NATIONAL BANK

2021 Annual Report

At a Glance

Founded in 1859, National Bank of Canada offers financial services to individuals, businesses, institutional clients and governments across Canada. We are one of Canada's six systemically important banks and among the most profitable banks on a global basis by return on equity.

We operate through three business segments in Canada—Personal and Commercial Banking, Wealth Management and Financial Markets. A fourth segment—U.S. Specialty Finance and International—complements the growth of our domestic operations.

We are a leading bank in our core Quebec market and also hold leadership positions across the country in selected activities.

We strive to meet the highest standards of social responsibility while creating value for our shareholders. We are proud to be recognized as an employer of choice and for promoting diversity and inclusion.

We are headquartered in Montreal, and our securities are listed on the Toronto Stock Exchange (TSX: NA).

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2.7 million Clients(1)

26,920 Employees(2)

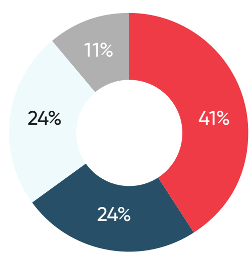
$652 B Assets Under Administration

$356 B Total Assets

$8,927 M Total Revenues

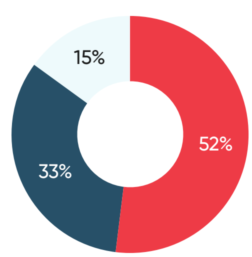
$3,177 M Net Income

$34.6 B Market Capitalization



2021 Total Revenues by Business Segment(3)

- Personal and Commercial
- Wealth Management
- Financial Markets
- U.S. Specialty Finance and International



2021 Total Revenues by Geographic Distribution(3)

- Province of Quebec
- Other Canadian provinces
- Outside of Canada

(1) Clients of the Personal and Commercial segment
(2) Worldwide
(3) On a taxable equivalent basis and excluding the *Other* heading. See the Financial Reporting Method section on pages 18 to 21.

Investing in National Bank

Our Pillars

Our Culture

- Entrepreneurial culture
- Proven agility
- Collaboration
- Diversity and inclusion

Our Strategic Positioning

- Canadian bank with leading franchise in Quebec
- Differentiated positioning in Financial Markets and Wealth Management
- Focused strategy outside of Canada

Our Discipline

- Strong risk management culture
- Disciplined cost management
- Solid capital levels
- Strong ESG governance

Our Performance This Year

Superior ROE(1)

20.7%

2021 Return on Common Shareholders' Equity(2) (ROE)

Strong Earnings Growth

20.5% | 12.3%(3)

Income Before Provisions for Credit Losses and Income Taxes Growth (2020–2021)

Solid Capital Position

12.4%

Common Equity Tier 1 (CET1) Ratio(4) as at October 31, 2021

Premium Total Shareholder Returns(2)

CAGR for the periods ended October 31, 2021(2)(5)

	Ranking(6)	National Bank	Canadian Peers(6)	TSX
1 year	#2	66%	58%	39%
3 years	#1	25%	14%	15%
5 years	#1	21%	12%	11%
10 years	#1	16%	13%	9%

(1) Based on Return on common shareholders' equity (ROE) as reported by Canadian peers, including Bank of Montreal, Canadian Imperial Bank of Commerce, Royal Bank of Canada, Bank of Nova Scotia and Toronto-Dominion Bank (together, the Canadian Peers).
(2) See the Glossary section on pages 123 to 126 for additional information on supplementary financial measures composition.
(3) On a taxable equivalent basis and excluding specified items. See the Financial Reporting Method section on pages 18 to 21 for additional information on non-GAAP financial measures.
(4) See the Financial Reporting Method section on pages 18 to 21 for additional information on capital management measures.
(5) Compound annual growth rate. Source: Nasdaq IR Insight via Factset.
(6) Among Canadian Peers, as defined above.

Financial Overview

Medium-Term Objectives and Results

	Medium-term objectives	2021 Results	2020 Results
Growth in diluted earnings per share excluding specified items[1]	5–10%	48.2%	(4.7)%
ROE excluding specified items[2]	15–20%	20.8%	15.8%
Dividend payout ratio excluding specified items[2]	40–50%	31.3%	46.6%
CET1 capital ratio[3]	> 11.00%	12.4%	11.8%
Leverage ratio[3]	> 3.75%	4.4%	4.4%

Financial Highlights

As at October 31 or for the year ended October 31 (millions of Canadian dollars, except per share amounts)	2021	2020
Operating results		
Total revenues	**8,927**	7,927
Income before provisions for credit losses and income taxes	**4,074**	3,382
Net income	**3,177**	2,083
Diluted earnings per share	**$ 8.96**	$ 5.70
Return on common shareholders' equity[4]	**20.7%**	14.9%
Dividend payout ratio[4]	**31.4%**	49.6%
Operating results on a taxable equivalent basis and excluding specified items[1]		
Total revenues on a taxable equivalent basis and excluding specified items	**9,116**	8,216
Income before provisions for credit losses and income taxes on a taxable equivalent basis and excluding specified items	**4,272**	3,803
Net income excluding specified items	**3,184**	2,216
Diluted earnings per share excluding specified items[1]	**$ 8.98**	$ 6.06
Efficiency ratio on a taxable equivalent basis and excluding specified items[2]	**53.1%**	53.7%
Dividends declared	**$ 2.84**	$ 2.84
Total assets	**355,795**	331,625

(1) See the Financial Reporting Method section on pages 18 to 21 for additional information on non-GAAP financial measures.
(2) See the Financial Reporting Method section on pages 18 to 21 and see the Glossary section on pages 123 to 126 for additional information on non-GAAP ratios.
(3) See the Financial Reporting Method section on pages 18 to 21 for additional information on capital management measures.
(4) See the Glossary section on pages 123 to 126 for additional information on supplementary financial measures composition.

Message From the President and Chief Executive Officer

While the past year was marked by continued pandemic-related uncertainty and market complexities, we nonetheless saw encouraging improvements across Canada from both a health and economic perspective. In this ever-evolving context, the Bank's support of its employees, clients, and communities remains unwavering, guided by our One Mission of Putting People First.

The Bank delivered outstanding financial performance in 2021, reflective of the strategic choices we have made, the strength and adaptability of our franchise, and our earnings diversification.

> **Our culture of agility and collaboration continued to be a true competitive advantage for the Bank and the cornerstone of our consistent performance track record.**

In 2021, the Bank delivered superior growth in revenue and income before provisions for credit losses and income taxes compared to last year, driven by continued momentum in all our businesses. The Bank generated strong organic growth and industry-leading return on equity while maintaining strong capital levels and prudent allowances for credit losses. The Bank was also top of the class in total shareholder returns for the three-, five-, ten-, and twenty-year periods.

The Bank's sustained performance since the beginning of the pandemic demonstrates that we have pursued the right strategies in terms of business mix, capital allocation, and risk management over the last several years. These strategies will continue to guide the Bank's approach and decision-making well into the future.

Strong Pillars Supporting Continued Growth

As a Canadian bank with a leading franchise in Quebec, we are anchored in one of North America's most diversified and structurally sound economies. As a result, we are a longstanding personal and commercial banking partner of choice in the province and well-positioned to continue benefitting from Quebec's economic strength.

Clients are—and must remain—at the core of everything we do. Our digital transformation continues as we aim to further optimize our processes and enhance client experience. This commitment, supported by the depth of our relationships and the quality of our advice, will remain key as we seek to provide Canadian clients with a best-in-class experience.

Our Wealth Management segment is an established leader in targeted niches, boasts a highly differentiated positioning, and generates low-capital-intensity organic growth and a superior return on equity. As such, our wealth business represents an important long-term growth lever for the Bank.

Our Financial Markets segment is a high performing, focused, and agile franchise. It is an important pillar, providing the Bank with resilience and earnings diversification. Our objective is to continue consolidating our leadership positions and to grow in selected markets.

Across the Bank, we will continue to leverage the collaborative models already deployed to stimulate further growth opportunities among our businesses. We expect investments and savings to increasingly become anchor products, as we generate synergies across the franchise, with the client always at the centre of our decision-making.

Beyond Canada, our strategy has consistently delivered strong organic growth and high returns. Credigy is a leader in U.S. consumer finance in select niches, while ABA Bank is a thriving bank in Cambodia. Both Credigy and ABA Bank are well-positioned to continue to deliver attractive earnings growth over the long term.

Creating Positive Economic, Social and Environmental Impacts

Throughout the pandemic, the Bank continued to move forward to tackle risks and opportunities across the ESG spectrum—from talent development, employee well-being, and inclusion and diversity—to minimizing our environmental impacts and developing our roadmap to carbon neutrality by 2050. Our goals are to contribute to developing a greener economy, to create an engaging employee experience, and ultimately, to drive the sustainable growth of the Bank.

> **Our leadership team and over 26,000 employees created positive economic, social and environmental impacts in 2021, contributing not only to the Bank's long-term success but also to a more sustainable future for all our stakeholders.**

Message From the President and Chief Executive Officer (cont.)

We face both opportunities and challenges as we pursue our ESG commitments, which are integrated at every level of our organization and overseen by a robust governance framework. We are committed to setting concrete and ambitious objectives—as demonstrated by additional commitments made in 2021—while remaining transparent and regularly communicating our progress.

Looking Forward: Building on our Strengths

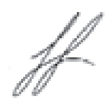
On the heels of strong performance in 2021, we look to the future with cautious optimism and with confidence in our solid foundations: Our culture; our strategic positioning; our discipline when it comes to capital, risk, and cost, and our commitment to driving performance.

> **The Bank is well-positioned to continue delivering solid returns to shareholders over the long term as we enter a new economic cycle. We look to the future cognizant and ready to adapt to the challenges and opportunities ahead.**

Our ability to succeed in the next chapter for the Bank will be enabled by our culture of agility and collaboration, which we must further cultivate as we seek to retain and attract the best talent in a challenging labour market and to meet the evolving needs of today's workforce. As we grow, we must ensure that we support and represent the communities in which we are present, and we must also continue to help the transition towards a net-zero carbon economy.

