the related derivatives included in our Consolidated Balance Sheet was \$(8) million as at October 31, 2020 (\$43 million in 2019).

(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 ABCP programs administered by either us or third parties as an alternative source of financing when ABCP markets cannot be accessed. 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 and generally do not require us to advance money against non-performing or defaulted assets. The average term of these liquidity facilities is approximately 1 year.

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 that 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, director 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 material loss to be remote.

Pledged Assets and Collateral

In the ordinary course of business, we enter into trading, lending and borrowing activities that require us to pledge assets or provide collateral. Pledging and collateral transactions are typically conducted under terms and conditions that are usual and customary to these activities. If there is no default, the securities or their equivalents must be returned by the pledgee upon satisfaction of the obligation.

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

(Canadian \$ in millions)	2020	2019
Bank Assets		
Cash and due from banks	111	1,895
Securities (1)(2)	75,104	71,001
Loans (2)	58,974	73,838
Other assets	6,344	3,722
	140,533	150,456
Third-party Assets (3)		
Collateral received and available for sale or re-pledging	169,197	162,879
Less: Collateral not sold or re-pledged	(58,312)	(50,192)
	110,885	112,687
	251,418	263,143

(Canadian \$ in millions)	2020	2019
Uses of pledged assets and collateral		
Clearing systems, payment systems and depositories	7,550	4,958
Foreign governments and central banks	111	1,895
Obligations related to securities sold short	29,376	26,253
Obligations related to securities sold under repurchase agreements	80,962	73,696
Securities borrowing and lending	58,791	67,758
Derivatives transactions	9,613	9,614
Securitization	31,417	31,713
Covered bonds	25,948	27,208
Other	7,650	20,048
Total pledged assets and collateral	251,418	263,143

(1) Includes NHA mortgage-backed securities of \$6,121 million, which are included in loans on the Consolidated Balance Sheet (\$3,688 million in 2019).

(2) Includes encumbered assets relating to Large Value Transfer System.

(3) Includes on-balance sheet securities borrowed or purchased under resale agreements and available off-balance sheet collateral received.

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

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. Leases that we have signed but have not yet taken possession of, were \$991 million as at October 31, 2020.

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 for which 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.

Legal Proceedings

The bank and its subsidiaries are party to legal proceedings, including regulatory investigations, in the ordinary course of business. We review the status of these proceedings regularly and establish provisions when in our judgment it becomes probable that we will incur a loss and the amount can be reliably estimated. While it is inherently difficult to predict the ultimate outcome of these proceedings, based on our current knowledge, we do 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.

During the year, an Ontario court made a liability finding and awarded an accounting of profits in a class action involving BMO Nesbitt Burns Inc., BMO InvestorLine Inc. and BMO Trust Company regarding disclosures of foreign exchange conversion spreads when converting foreign exchange in registered accounts. The monetary award will be determined at a court hearing in Q1 2021 based on an amount of \$102.9 million, less reasonable expenses, plus prejudgment interest. The lawsuit claimed monetary awards up to \$419 million (at May 2019). We have appealed the decision. The Plaintiffs have also appealed. An appropriate provision is in place.

Restructuring Charges

Provisions for restructuring charges as at October 31, 2020 are \$336 million (\$603 million as at October 31, 2019) which includes severance related costs to improve efficiency, and accelerate delivery against key bank-wide initiatives focused on digitization, organizational redesign and simplification of the way we do our business. This represents our best estimate of the amount that will ultimately be paid out.

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

(Canadian \$ in millions)	2020	2019
Balance at beginning of year	680	284
Additional provisions/increase in provisions	141	666
Provisions utilized	(334)	(251)
Amounts reversed	(16)	(32)
Foreign exchange and other	1	13
Balance at end of year (1)	472	680

(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.

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 through a network of almost 900 branches, contact centres, digital banking platforms and over 3,200 automated teller machines. Commercial Banking serves clients across Canada and delivers sector and industry expertise, as well as a local presence.

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. Commercial Banking serves clients across the United States and deliver sector and industry expertise and local presence.

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.

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 Global Markets lines of business, we operate in 35 locations around the world, including 22 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 and procurement. T&O develops, monitors, manages and maintains governance of information technology including data and analytics, and also provides cyber security and operations services.

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 and residual unallocated expenses.

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 in which 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, 2020 was \$335 million (\$296 million in 2019 and \$313 million in 2018).

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 geographic segmentation.