In closing, we thank our Board of Directors for their stewardship of the Bank as well as the members of the Office of the President for their leadership and important role as ambassadors of our culture, mission, and values. We have a strong leadership team and bench strength at the Bank, resulting in a seamless CEO transition at this fiscal year-end.

On behalf of the Office of the President, and with a special thank you from our former CEO after nearly 15 years at the helm, we wish to sincerely thank our dedicated employees for their commitment to the Bank. We also thank our clients for partnering with us and our shareholders for their continued support.



Laurent Ferreira
President and Chief Executive Officer

Louis Vachon
Former President and Chief Executive Officer

Members of the Office of the President

Laurent Ferreira
President and
Chief Executive Officer

Stéphane Achard
Executive Vice-President,
Commercial Banking
and Insurance

Lucie Blanchet
Executive Vice-President,
Personal Banking and
Client Experience

William Bonnell
Executive Vice-President,
Risk Management

Martin Gagnon
Executive Vice-President,
Wealth Management;
Co-President and Co-Chief
Executive Officer,
National Bank Financial

Nathalie Généreux
Executive Vice-President,
Operations

Denis Girouard
Executive Vice-President and
Head, Financial Markets

Brigitte Hébert
Executive Vice-President,
Employee Experience

Julie Lévesque
Executive Vice-President,
Information Technology

Ghislain Parent
Chief Financial Officer
and Executive
Vice-President, Finance

Message From the Chairman of the Board

Throughout 2021 and in the context of the ongoing pandemic, the Bank continued to prioritize the well-being of its employees and clients. The Board is proud of the compassion shown by the Bank, reflecting our commitment to our One Mission of Putting People First.

The Board is equally proud of the exceptional performance delivered across the franchise last year. The Bank's results confirm the sound strategic choices made over the years and its strong culture of agility.

While continuing to provide counsel and support to senior management in a complex environment, the Board forged ahead with key long-term priorities in a fast-evolving industry. Priority areas in 2021 included succession planning; oversight of key risks; culture and talent development; technology; environmental, social and governance (ESG) matters; and strategic planning.

CEO Succession

In many ways, 2021 was a year of transition, as the Board completed a rigorous multi-year succession process for the Bank's CEO. Louis Vachon, our CEO since 2007, announced his intention to retire at the end of October 2021, and the Board appointed Laurent Ferreira to succeed him.

During Louis' nearly 15-year tenure as CEO, the Bank made remarkable financial and cultural progress. Louis helped build a strong, diversified, and agile Bank that has experienced sustained growth in Canada and abroad. The Board both recognizes and thanks him for his invaluable contributions through the years and for the strong legacy he leaves behind.

The Board is pleased to be able to count on Laurent Ferreira to lead the Bank in its next chapter. Laurent has a strong track record of strategic leadership as well as a deep understanding of the Bank, the banking industry, global markets, and risk management. Having been a key player in the Bank's multi-year transformation and cultural shift, Laurent also led the development of our new three-year strategic plan. The Board has full confidence in the executive team's ability to pursue the Bank's continued success with Laurent at the helm.

Cultivating Our Talent and Culture

The Board remains committed to talent development and succession planning across all areas of the Bank. From our corporate offices to our branches, we must attract and retain increasingly mobile talent in a competitive labour market. The Board continues to work closely with management to ensure that the Bank has the right strategies and tools in place for a post-pandemic world.

We must also cultivate our culture of adaptability to maintain a dynamic workplace where employees can grow and thrive. In 2021, the Bank published its first inclusion and diversity booklet outlining its three-year strategy, areas of action, partnerships, and performance indicators. The Board continues to actively monitor the Bank's progress on these fronts and to support management in its efforts to remain an employer of choice while promoting our culture as a key competitive advantage.

Climate Commitments

The Bank's ESG strategy, including its efforts to manage climate-related risks and opportunities, is one of the Board's top priorities. In recent years, the Bank has adopted several measures to strengthen its climate commitments, notably by supporting the UN's Principles for Responsible Banking, by aligning our disclosure with the recommendations made by the Financial Stability Board's Task Force on Climate-related Financial Disclosures (TCFD), through our responsible investments and, most recently, by setting an ambitious greenhouse gas (GHG) emissions reduction target by 2050 in line with the *Paris Agreement*.

Message From the Chairman of the Board (cont.)

This past year, the Bank took additional meaningful steps by publishing its second TCFD report and by joining the Partnership for Carbon Accounting Financials, a global partnership of financial institutions created to develop a common approach to assess and disclose the GHG emissions associated with client loans and investments. In late 2021, the Bank joined the Net-Zero Banking Alliance, a global industry-led initiative to accelerate efforts to address climate change.

Achieving carbon neutrality by 2050 from a client lending and investment perspective remains one of our industry's biggest commitments and challenges. We continue to actively work to establish a science-based framework of metrics and interim targets, a crucial step towards the development of our roadmap to carbon neutrality.

Board Renewal

In 2021, Raymond Bachand completed a seven-year term as a director, and we sincerely thank him for his many contributions during his tenure. His extensive experience, particularly in major public office positions, has been instrumental to the Board's work since 2014. We welcomed Macky Tall to fill the vacancy and couldn't be more pleased to have him on board. A partner and chair of The Carlyle Group's Infrastructure group since September 2021, and having previously served 16 years in executive positions at the Caisse de dépôt et placement du Québec, Macky brings extensive experience in finance, in business risk management as well as in sustainable development. As part of our CEO succession process, Laurent Ferreira also joined the Board in 2021, in anticipation of Louis Vachon's retirement.

Ready for the Future

As Chair, I am incredibly proud of how the Bank has adapted and navigated what has become a prolonged and multi-year pandemic. We have not compromised on our ability to show compassion while leveraging our strengths to deliver a stellar financial performance, and we have forged ahead with key priorities to ensure our long-term success.

None of this would have been possible without the great dedication and passion of our employees and strong leadership team, and for this I thank them. I also wish to reiterate the Board's commitment to our employees, clients, communities and shareholders, and to delivering long-term value for all stakeholders.

The Bank has a strong foundation and resilient businesses. We look forward with confidence and optimism under new leadership, and with a winning team and culture. Regardless of the challenges that may lie ahead, we are ready for the future.

Jean Houde
Chairman of the Board of Directors

For more information regarding the Bank's governance, please refer to the *Statement of Corporate Practices* available on the Bank's website at nbc.ca.

Members of the Board of Directors

Jean Houde
Quebec City, Quebec, Canada
Chairman of the Board of Directors,
National Bank of Canada
and Corporate Director
Director since March 2011

Maryse Bertrand
Westmount, Quebec, Canada
Corporate Director
Director since April 2012

Pierre Blouin
Montreal, Quebec, Canada
Corporate Director
Director since September 2016

Pierre Boivin
Montreal, Quebec, Canada
President and Chief Executive Officer, Claridge inc.
Director since April 2013

Manon Brouillette
New York, New York, United States
Chief Operating Officer and Deputy Chief Executive Officer,
Verizon Consumer Group
Director since April 2020

Yvon Charest
Quebec City, Quebec, Canada
Corporate Director
Director since April 2020

Patricia Curadeau-Grou
Montreal, Quebec, Canada
Corporate Director
Director since April 2019

Laurent Ferreira
Westmount, Quebec, Canada
President and Chief Executive Officer,
National Bank of Canada
Director since February 2021

Karen Kinsley
Ottawa, Ontario, Canada
Corporate Director
Director since December 2014

Rebecca McKillican
Oakville, Ontario, Canada
Chief Executive Officer,
McKesson Canada
Director since October 2017

Robert Paré
Westmount, Quebec, Canada
Strategic Advisor,
Fasken Martineau DuMoulin LLP
and Corporate Director
Director since April 2018

Lino A. Saputo
Montreal, Quebec, Canada
Chief Executive Officer and Chairman of the Board of Directors,
Saputo Inc.
Director since April 2012

Andrée Savoie
Dieppe, New Brunswick, Canada
President and Chair of the Board of Directors,
Acadian Properties Ltd.
Director since April 2015

Macky Tall
Indialantic, Florida, United States
Chair of the Infrastructure Group of The Carlyle Group Inc.
Director since April 2021

Pierre Thabet
St-Georges, Quebec, Canada
President, Boa-Franc inc.
Director since March 2011

Board Committees

Audit Committee
Karen Kinsley *(Chair)*
Maryse Bertrand
Pierre Blouin
Andrée Savoie
Pierre Thabet

Risk Management Committee
Pierre Thabet *(Chair)*
Yvon Charest
Patricia Curadeau-Grou
Karen Kinsley
Lino A. Saputo
Macky Tall

Technology Subcommittee
Pierre Blouin *(Chair)*
Patricia Curadeau-Grou
Rebecca McKillican

Human Resources Committee
Pierre Boivin *(Chair)*
Maryse Bertrand
Pierre Blouin
Yvon Charest
Rebecca McKillican
Robert Paré

Conduct Review and Corporate Governance Committee
Yvon Charest *(Chair)*
Patricia Curadeau-Grou
Jean Houde
Robert Paré
Andrée Savoie

OUR ONE MISSION

We exist to have a **POSITIVE IMPACT** in people's lives.

By building ***long-term relationships*** with our clients, employees and communities.

People first.

Why do we need a One Mission?

Our One Mission is aligned with our continued efforts to drive social and economic development. In response to changing trends in the banking industry, we've adopted a people-first approach that will help us achieve our objectives and boost our collaboration with stakeholders.

How is our One Mission put into practice?

- Through the experiences we want to deliver to our clients, our employees and the communities we serve.
- Through behaviours that reflect our values: partnership, empowerment and agility.
- Through the way employees work together to boost client satisfaction, employee engagement and community involvement.
- Through the initiatives we prioritize to have a positive impact.

Integral to our One Mission is support for **sustainable development.**

We incorporate **environmental, social,** and **governance** (ESG) matters into our business and operating decisions.

Our ESG Commitments

In 2021, the Bank announced its commitment to the following initiatives:

- Partnership for Carbon Accounting Financials (PCAF): The Bank has joined a global partnership of financial institutions that work together to develop an approach to assess and disclose the greenhouse gas (GHG) emissions resulting from their lending and investment activities.
- United Nations Net-Zero Banking Alliance (NZBA): The Bank has joined this alliance that furthers banks' efforts to help address climate change by aligning financing activities with net-zero emissions by 2050.

The Bank also pursued its commitment to the following global initiatives:

- United Nations (UN) Principles for Responsible Banking
- United Nations Environment Programme Finance Initiative (UNEP FI)
- UN Principles for Responsible Investment (PRI)
- UN Women's Empowerment Principles
- United Nations Global Business Standards of Conduct for Tackling Discrimination Against Lesbian, Gay, Bi, Trans and Intersex People (LGBTI)

The Bank supports the Task Force on Climate-related Financial Disclosures (TCFD) of the Financial Stability Board. In 2021, it published a new report on the issues addressed by this group. The Bank is also working with industry partners to develop a relevant disclosure approach.

The Bank is committed to having a positive impact in people's lives.

Our ESG principles reflect our commitment to building a sustainable future while representing the best interests of stakeholders.

ENVIRONMENT	SOCIAL	GOVERNANCE
We are working to develop a green economy	We enrich communities	We govern according to the highest standards
1. We consider the fight against climate change in our economic and community actions 2. We guide and advise our clients in their energy transition 3. We manage and reduce our environmental footprint in all of our business segments	4. We maximize the potential of individuals and the community 5. We promote inclusion and diversity 6. We foster entrepreneurship, financial literacy, philanthropy, and support for health and education	7. We promote a strong ethics culture, sound governance practices, and rigorous risk management 8. We manage according to responsible business practices 9. We ensure the long-term viability of the institution

Key United Nations Sustainable Development Goals covered by our principles

Our ESG Achievements



Environment

We are working to develop a green economy

- Adoption of a net-zero GHG emissions target with interim targets for our operating and financing activities by 2050. This target is in line with the most ambitious goal of the *Paris Agreement*, limiting global warming to 1.5°C.
- Protecting the Arctic and position on coal: We've formalized the Bank's practice of not offering or granting new services related to oil and gas exploration, exploitation or production in the Arctic. The Bank has also made an official commitment not to finance new thermal coal mining and processing activities.
- National Bank Investments' OP4+ process: 98% of assets under management comply with the UN Principles for Responsible Investment.

For more information: **nbc.ca**

Social

We enrich communities

The Bank has pursued a number of initiatives launched in 2020 to support its employees and provide assistance to clients and communities across Canada affected by the COVID-19 pandemic.

Promoting Inclusion and Diversity

- Publication of a first booklet entirely dedicated to inclusion and diversity, with the title Take action *for a more inclusive future* today.
- For the third year in a row, the Bank was selected for the Bloomberg Gender-Equality Index.
- The Bank has participated in a number of initiatives intended to actively support women, cultural communities, the LGBTQ+ community, persons with disabilities and Indigenous peoples.

Supporting the Community

- Over $6 million in donations announced to support health and community outreach programs.
- Over $3 million donated to enhance relationships between the education sector and the business world.
- Like every year, we gave back millions of dollars to the community through donations, sponsorships, and fundraisers in addition to supporting hundreds of organizations across Canada.

Governance

We govern according to the highest standards

- Publication of our second Report on Environmental, Social and Governance Advances.
- The mandates of all the committees of the Board of Directors include ESG-related responsibilities.
- Succession planning for directors takes into account the Board's diversity policy (gender, age, designated groups, sexual orientation, ethno-cultural groups and geographic origins).
- Succession planning for all senior management positions, including the President and Chief Executive Officer.

Risk Disclosures

In 2012, the Financial Stability Board (FSB) formed a working group, the Enhanced Disclosure Task Force (EDTF), that was mandated to develop principles for enhancing the risk disclosures of major banks, to recommend improvements to current risk disclosures, and to identify risk disclosure best practices used by major financial institutions. The EDTF published a report entitled *Enhancing the Risk Disclosures of Banks*, which contains 32 recommendations. The Bank makes every effort to ensure overall compliance with those recommendations and is continuing to enhance its risk disclosures to meet the best practices on an ongoing basis. The risk disclosures required by the EDTF are provided in this Annual Report and in the document entitled *Supplementary Regulatory Capital and Pillar 3 Disclosure* available on the Bank's website at nbc.ca.

			Pages
		Annual Report	Supplementary Regulatory Capital and Pillar 3 Disclosure(1)
General			
1	Location of risk disclosures	13	
	Management's Discussion and Analysis	59 to 107, 119, 121 and 122	
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(1) Fourth quarter 2021.
(2) These pages are included in the document entitled *Supplementary Financial Information – Fourth Quarter 2021.*

Management's Discussion and Analysis

November 30, 2021

The following Management's Discussion and Analysis (MD&A) presents the financial condition and operating results of National Bank of Canada (the Bank). This analysis was prepared in accordance with the requirements set out in *National Instrument 51-102*, *Continuous Disclosure Obligations*, released by the Canadian Securities Administrators (CSA). It is based on the audited annual consolidated financial statements for the year ended October 31, 2021 (the consolidated financial statements) and prepared in accordance with International Financial Reporting Standards (IFRS) as issued by the International Accounting Standards Board (IASB), unless otherwise indicated. IFRS represent Canadian generally accepted accounting principles (GAAP). This MD&A should be read in conjunction with the consolidated financial statements and accompanying notes for the year ended October 31, 2021. All amounts are presented in Canadian dollars. Additional information about the Bank, including the *Annual Information Form*, can be obtained from the Bank's website at nbc.ca and SEDAR's website at sedar.com. Information on the Bank's website mentioned herein is not and should not be considered incorporated by reference into the *2021 Annual Report*, the Management's Discussion and Analysis, or the Consolidated Financial Statements.

Caution Regarding Forward-Looking Statements

From time to time, the Bank makes written forward-looking statements such as those contained in this document, in other filings with Canadian securities regulators, and in other communications. In addition, representatives of the Bank may make forward-looking statements orally to analysts, investors, the media and others. All such statements are made in accordance with applicable securities legislation in Canada and the United States. Forward-looking statements in this document may include, but are not limited to, statements with respect to the economy—particularly the Canadian and U.S. economies—market changes, the Bank's objectives, outlook and priorities for fiscal year 2022 and beyond, the strategies or actions that will be taken to achieve them, expectations for the Bank's financial condition, the regulatory environment in which it operates, the potential impacts of—and the Bank's response to—the COVID-19 pandemic, and certain risks it faces. These forward-looking statements are typically identified by verbs or words such as "outlook", "believe", "foresee", "forecast", "anticipate", "estimate", "project", "expect", "intend" and "plan", in their future or conditional forms, notably verbs such as "will", "may", "should", "could" or "would" as well as similar terms and expressions. Such forward-looking statements are made for the purpose of assisting the holders of the Bank's securities in understanding the Bank's financial position and results of operations as at and for the periods ended on the dates presented, as well as the Bank's vision, strategic objectives, and financial performance targets, and may not be appropriate for other purposes.

By their very nature, these forward-looking statements require assumptions to be made and involve inherent risks and uncertainties, both general and specific. Assumptions about the performance of the Canadian and U.S. economies in 2022, including in the context of the COVID-19 pandemic, and how that will affect the Bank's business are among the main factors considered in setting the Bank's strategic priorities and objectives including provisions for credit losses. In determining its expectations for economic conditions, both broadly and in the financial services sector in particular, the Bank primarily considers historical economic data provided by the governments of Canada, the United States and certain other countries in which the Bank conducts business, as well as their agencies.

There is a strong possibility that the Bank's express or implied predictions, forecasts, projections, expectations or conclusions will not prove to be accurate, that its assumptions may not be confirmed and that its vision, strategic objectives and financial performance targets will not be achieved. The Bank recommends that readers not place undue reliance on forward-looking statements, as a number of factors, many of which are beyond the Bank's control, including the impacts of the COVID-19 pandemic, could cause actual results to differ significantly from the expectations, estimates or intentions expressed in these forward-looking statements. These risk factors include credit risk, market risk, liquidity and funding risk, operational risk, regulatory compliance risk, reputation risk, strategic risk, environmental and social risk, and certain emerging risks or risks deemed significant, all of which are described in greater detail in the Risk Management section beginning on page 69 of this *Annual Report*. These risk factors also include, among others, the general economic environment and financial market conditions in Canada, the United States, and other countries where the Bank operates; exchange rate and interest rate fluctuations; higher funding costs and greater market volatility; changes made to fiscal, monetary and other public policies; changes made to regulations that affect the Bank's business; geopolitical and sociopolitical uncertainty; the transition to a low-carbon economy and the Bank's ability to satisfy stakeholder expectations on environmental and social issues; significant changes in consumer behaviour; the housing situation, real estate market, and household indebtedness in Canada; the Bank's ability to achieve its long-term strategies and key short-term priorities; the timely development and launch of new products and services; the Bank's ability to recruit and retain key personnel; technological innovation and heightened competition from established companies and from competitors offering non-traditional services; changes in the performance and creditworthiness of the Bank's clients and counterparties; the Bank's exposure to significant regulatory matters or litigation; changes made to the accounting policies used by the Bank to report financial information, including the uncertainty inherent to assumptions and critical accounting estimates; changes to tax legislation in the countries where the Bank operates, i.e., primarily Canada and the United States; changes made to capital and liquidity guidelines as well as to the presentation and interpretation thereof; changes to the credit ratings assigned to the Bank; potential disruption to key suppliers of goods and services to the Bank; potential disruptions to the Bank's information technology systems, including evolving cyberattack risk as well as identity theft and theft of personal information; and possible impacts of major events affecting the local and global economies, including international conflicts, natural disasters, and public health crises such as the COVID-19 pandemic. The foregoing list of risk factors is not exhaustive. Additional information about these risk factors is provided in the Risk Management section and in the COVID-19 Pandemic section of this *Annual Report* and may be updated in the quarterly shareholders' report subsequently published. Investors and others who rely on the Bank's forward-looking statements should carefully consider the above factors as well as the uncertainties they represent and the risk they entail. Except as required by law, the Bank does not undertake to update any forward-looking statements, whether written or oral, that may be made from time to time, by it or on its behalf.