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

(Canadian \$ in millions)	Canadian P&C	U.S. P&C	BMO WM	BMO CM	Corporate Services (1)	Total
2020						
Net interest income (2)	6,105	4,345	900	3,320	(699)	13,971
Non-interest revenue	1,930	1,186	5,808	2,006	285	11,215
Total Revenue	8,035	5,531	6,708	5,326	(414)	25,186
Provision for (recovery of) credit losses on impaired loans	787	418	4	310	3	1,522
Provision for (recovery of) credit losses on performing loans	623	441	18	349	-	1,431
Total provision for (recovery of) credit losses	1,410	859	22	659	3	2,953
Insurance claims, commissions and changes in policy benefit liabilities	-	-	1,708	-	-	1,708
Depreciation and amortization	505	554	324	235	-	1,618
Non-interest expense	3,385	2,521	3,195	3,001	457	12,559
Income (loss) before taxes	2,735	1,597	1,459	1,431	(874)	6,348
Provision for (recovery of) income taxes	707	320	363	344	(483)	1,251
Reported net income (loss)	2,028	1,277	1,096	1,087	(391)	5,097
Average Assets	251,471	137,644	45,573	369,518	138,244	942,450
(Canadian \$ in millions)	Canadian P&C	U.S. P&C	BMO WM	BMO CM	Corporate Services (1)	Total
2019						
Net interest income (2)	5,885	4,216	935	2,390	(538)	12,888
Non-interest revenue	2,099	1,162	6,727	2,369	238	12,595
Total Revenue	7,984	5,378	7,662	4,759	(300)	25,483
Provision for (recovery of) credit losses on impaired loans	544	160	2	52	(7)	751
Provision for (recovery of) credit losses on performing loans	63	37	(2)	28	(5)	121
Total provision for (recovery of) credit losses	607	197	-	80	(12)	872
Insurance claims, commissions and changes in policy benefit liabilities	-	-	2,709	-	-	2,709
Depreciation and amortization	340	449	264	152	-	1,205
Non-interest expense	3,496	2,687	3,259	3,127	856	13,425
Income (loss) before taxes	3,541	2,045	1,430	1,400	(1,144)	7,272
Provision for (recovery of) income taxes	917	434	371	309	(517)	1,514
Reported net income (loss)	2,624	1,611	1,059	1,091	(627)	5,758
Average Assets	237,741	126,539	40,951	342,626	85,395	833,252
(Canadian \$ in millions)	Canadian P&C	U.S. P&C	BMO WM	BMO CM	Corporate Services (1)	Total
2018						
Net interest income (2)	5,546	3,844	826	1,780	(558)	11,438
Non-interest revenue	2,040	1,096	5,475	2,608	248	11,467
Total Revenue	7,586	4,940	6,301	4,388	(310)	22,905
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
Depreciation and amortization	320	448	233	126	-	1,127
Non-interest expense	3,361	2,516	3,284	2,753	436	12,350
Income (loss) before taxes	3,436	1,756	1,426	1,527	(731)	7,414
Provision for (recovery of) income taxes	882	359	354	368	(2)	1,961
Reported net income (loss)	2,554	1,397	1,072	1,159	(729)	5,453
Average Assets	224,310	110,303	35,913	307,357	76,412	754,295

(1) Corporate Services includes Technology and Operations.

(2) Operating groups report on a taxable equivalent basis - see Basis of Presentation section.

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 U.K., Europe, the Caribbean and Asia, which are grouped in other countries in the table below. 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
2020				
Total Revenue	14,515	8,659	2,012	25,186
Income before taxes	3,815	1,891	642	6,348
Reported net income	3,021	1,554	522	5,097
Average Assets	522,155	361,651	58,644	942,450

(Canadian \$ in millions)	Canada	United States	Other countries	Total
2019				
Total Revenue	14,998	8,282	2,203	25,483
Income before taxes	4,218	2,367	687	7,272
Reported net income	3,313	1,903	542	5,758
Average Assets	462,427	316,983	53,842	833,252

(Canadian \$ in millions)	Canada	United States	Other countries	Total
2018				
Total Revenue	13,506	7,273	2,126	22,905
Income before taxes	4,746	1,871	797	7,414
Reported net income	3,728	1,100	625	5,453
Average Assets	433,843	277,764	42,688	754,295

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

Note 26: Significant Subsidiaries

As at October 31, 2020, 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 (China) Co. Ltd.	Beijing, China	453
Bank of Montreal Europe plc	Dublin, Ireland	1,055
Bank of Montreal Holding Inc. and subsidiaries, including:	Toronto, Canada	33,280
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	
BMO Capital Markets Limited	London, England	295
BMO Financial Corp. and subsidiaries, including:	Chicago, United States	25,789
BMO Asset Management Corp. and subsidiaries	Chicago, United States	
BMO Capital Markets Corp.	New York, United States	
BMO Family Office, LLC	Palo Alto, United States	
BMO Harris Bank National Association and subsidiaries, including:	Chicago, United States	
BMO Harris Investment Company LLC	Chicago, United States	
BMO Harris Financial Advisors, Inc.	Chicago, United States	
BMO Harris Financing, Inc. and subsidiaries	Chicago, United States	
BMO Global Asset Management (Asia) Limited	Hong Kong, China	5
BMO Global Asset Management (Europe) Limited and subsidiaries, including:	London, England	657
BMO Asset Management (Holdings) plc and subsidiaries	London, England	
BMO Life Insurance Company and subsidiaries, including:	Toronto, Canada	1,208
BMO Life Holdings (Canada), ULC	Halifax, Canada	
BMO Life Assurance Company	Toronto, Canada	
BMO Trust Company	Toronto, Canada	588
BMO Trustee Asia Limited	Hong Kong, China	3
LGM Investments Limited	London, England	39
Pyrford International Limited	London, England	59

(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 BMO Family Office, 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. BMO Harris Investment Company LLC is organized under the laws of the state of Nevada, United States.

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

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.
- 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)	2020	2019	2018
Base salary and incentives	20	22	21
Post-employment benefits	3	2	2
Share-based payments (1)	32	43	31
Total key management personnel compensation	55	67	54

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

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, 2020, loans to key management personnel totalled \$19 million (\$21 million in 2019). We have no provision for credit losses related to these amounts as at October 31, 2020 and 2019.

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.

The following table presents the carrying amount of our interests in joint ventures and associates accounted for under the equity method as well as our share of the income of those entities:

(Canadian \$ in millions)	Joint ventures		Associates	
	2020	2019	2020	2019
Carrying amount	412	343	573	501
Share of net income	99	99	62	52

We do not have any joint ventures or associates that are individually material to our consolidated financial statements.

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

(Canadian \$ in millions)	2020	2019
Loans	155	169
Deposits	115	106
Fees paid for services received	63	69
Guarantees and commitments	57	76