COVID-19 Pandemic

On March 11, 2020, the World Health Organization (WHO) declared that the COVID-19 outbreak constituted a pandemic, requiring important protective measures to be taken to prevent overcrowding of health services and to strengthen preventive hygiene. This global pandemic prompted many countries, including Canada, to implement lockdown and social distancing measures designed to prevent new outbreaks. In many countries, those measures included the closing of aerial, maritime, and land borders.

During the summer of 2020, some of the restrictions imposed at the start of the pandemic were eased, but subsequent waves of COVID-19 in autumn 2020 forced authorities in a number of countries, including Canada, to reintroduce lockdown measures, effectively shutting down parts of the economy again. During the winter of 2021, a vaccination campaign began in Canada and picked up steam in the spring, leading to a reopening in early summer 2021. The authorities in many countries, including Canada, actively worked to ensure that widespread vaccination coverage was achieved as quickly as possible. However, uncertainty remains regarding the long-term effectiveness of the vaccines, the acceptance thereof by the public, and the anticipated reduction of infection rates, especially given a rise in cases linked to COVID-19 variants, which appear to be more contagious. Certain measures by the public health authorities in Canada are expected to remain in place to continue limiting the spread of COVID-19 and its variants.

In Canada, banking services are considered essential services and were therefore maintained despite the lockdown and social distancing measures. Given the current economic and social conditions, the Bank is committed to supporting its employees, clients, and communities.

Impact of the COVID-19 Risk Factor

At its onset, the COVID-19 pandemic had disruptive and adverse effects in the countries where the Bank operates and, more broadly, on the global economy. Among other disruptions, COVID-19 sent stock markets into sharp decline and rendered them more volatile, disrupted global supply chains, triggered a rapid and sudden rise in unemployment, and prompted an economic slowdown. In spring 2020, governments, monetary authorities, and regulators intervened to support the economy and the financial system, notably by deploying fiscal and monetary measures designed to increase liquidity and support incomes. They also eased the capital and liquidity requirements imposed on financial institutions. While a global economic rebound was seen during fiscal 2021, if the COVID-19 pandemic persists, in particular through subsequent waves, its impacts on the global economy could worsen and the measures in place might not be enough over the long term to completely avoid recessive conditions.

Aside from its impacts on the global economy and in the countries where the Bank operates, the COVID-19 pandemic has had, and may continue to have, impacts on the Bank, on the way in which it operates, and on its clients. Since much of the Bank's business involves granting loans or providing liquidity to clients (which include individuals, businesses, and governments), the impacts of the COVID-19 pandemic on these clients could have a significant adverse effect on the Bank's business, results of operations, financial position, and reputation by, for example, causing higher credit losses. Given the measures taken by the Bank to support telework, which could continue for some time, and given increased client use of digital tools, the Bank, its clients, and its service providers are also exposed to a greater risk of cyberthreats, cyberattacks, breaches, and fraudulent activities as well as to operational risks. The Bank closely monitors its operations to detect any indications of increased phishing, fraud, privacy breaches, and cyberattacks, and it raises awareness about information security threats among its clients, employees, and service providers. The Bank is unaware of how the societal landscape (including changes in consumer behaviour, in policies, and in regulations) will evolve or how it will have changed after the COVID-19 pandemic.

Given these circumstances, the COVID-19 pandemic has put into perspective and may continue to put into perspective many of the top and emerging risks to which the Bank is exposed, i.e., credit risk, market risk, liquidity and funding risk, operational risk, regulatory compliance risk, reputation risk, strategic risk, information security and cybersecurity risk, and the risk of reliance on technology and third parties. These risks are described in more detail in the Risk Management section of this MD&A.

The Bank is continuing to closely monitor the potential impacts of the COVID-19 pandemic. It is not possible to predict the full impacts that the pandemic will have on the global economy, on the countries in which the Bank operates, on the Bank's clients, and on the Bank itself, including its business activities, results of operations, financial position, regulatory capital and liquidity ratios, reputation, and ability to satisfy regulatory requirements. The actual impacts will depend on future events that are highly uncertain, including the extent, severity, and duration of the COVID-19 pandemic, and on the effectiveness of actions and measures taken by governments, monetary authorities, and regulators over the long term.

Relief Measures for Clients

In response to the economic and financial environment caused by COVID-19, the Bank announced, from the onset of the pandemic, a series of measures to support the clients of its main business segments. Some of the measures were introduced by the Canadian government and regulatory authorities, together with the Canadian banks, and were rolled out quickly to come to the assistance of individuals and businesses. These measures were designed to provide financial support specifically to clients facing the economic consequences of COVID-19.

A number of the relief measures offered to the Bank's clients at the start of the pandemic ended in 2020, although some measures were being offered as part of various government programs in which the Bank is participating. These measures consist mainly of loans backed by government guarantees, particularly for businesses operating in sectors hit hardest by the pandemic. In the normal course of business, the Bank is continuing to address the specific needs of its clients to support them during this unprecedented crisis.

Key Measures Introduced by the Regulatory Authorities

Since the start of the pandemic, several Government of Canada agencies, the Office of the Superintendent of Financial Institutions (Canada) (OSFI), and other regulatory authorities governing the Bank's activities have taken a number of actions to reinforce the resilience of Canadian banks and to improve the stability of the Canadian financial system and economy in response to the challenges posed by COVID-19 and economic conditions. Described in point form below are the key measures introduced by OSFI and the Bank of Canada in March 2020 that continued to affect the Bank during the fiscal year ended October 31, 2021.

Capital Management

- Domestic stability buffer (the buffer): On March 13, 2020, OSFI lowered the buffer from 2.25% of risk-weighted assets to 1.0%, effective on that date. The purpose of this measure was to raise the capacity of domestic systemically important banks (D-SIBs) to supply credit to the economy during an expected period of disruption related to COVID-19 and market conditions. OSFI also indicated that it was expecting all banks to cease any dividend increases or share buybacks. On June 17, 2021, OSFI raised the buffer level such that it would be 2.5% starting October 31, 2021. On November 4, 2021, OSFI updated its capital distribution expectations by permitting financial institutions to raise regular dividends and, subject to OSFI approval, buy back shares.
- Treatment of regulatory capital for expected credit loss accounting purposes: On March 27, 2020, OSFI introduced transitional arrangements applicable to the ECL provisioning method set out in the Basel framework. Under the arrangement, a portion of allowances that would otherwise have been included in Tier 2 capital will be included in CET1 capital. While the Basel Committee on Banking Supervision (BCBS) is allowing jurisdictions to apply a 100% add-back of allowances to CET1 capital, OSFI believed that a maximum add-back of 70% was appropriate. This increased amount is adjusted for tax effects and multiplied by a scaling factor that decreases over time. The scaling factor has been set at 70% for fiscal 2020, at 50% for fiscal 2021, and at 25% for fiscal 2022. Given the three-year transition period, banks can phase-in the impact of increased ECL allowances in CET1 capital while also acknowledging that these allowances have been recorded.
- Reduction of stressed Value-at-Risk (VaR) multipliers under market risk: On March 27, 2020, OSFI announced that banks subject to market risk capital requirements and using the AIRB approach could reduce by two the stressed VaR multiplier that was being applied at the end of the first quarter of 2020. This reduction could be applied retrospectively to the beginning of the second quarter of 2020. On March 16, 2021, OSFI announced the unwinding of this temporary reduction and returned the VaR multipliers back to the pre-pandemic level, with an implementation date of May 1, 2021.
- Capital floor: On March 27, 2020, OSFI lowered the floor factor from 75% to 70%. The 70% floor factor is expected to stay in place until the domestic implementation of the Basel III capital floor in the first quarter of 2023. The 70% factor ensures that the floor continues to protect against model risk while maintaining the risk sensitivity of the capital framework for banks subject to the AIRB approach.
- Leverage ratio: On March 27, 2020, OSFI announced that banks could temporarily exclude the following exposures for leverage ratio purposes: (1) central bank reserves; (2) sovereign-issued securities that qualify as high-quality liquid assets (HQLA) under the *Liquidity Adequacy Requirements* guideline. On November 5, 2020, OSFI announced that this treatment would remain in place until December 31, 2021. On August 12, 2021, OSFI confirmed that the exclusion of sovereign-issued securities that qualify as HQLA would not be extended beyond December 31, 2021. Central bank reserves will, however, continue to be excluded from the leverage ratio exposure measure.
- Margin required for non-centrally cleared derivatives: In line with a decision by the BCBS and International Organization of Securities Commissions, on March 27, 2020, OSFI extended by one year the deadline for implementing the final two phases of the initial margin requirements for non-centrally cleared derivatives outlined in OSFI's *E-22* guideline. With this extension, the final implementation phase will take place on September 1, 2022, at which point covered entities with an aggregate average notional amount (AANA) of non-centrally cleared derivatives greater than $12 billion will be subject to the requirements. As an intermediate step, as of September 1, 2021, entities with an AANA of non-centrally cleared derivatives greater than $75 billion are being subject to the requirements.
- Delaying implementation of the Basel III reforms: The Group of Central Bank Governors and Heads of Supervision (GHOS), which oversees the BCBS, announced a postponement to the implementation of the reforms of the Basel III capital international standard published in December 2017. On March 27, 2020, OSFI therefore postponed, until the first quarter of 2023, the implementation dates applicable to the revisions to the Standardized Approach and AIRB Approach to credit risk, the operational risk framework, and the leverage ratio framework, as well as the introduction of a more risk-sensitive capital floor. Implementation of the Pillar 3 financial disclosure requirements finalized by the BCBS in December 2018 has also been delayed until at least the first quarter of 2023. On November 29, 2021, OSFI postponed the implementation of the above-mentioned Basel III reform items until the second quarter of 2023. Lastly, implementation of the final set of revisions to the new market risk framework entitled *Fundamental Review of the Trading Book* published in January 2019 as well as the revised credit valuation adjustment (CVA) risk framework is being postponed to the first quarter of 2024.

For additional information, refer to the Capital Management section of this MD&A.

<u>Liquidity Management</u>

- Monetary policy: Since the start of the pandemic, the Bank of Canada has used monetary policy to respond to the COVID-19 crisis. For example, it lowered the overnight rate target by 150 basis points to 0.25%. Longer-term interest rates have also declined significantly, and the interest rates of the Government of Canada curve are now mostly below 1%.
- Liquidity facilities and asset purchase program of the Bank of Canada: The liquidity facilities include the term repo facility for which, on April 3, 2020, the Bank of Canada announced that the terms of the loans had been extended and the list of eligible collateral expanded. A new standing term liquidity facility (STLF) was introduced to round out the existing liquidity tools and to further strengthen the resilience of the Canadian financial system. Asset purchase programs implemented by the Bank of Canada and the Canada Mortgage and Housing Corporation (CMHC) cover a wide range of securities (treasury bills, bankers' acceptances, bonds, and mortgage-backed securities) and issuers (government and corporate). All of these programs stabilized the funding markets and supported the flow of credit to households and businesses. On March 23, 2021, given continued operational improvement in the Canadian financial markets in general, the Bank of Canada announced an end to the programs deployed in 2020.
- Covered bond limit: The covered bond limit was temporarily increased in April 2020 to provide better access to Bank of Canada facilities, and the banks were allowed to draw on their HQLA assets, thereby falling below the 100% threshold required by the *Liquidity Adequacy Requirements* guideline for the liquidity coverage ratio (LCR). On April 6, 2021, OSFI announced that the temporary increase to the covered bond limit was being unwound effective immediately.

The Bank entered the crisis in a strong liquidity position. Throughout fiscal years 2021 and 2020, it has maintained sound and prudent management of liquidity. In light of the government liquidity facilities and household and business needs, the Bank is maintaining a liquidity buffer that will enable it to further support its clients.

For additional information, refer to the Risk Management – Liquidity and Funding Risk section of the MD&A.

Financial Reporting Method

The Bank's consolidated financial statements are prepared in accordance with IFRS, as issued by the IASB. The financial statements also comply with section 308(4) of the *Bank Act* (Canada), which states that, except as otherwise specified by OSFI, the consolidated financial statements are to be prepared in accordance with IFRS, which represent Canadian GAAP. None of the OSFI accounting requirements are exceptions to IFRS.

On November 1, 2020, the Bank amended the classification of certain Consolidated Statement of Income amounts to better reflect the nature of the revenues reported in the Wealth Management segment. The reclassifications were made retrospectively among the *Non-interest income* items. These reclassifications had no impact on the totals of these income items or on *Net income.*

Non-GAAP and Other Financial Measures

The Bank uses a number of financial measures when assessing its results and measuring overall performance. Some of these financial measures are not calculated in accordance with GAAP. *Regulation 52-112 respecting Non-GAAP and Other Financial Measures Disclosure* (Regulation 52-112) prescribes disclosure requirements that apply to the following measures used by the Bank:

- non-GAAP financial measures;
- non-GAAP ratios;
- supplementary financial measures;
- capital management measures;
- segment measures.

Non-GAAP Financial Measures

The Bank uses non-GAAP financial measures that do not have standardized meanings under GAAP and that therefore may not be comparable to similar measures used by other companies. Presenting non-GAAP financial measures helps readers to better understand how management analyzes results, shows the impacts of specified items on the results of the reported periods, and allows readers to assess results without the specified items if they consider such items not to be reflective of the underlying performance of the Bank's operations. The Bank excludes from its results certain specified items that are inherently unpredictable. In addition, like many other financial institutions, the Bank uses the taxable equivalent basis to calculate net interest income, non-interest income, and income taxes. This calculation method consists of grossing up certain tax-exempt income (particularly dividends) by the income tax that would have been otherwise payable. An equivalent amount is added to income taxes. This adjustment is necessary in order to perform a uniform comparison of the return on different assets regardless of their tax treatment.

The non-GAAP financial measures used by the Bank are as follows: Net interest income on a taxable equivalent basis, Non-interest income on a taxable equivalent basis and excluding specified items, Non-interest income on a taxable equivalent basis, Total revenues on a taxable equivalent basis and excluding specified items, Total revenues on a taxable equivalent basis, Non-interest expenses excluding specified items, Income before provisions for credit losses and income taxes on a taxable equivalent basis excluding specified items, Income before provisions for credit losses and income taxes on a taxable equivalent basis, Income before income taxes on a taxable equivalent basis and excluding specified items, Income before income taxes on a taxable equivalent basis, Income taxes on a taxable equivalent basis and excluding specified items, Income taxes on a taxable equivalent basis, Net income excluding specified items, Non-controlling interests excluding specified items, Net income attributable to the Bank's shareholders and holders of other equity instruments excluding specified items, basic earnings per share excluding specified items and diluted earnings per share excluding specified items. The quantitative reconciliation of these measures is presented in the tables in the Reconciliation on Non-GAAP Financial Measures section on pages 20 and 21 and in the Consolidated Results table on page 27.

The Bank also uses *Trading revenues (losses) on a taxable equivalent basis* and *Trading activity revenues on a taxable equivalent basis* to assess its results, and the quantitative reconciliations of these non-GAAP financial measures are presented in the Additional Financial Information section in Tables 4 and 5 on page 117.

Non-GAAP Ratios

The Bank uses non-GAAP ratios that do not have standardized meanings under GAAP and that therefore may not be comparable to similar measures used by other companies. A non-GAAP ratio is a ratio in which at least one component is a non-GAAP financial measure. The Bank uses non-GAAP ratios to present aspects of its financial performance or financial position, including efficiency ratio on a taxable equivalent basis and excluding specified items, efficiency ratio on a taxable equivalent basis, operating leverage excluding specified items, return on common shareholders' equity excluding specified items, and dividend payout ratio excluding specified items. For additional information about the composition of these ratios, see the Glossary section on pages 123 to 126 of this MD&A.

Supplementary Financial Measures

A supplementary financial measure is a financial measure that: (a) is not reported in the Bank's consolidated financial statements, and (b) is, or is intended to be, reported periodically to represent historical or expected financial performance, financial position, or cash flows. The composition of these supplementary financial measures is presented in the Glossary on pages 123 to 126 of this MD&A.

Capital Management Measures

The financial reporting framework used to prepare the financial statements requires disclosure that help readers assess the Bank's capital management objectives, policies, and processes, as set out in IFRS in IAS 1 – *Presentation of Financial Statements.* The Bank has its own methods for managing capital and liquidity, and IFRS does not prescribe any particular calculation method. These measures are calculated using various OSFI guidelines and advisories, which are based on the standards, recommendations, and best practices of the Basel Committee on Banking Supervision (BCBS) as presented in the following table.

OSFI guideline or advisory	Measure
Capital Adequacy Requirements	Common Equity Tier 1 (CET1) capital ratio Tier 1 capital ratio Total capital ratio CET1 capital Tier 1 capital Tier 2 capital Total capital Risk-weighted assets Maximum credit risk exposure under the Basel asset classes
Leverage Requirements	Leverage ratio Total exposure
Liquidity Adequacy Requirements	Liquid asset portfolio Encumbered assets and unencumbered assets Liquidity coverage ratio (LCR) High-quality liquid assets (HQLA) Cash inflows/outflows and net cash outflows Net stable funding ratio (NSFR) Available stable funding items Required stable funding items
Total Loss Absorbing Capacity (TLAC)	Key indicators – TLAC requirements
Global Systemically Important Banks (G-SIBs) – Public Disclosure Requirements	G-SIB indicators

Segment Measures

The Bank uses the sum of the total revenues and the net income of its business segments (namely, Personal and Commercial, Wealth Management, Financial Markets, and USSF&I) to measure the materiality of each segment. Using this method to analyze results, that is, by excluding the *Other* heading, the Bank can better evaluate the performance of each of its business segments.

Reconciliation of Non-GAAP Financial Measures

Presentation of Results on a Taxable Equivalent Basis and Excluding Specified Items

Year ended October 31 (millions of Canadian dollars)						2021	2020
	Personal and Commercial	Wealth Management	Financial Markets	USSF&I	Other		
Net interest income	2,583	448	1,051	907	(206)	4,783	4,255
Taxable equivalent	–	–	175	–	6	181	208
Net interest income on a taxable equivalent basis	2,583	448	1,226	907	(200)	4,964	4,463
Non-interest income	1,103	1,721	912	94	314	4,144	3,672
Taxable equivalent	–	–	8	–	–	8	57
Foreign currency translation loss on disposal of subsidiaries(1)	–	–	–	–	–	–	24
Non-interest income on a taxable equivalent basis and excluding specified items	1,103	1,721	920	94	314	4,152	3,753
Total revenues on a taxable equivalent basis and excluding specified items	3,686	2,169	2,146	1,001	114	9,116	8,216
Non-interest expenses	1,958	1,277	880	315	423	4,853	4,545
Impairment losses on premises and equipment and on intangible assets(2)	–	–	–	–	(9)	(9)	(71)
Severance pay(3)	–	–	–	–	–	–	(48)
Charge related to Maple(4)	–	–	–	–	–	–	(13)
Non-interest expenses excluding specified items	1,958	1,277	880	315	414	4,844	4,413
Income before provisions for credit losses and income taxes on a taxable equivalent basis and excluding specified items	1,728	892	1,266	686	(300)	4,272	3,803
Provisions for credit losses	6	1	10	(15)	–	2	846
Income before income taxes on a taxable equivalent basis and excluding specified items	1,722	891	1,256	701	(300)	4,270	2,957
Income taxes	456	236	150	146	(93)	895	453
Taxable equivalent	–	–	183	–	6	189	265
Income taxes on foreign currency translation loss on disposal of subsidiaries(1)	–	–	–	–	–	–	(12)
Income taxes related to impairment losses on premises and equipment and on intangible assets(2)	–	–	–	–	2	2	19
Income taxes on severance pay(3)	–	–	–	–	–	–	13
Income taxes on the charge related to Maple(4)	–	–	–	–	–	–	3
Income taxes on a taxable equivalent basis and excluding specified items	456	236	333	146	(85)	1,086	741
Net income excluding specified items	1,266	655	923	555	(215)	3,184	2,216
Specified items after income taxes	–	–	–	–	(7)	(7)	(133)
Net income	1,266	655	923	555	(222)	3,177	2,083
Non-controlling interests	–	–	–	–	–	–	42
Non-controlling interests on the foreign currency translation loss on disposal of subsidiaries(1)	–	–	–	–	–	–	10
Non-controlling interests excluding specified items	–	–	–	–	–	–	52
Net income attributable to the Bank's shareholders and holders of other equity instruments	1,266	655	923	555	(222)	3,177	2,041
Net income attributable to the Bank's shareholders and holders of other equity instruments excluding specified items	1,266	655	923	555	(215)	3,184	2,164
Dividends on preferred shares and distributions on limited recourse capital notes						123	118
Net income attributable to common shareholders excluding specified items						3,061	2,046

(1) During the year ended October 31, 2020, the Bank, through its subsidiary Credigy Ltd. (Credigy), had recorded a foreign currency translation loss on investments in foreign operations of $24 million ($36 million taking into account income taxes and $26 million taking into account income taxes and non-controlling interests) following a disposal of two subsidiaries in Brazil.

(2) During the year ended October 31, 2021, the Bank recorded $9 million ($7 million net of income taxes) in impairment losses on intangible assets related to technology developments. During the year ended October 31, 2020, the Bank had recorded $71 million ($52 million net of income taxes) in impairment losses on premises and equipment and on intangible assets related to computer equipment and technology developments.

(3) During the year ended October 31, 2020, following an optimization of certain organizational structures, the Bank had recorded $48 million ($35 million net of income taxes) in severance pay.

(4) During the year ended October 31, 2020, the Bank had recorded a charge of $13 million ($10 million net of income taxes) related to Maple Financial Group Inc. (Maple).

Presentation of Diluted Earnings per Share Excluding Specified Items

Year ended October 31 (Canadian dollars)	2021	2020	% change
Diluted earnings per share	$ 8.96	$ 5.70	57
Specified items[1]			
Foreign currency translation loss on disposal of subsidiaries	–	0.08	
Impairment losses on premises and equipment and on intangible assets	0.02	0.15	
Severance pay	–	0.10	
Charge related to Maple	–	0.03	
Diluted earnings per share excluding specified items	$ 8.98	$ 6.06	48

(1) For additional information on specified items, see the table on page 20 entitled Presentation of Results on a Taxable Equivalent Basis and Excluding Specified Items.

Presentation of Results on a Taxable Equivalent Basis

Year ended October 31 (millions of Canadian dollars)	2021	2020	% change
Operating results			
Net interest income	4,783	4,255	12
Non-interest income	4,144	3,672	13
Total revenues	8,927	7,927	13
Non-interest expenses	4,853	4,545	7
Income before provisions for credit losses and income taxes	4,074	3,382	20
Provisions for credit losses	2	846	
Income before income taxes	4,072	2,536	61
Income taxes	895	453	98
Net income	3,177	2,083	53
Taxable equivalent basis			
Net interest income	181	208	
Non-interest income	8	57	
Income taxes	189	265	
Impact of taxable equivalent basis on net income	–	–	
Operating results on a taxable equivalent basis			
Net interest income on a taxable equivalent basis	4,964	4,463	11
Non-interest income on a taxable equivalent basis	4,152	3,729	11
Total revenues on a taxable equivalent basis	9,116	8,192	11
Non-interest expenses	4,853	4,545	7
Income before provisions for credit losses and income taxes on a taxable equivalent basis	4,263	3,647	17
Provisions for credit losses	2	846	
Income before income taxes on a taxable equivalent basis	4,261	2,801	52
Income taxes on a taxable equivalent basis	1,084	718	51
Net income	3,177	2,083	53

Financial Disclosure

Disclosure Controls and Procedures

The Bank's financial information is prepared with the support of a set of disclosure controls and procedures (DC&P) that are implemented by the President and Chief Executive Officer (CEO) and by the Chief Financial Officer and Executive Vice-President, Finance (CFO). During the year ended October 31, 2021, in accordance with *Regulation 52-109 Respecting Certification of Disclosure in Issuers' Annual and Interim Filings* (Regulation 52-109), released by the CSA, the design and operation of these controls and procedures were evaluated to determine their effectiveness.

As at October 31, 2021, the CEO and the CFO confirmed the effectiveness of the DC&P. These controls are designed to provide reasonable assurance that the information disclosed in annual and interim filings and in other reports filed or submitted under securities legislation is recorded, processed, summarized and reported within the time periods specified by that legislation. These controls and procedures are also designed to ensure that such information is accumulated and communicated to the Bank's management, including its signing officers, as appropriate, to allow for timely decisions regarding disclosure.

This Annual Report was reviewed by the Disclosure Committee, the Audit Committee, and the Bank's Board of Directors (the Board), which approved it prior to publication.

Internal Controls Over Financial Reporting

The internal controls over financial reporting (ICFR) are designed to provide reasonable assurance that the financial information presented is reliable and that the consolidated financial statements were prepared in accordance with GAAP, which are based on IFRS, unless indicated otherwise as explained on pages 18 to 21 of this MD&A. Due to inherent limitations, the ICFR may not prevent or detect all misstatements in a timely manner.

The CEO and the CFO oversaw the evaluation work performed on the design and operation of the Bank's ICFR in accordance with Regulation 52-109. These controls were evaluated in accordance with the control framework of the Committee of Sponsoring Organizations of the Treadway Commission (COSO — 2013) for financial controls and in accordance with the control framework of the Control Objectives for Information and Related Technologies (COBIT) for general information technology controls.

Based on the evaluation results, the CEO and CFO concluded, as at October 31, 2021, that there are no material weaknesses, that the ICFR are effective and provide reasonable assurance that the financial reporting is reliable, and that the Bank's consolidated financial statements were prepared in accordance with GAAP.

Changes to Internal Controls Over Financial Reporting

The CEO and CFO also undertook work whereby they were able to conclude that, during the year ended October 31, 2021, no changes were made to the ICFR that have materially affected, or are reasonably likely to materially affect, the design or operation of the ICFR.

Disclosure Committee

The Disclosure Committee assists the CEO and CFO by ensuring that disclosure controls and procedures and internal control procedures for financial reporting are implemented and operational. In so doing, the committee ensures that the Bank is meeting its disclosure obligations under current regulations and that the CEO and CFO are producing the requisite certifications.

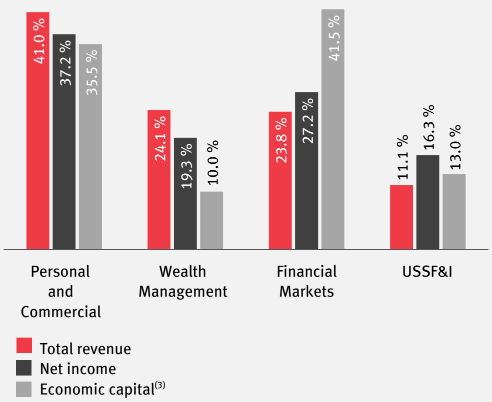
Overview

Highlights

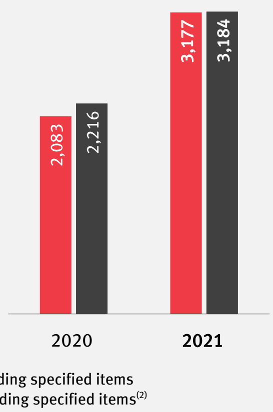
As at October 31 or for the year ended October 31 (millions of Canadian dollars, except per share amounts)	2021	2020	% change
Operating results			
Total revenues	8,927	7,927	13
Income before provisions for credit losses and income taxes	4,074	3,382	20
Net income	3,177	2,083	53
Net income attributable to the Bank's shareholders and holders of other equity instruments	3,177	2,041	56
Return on common shareholders' equity(1)	20.7 %	14.9 %	
Dividend payout ratio(1)	31.4 %	49.6 %	
Earnings per share			
Basic	$ 9.06	$ 5.73	58
Diluted	8.96	5.70	57
Operating results on a taxable equivalent basis and excluding specified items(2)			
Total revenues on a taxable equivalent basis and excluding specified items(2)	9,116	8,216	11
Income before provisions for credit losses and income taxes on a taxable equivalent basis and excluding specified items(2)	4,272	3,803	12
Net income excluding specified items(2)	3,184	2,216	44
Return on common shareholders' equity excluding specified items(3)	20.8 %	15.8 %	
Dividend payout ratio excluding specified items(3)	31.3 %	46.6 %	
Efficiency ratio on a taxable equivalent basis and excluding specified items(3)	53.1 %	53.7 %	
Earnings per share excluding specified items(2)			
Basic	$ 9.08	$ 6.10	49
Diluted	8.98	6.06	48
Common share information			
Dividends declared	$ 2.84	$ 2.84	
Book value(1)	47.95	39.97	
Share price			
High	104.32	74.79	
Low	65.54	38.73	
Close	102.46	63.94	
Number of common shares *(thousands)*	337,912	335,998	
Market capitalization	34,622	21,484	
Balance sheet and off-balance-sheet			
Total assets	355,795	331,625	7
Loans and acceptances, net of allowances	182,689	164,740	11
Deposits	240,938	215,878	12
Equity attributable to common shareholders	16,203	13,430	21
Assets under administration(1)	651,530	509,071	28
Assets under management(1)	117,186	87,585	34
Regulatory ratios under Basel III(4)			
Capital ratios			
CET1	12.4 %	11.8 %	
Tier 1	15.0 %	14.9 %	
Total	15.9 %	16.0 %	
Leverage ratio	4.4 %	4.4 %	
Liquidity coverage ratio (LCR)(4)	154 %	161 %	
Net stable funding ratio (NSFR)(4)	117 %		
Regulatory ratios under Basel III (adjusted)(4)(5)			
Capital ratios			
CET1	12.3 %	11.5 %	
Tier 1	14.9 %	14.6 %	
Total	15.9 %	16.0 %	
Leverage ratio	4.4 %	4.3 %	
Other Information			
Number of employees – Worldwide	26,920	26,517	2
Number of branches in Canada	384	403	(5)
Number of banking machines in Canada	927	940	(1)

(1) For additional information on supplementary financial measures composition, see the Glossary section on pages 123 to 126.
(2) For additional information on non-GAAP financial measures, see the Financial Reporting Method section on pages 18 to 21.
(3) For additional information on non-GAAP ratios, see the Financial Reporting Method section on pages 18 to 21 and see the Glossary section on pages 123 to 126.
(4) For additional information on capital management measures, see the Financial Reporting Method section on pages 18 to 21.
(5) The adjusted regulatory ratios do not include the transitional measure applicable to expected credit loss provisioning. For additional information, see the section entitled COVID-19 Pandemic – Key Measures Introduced by the Regulatory Authorities on page 17 of this MD&A.

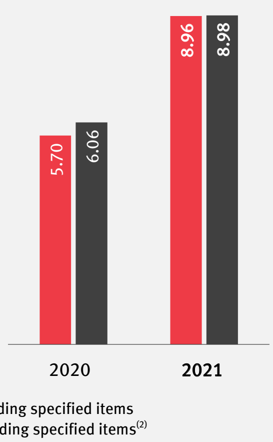
Business Mix[1]
Year ended October 31, 2021
(taxable equivalent basis)[2]



Net Income
Year ended October 31
(millions of Canadian dollars)



Diluted Earnings per Share
Year ended October 31
(Canadian dollars)



(1) Excluding the *Other* heading. For additional information on segment measures, see the Financial Reporting Method section on pages 18 to 21.
(2) For additional information on non-GAAP financial measures, see the Financial Reporting Method section on pages 18 to 21.
(3) For additional information on supplementary financial measures composition, see the Glossary section on pages 123 to 126.

About National Bank

The Bank carries out its activities in four business segments: Personal and Commercial, Wealth Management, Financial Markets, and U.S. Specialty Finance and International (USSF&I). Other operating activities, certain specified items, Treasury activities, and the operations of the Flinks Technology Inc. (Flinks) subsidiary are grouped in the *Other* heading of segment results. Each reportable segment is distinguished by services offered, type of clientele, and marketing strategy. Additional information is provided in the Business Segment Analysis section of this MD&A.

Objectives and 2021 Results

When setting its objectives, the Bank aims for a realistic challenge in the prevailing business environment, taking into account foreseeable changes in banking industry financial results as well as the Bank's business development plan. When the Bank sets its medium-term objectives, it does not take specified items into consideration, as such items are inherently unpredictable. Management therefore excludes specified items when assessing the Bank's performance against its objectives.

In fiscal 2021, the Bank recorded $3,177 million in net income compared to $2,083 million in fiscal 2020, and its diluted earnings per share stood at $8.96 compared to $5.70 in fiscal 2020. The Bank's fiscal 2021 return on common shareholders' equity (ROE) was 20.7% versus 14.9% in fiscal 2020. Net income excluding specified items totalled $3,184 million in fiscal 2021, and diluted earnings per share excluding specified items stood at $8.98, up 48% from $6.06 in fiscal 2020. Furthermore, ROE excluding specified items was 20.8% in fiscal 2021 versus 15.8% in fiscal 2020.

The following table compares the Bank's medium-term objectives with its fiscal 2021 results.

Medium-Term Objectives and 2021 Results

	Medium-term objectives (%)	2021 results (%)
Growth in diluted earnings per share excluding specified items[1]	5-10	48.2
ROE excluding specified items[2]	15-20	20.8
Dividend payout ratio excluding specified items[2]	40-50	31.3
CET1 capital ratio[3]	› 11.00	12.4
Leverage ratio[3]	› 3.75	4.4

The Bank's financial results met all of its medium-term objectives, except for the dividend payout ratio. Growth in diluted earnings per share excluding specified items stood at 48%, significantly surpassing the objective and was due to the lower provisions for credit losses in fiscal 2021 arising from improvements in the macroeconomic outlook and in credit conditions compared to fiscal 2020 as well as from revenue growth in all business segments. ROE excluding specified items was slightly above target owing to a sharp rise in net income excluding specified items. The CET1 capital ratio and the leverage ratio, at 12.4% and 4.4%, respectively, were also above target. As for the dividend payout ratio excluding specified items, it was below the target distribution range given the OSFI-prescribed interruption to dividend increases, in effect since March 13, 2020, and given strong growth in net income.

(1) For additional information on non-GAAP financial measures, see the Financial Reporting Method section on pages 18 to 21.
(2) For additional information on non-GAAP ratios, see the Financial Reporting Method section on pages 18 to 21 and see the Glossary section on pages 123 to 126.
(3) For additional information on capital management measures, see the Financial Reporting Method section on pages 18 to 21.

Dividends

For fiscal 2021, the Bank declared $958 million in dividends to common shareholders (2020: $953 million), representing 31% of net income attributable to common shareholders (2020: 50%).

Regulatory Capital Ratios[1]

As at October 31, 2021, the Bank's CET1, Tier 1, and Total capital ratios were, respectively, 12.4%, 15.0% and 15.9%, i.e., above the regulatory requirements, compared to ratios of, respectively, 11.8%, 14.9% and 16.0% as at October 31, 2020. The increase in the CET1 capital ratio since October 31, 2020 was essentially due to net income net of dividends, common share issuances under the Stock Option Plan, and remeasurements of pension plans and other post-employment benefit plans. These factors were partly offset by the organic growth in RWA, by the impact of the transitional measures applicable to ECL provisioning, of which the scaling factor decreased to 50% from 70%, by the impact of unwinding the temporary reduction of stressed VaR multipliers, and by the impact of the acquisition of Flinks. The stability seen in the Tier 1 capital ratio and in the Total capital ratio is explained essentially by redemptions of the Series 34 and Series 36 preferred shares, tempered by the above-mentioned factors and by the issuance of Limited Recourse Capital Notes (LRCN) – Series 2. As at October 31, 2021, the leverage ratio was 4.4%, stable compared to October 31, 2020. The growth in Tier 1 capital, explained by the above-mentioned factors, and significant growth in total exposure were partly offset by temporary measures announced by OSFI with respect to the exclusion of exposures from central bank reserves and sovereign-issued securities that qualify as HQLA securities under the *Liquidity Adequacy Requirements* guideline.

(1) For additional information on capital management measures, see the Financial Reporting Method section on pages 18 to 21.

High-Quality Loan Portfolio

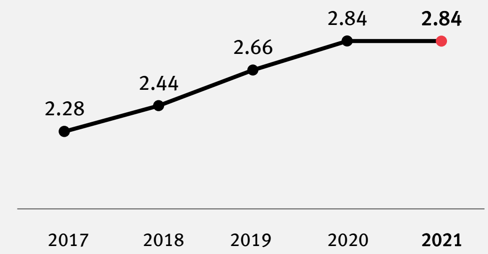
Loans and acceptances, net of allowances for credit losses, accounted for 51% of the Bank's total assets and amounted to $182.7 billion as at October 31, 2021. For fiscal 2021, the Bank recorded $2 million in provisions for credit losses, $844 million less than those recorded in fiscal 2020. This decrease was due to lower provisions for credit losses on non-impaired loans owing to an improved macroeconomic outlook in fiscal 2021 compared to the significant deterioration in the macroeconomic outlook caused by COVID-19 in fiscal 2020. This decrease was also due to provisions for credit losses recorded on Personal Banking impaired loans (including credit card receivables) that were below pre-pandemic levels, in particular due to a decrease in insolvencies, a reduction in client spending in the context of the pandemic, and various assistance measures implemented by governments. Provisions for credit losses on impaired loans in Commercial Banking and in the USSF&I segment (essentially the Credigy subsidiary) were also down in fiscal 2021. The fiscal 2021 provisions for credit losses on impaired loans represented 0.11% of average loans and acceptances compared to 0.23% in fiscal 2020.

Risk Profile

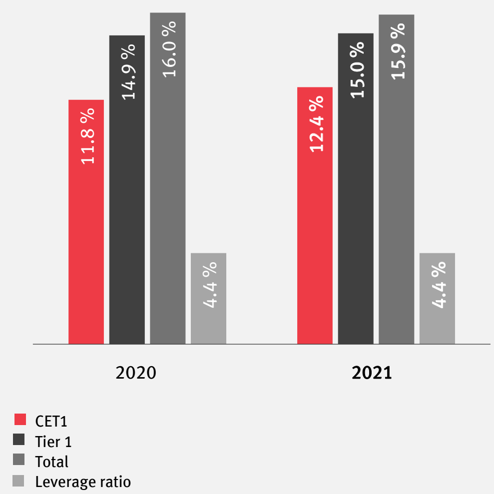
As at October 31 or for the year ended October 31 (millions of Canadian dollars)	2021		2020	
Provisions for credit losses	2		846	
Provisions for credit losses as a % of average loans and acceptances[1]	–	%	0.53	%
Provisions for credit losses on impaired loans as a % of average loans and acceptances[1]	0.11	%	0.23	%
Net write-offs as a % of average loans and acceptances[1]	0.09	%	0.16	%
Gross impaired loans[2]	662		817	
Net impaired loans[3]	283		465	

(1) For additional information on supplementary financial measures composition, see the Glossary section on pages 123 to 126.
(2) All loans classified in Stage 3 of the expected credit loss model are impaired loans. The impaired loans presented in this table exclude purchased or originated credit-impaired (POCI) loans.
(3) Net impaired loans are presented net of allowances for credit losses on Stage 3 loan amounts drawn. The impaired loans presented in this table exclude POCI loans.

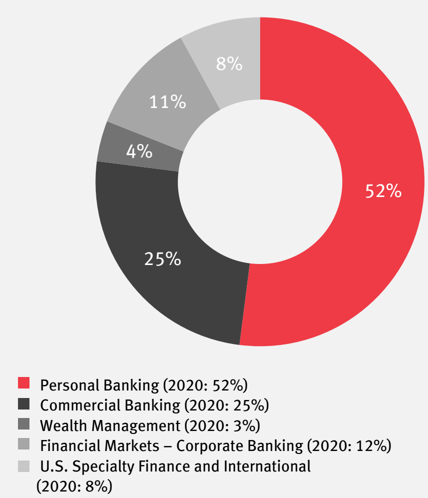
Annual Dividend per Common Share
Year ended October 31
(Canadian dollars)



Evolution of Regulatory Ratios Under Basel III
As at October 31



Breakdown of the Average Loan and Acceptance Portfolio[1]
As at October 31, 2021



(1) Excluding loans and acceptances in the *Other* heading

Economic Review and Outlook

Global Economy

After a strong rebound, the global economy appears to be losing steam. In Europe, a rise in the number of COVID-19 cases coupled with a spike in energy prices could certainly dampen consumer spending and business profitability. The news coming out of China has also been mixed. Given soaring electricity prices earlier this year, Beijing was forced to impose temporary power cuts, which obviously had repercussions on manufacturing operations. Now that the energy situation is improving, COVID-19 is limiting plant operations. The woes of the real estate sector, which is currently engaged in a painful debt reduction process, are also noteworthy. Despite these challenges, the global economy is still expected to grow by 4.0%(1) in 2022, after posting 5.5%(1) growth this year.

U.S. economic growth slowed abruptly in the third quarter. While consumption of services continues to recover, residential investment and consumption of goods are pointing to more moderate trends after spectacular growth in the last few quarters. Weak consumer goods spending has been exacerbated by increasingly acute supply problems, especially in the automotive sector. While it is hard to predict when the supply chain bottlenecks will disappear, it appears likely that some production limitations will persist until some time in 2022. We nonetheless remain confident that economic growth will accelerate in the final quarter of 2021 and that robust growth will continue in 2022. As we have often mentioned in the past, U.S. households are doing very well, after accumulating huge amounts of excess savings since the onset of the pandemic. Their net worth has also risen significantly thanks to strong stock market performance and rising house prices. We expect to see solid growth of 3.4%(1) in 2022, following 5.5%(1) growth in 2021.

Canadian Economy

Unlike the global economy, which appears to be slowing down, the Canadian economy is performing relatively well. Employment has returned to pre-pandemic levels in just under 19 months. That's not only the fastest recovery seen in the past four recessions but also an outstanding performance compared to the U.S.—where employment levels remain at nearly 3% below the pre-recession peak. Canada's private sector brought in 618,000 more workers between May and October—the largest increase ever seen excluding the post-lockdown reopening period in 2020. While an upsurge in raw material prices will continue to benefit the Canadian economy, supply chain disruptions and the resulting inflation are a risk in the current context. That said, the labour market recovery suggests that Canadian households are ready to stand on their own with no extraordinary government assistance. Substantial surplus savings have already been amassed (11.4% of GDP), helping to cushion the blow of the rising cost of living. We therefore anticipate 4.9%(1) and 3.8%(1) growth in 2021 and 2022, respectively.

Quebec Economy

Due to high vaccination rates, the number of COVID-19 hospitalizations remains under control, making it possible to continue lifting some of the public health measures. While GDP has returned to above pre-pandemic levels, employment numbers still point to a slight shortfall that is expected to reverse in the coming months. In spite of all this, Quebec continues to post the lowest unemployment rate of the four largest provinces in a context of weak demographic growth. Home sales and housing starts recently became more tempered although levels remain high, on a historical basis, in a context where the number of houses for sale on the market remains limited. We remain optimistic that Quebec will continue its economic recovery in 2022 given its highly diverse economy, the Quebec government's fiscal leeway and the fact that Quebec households are in a stronger financial position than elsewhere in the country. More affordable housing prices are less vulnerable to a correction in the event of an interest rate hike. After an expected 6.4%(1) growth in 2021, the Quebec economy should grow at a more moderate rate of 3.0%(1) in 2022.

(1) GDP growth forecasts, Economy and Strategy group, National Bank Financial

Financial Analysis

Consolidated Results

Year ended October 31 (millions of Canadian dollars)	2021	2020	% change
Operating results			
Net interest income	4,783	4,255	12
Non-interest income	4,144	3,672	13
Total revenues	8,927	7,927	13
Non-interest expenses	4,853	4,545	7
Income before provisions for credit losses and income taxes	4,074	3,382	20
Provisions for credit losses	2	846	
Income before income taxes	4,072	2,536	61
Income taxes	895	453	98
Net income	3,177	2,083	53
Non-controlling interests	–	42	
Net income attributable to the Bank's shareholders and holders of other equity instruments	3,177	2,041	56
Diluted earnings per share *(dollars)*	8.96	5.70	57
Taxable equivalent basis(1)			
Net interest income	181	208	
Non-interest income	8	57	
Income taxes	189	265	
Impact of taxable equivalent basis on net income	–	–	
Specified items(1)			
Foreign currency translation loss on disposal of subsidiaries	–	(24)	
Impairment losses on premises and equipment and on intangible assets	(9)	(71)	
Severance pay	–	(48)	
Charge related to Maple	–	(13)	
Specified items before income taxes	(9)	(156)	
Income taxes on specified items	(2)	(23)	
Specified items after income taxes	(7)	(133)	
Non-controlling interests on specified items	–	(10)	
Specified items after income taxes and non-controlling interests	(7)	(123)	
Operating results on a taxable equivalent basis and excluding specified items(1)			
Net interest income on a taxable equivalent basis	4,964	4,463	11
Non-interest income on a taxable equivalent basis and excluding specified items	4,152	3,753	11
Total revenues on a taxable equivalent basis and excluding specified items	9,116	8,216	11
Non-interest expenses excluding specified items	4,844	4,413	10
Income before provisions for credit losses and income taxes on a taxable equivalent basis and excluding specified items	4,272	3,803	12
Provisions for credit losses	2	846	
Income before income taxes on a taxable equivalent basis and excluding specified items	4,270	2,957	44
Income taxes on a taxable equivalent basis and excluding specified items	1,086	741	47
Net income excluding specified items	3,184	2,216	44
Non-controlling interests excluding specified items	–	52	
Net income attributable to the Bank's shareholders and holders of other equity instruments excluding specified items	3,184	2,164	47
Diluted earnings per share excluding specified items *(dollars)*(1)	8.98	6.06	48
Average assets(2)	363,662	318,199	14
Average loans and acceptances(2)	172,323	159,275	8
Average deposits(2)	236,229	207,381	14
Efficiency ratio on a taxable equivalent basis and excluding specified items(3)	53.1 %	53.7 %	

(1) For additional information on non-GAAP financial measures, see the Financial Reporting Method section on pages 18 to 21.
(2) For additional information on supplementary financial measures composition, see the Glossary section on pages 123 to 126.
(3) For additional information on non-GAAP ratios, see the Financial Reporting Method section on pages 18 to 21 and see the Glossary section on pages 123 to 126.

Analysis of Consolidated Results

Financial Results

For fiscal 2021, the Bank's net income totalled $3,177 million compared to $2,083 million in fiscal 2020, a 53% year-over-year increase that was due to a significant decrease in provisions for credit losses on non-impaired loans, as macroeconomic and credit conditions improved from fiscal 2020, and to a significant reduction in provisions for credit losses on impaired loans. Also contributing to the net income growth was the excellent performance turned in by all the Bank's business segments, notably achieved through revenue growth. For fiscal 2021, specified items, net of income taxes, had a $7 million unfavourable impact on net income compared to a $133 million unfavourable impact in fiscal 2020. The fiscal 2021 specified item, net of income taxes, was a $7 million impairment loss on intangible assets. The fiscal 2020 specified items, net of income taxes, had consisted of a $36 million foreign currency translation loss on a disposal of subsidiaries, $52 million in impairment losses on premises and equipment and on intangible assets, $35 million in severance pay, and a $10 million charge related to Maple. For fiscal 2021, the Bank's net income excluding specified items totalled $3,184 million, up 44% from $2,216 million in fiscal 2020.

Total Revenues

For fiscal 2021, the Bank's total revenues amounted to $8,927 million, up $1.0 billion or 13% from $7,927 million in fiscal 2020. This increase was driven by revenue growth across all of the Bank's business segments. In fiscal 2020, total revenues had included a $24 million foreign currency translation loss on a disposal of subsidiaries. The fiscal 2021 total revenues on a taxable equivalent basis and excluding specified items grew $900 million or 11% year over year. For additional information about total revenues on a taxable equivalent basis, see Table 2 on page 116.

Net Interest Income

For fiscal 2021, the Bank's net interest income totalled $4,783 million, rising $528 million or 12% from $4,255 million in fiscal 2020. The fiscal 2021 net interest income on a taxable equivalent basis totalled $4,964 million compared to $4,463 million in fiscal 2020 (Table 3, page 116).

In the Personal and Commercial segment, the fiscal 2021 net interest income totalled $2,583 million, a $138 million or 6% increase driven mainly by growth in loans and deposits, which rose 9% and 14%, respectively, year over year. The growth in loans came mainly from mortgage credit and loans to businesses. The increase in the Personal and Commercial segment's net interest income was tempered by a lower net interest margin, which was 2.12% in fiscal 2021 versus 2.19% in fiscal 2020, as lower interest rates notably affected deposit margins. In the Wealth Management segment, the fiscal 2021 net interest income totalled $448 million, a 1% year-over-year increase owing to growth in loan volumes, tempered by a lower deposit margin.

In the Financial Markets segment, the fiscal 2021 net interest income on a taxable equivalent basis was up $280 million or 30% year over year, mainly due to trading activities, and should be examined together with the other items of trading activity revenues. In the USSF&I segment, the fiscal 2021 net interest income was up $100 million or 12% year over year, owing to growth in loan and deposit volumes at the Advanced Bank of Asia Limited (ABA Bank) subsidiary and to higher net interest income at the Credigy subsidiary given growth in loan portfolios and good performance in certain portfolios.

Non-Interest Income

For fiscal 2021, the Bank's non-interest income totalled $4,144 million versus $3,672 million in fiscal 2020. The fiscal 2020 non-interest income had included a $24 million foreign currency translation loss on a disposal of subsidiaries. The Bank's non-interest income on a taxable equivalent basis and excluding specified items amounted to $4,152 million in fiscal 2021 compared to $3,753 million in fiscal 2020. For additional information on non-interest income on a taxable equivalent basis, see Table 4 on page 117.

For fiscal 2021, revenues from underwriting and advisory fees rose 32% year over year, notably due to capital markets activities and merger and acquisition activities in the Financial Markets segment. Revenues from securities brokerage commissions rose 17% year over year given growth in transaction volume during fiscal 2021. Combined, mutual fund revenues and revenues from investment management and trust service fees totalled $1,463 million in fiscal 2021, a $251 million year-over-year increase owing to growth in assets under administration and under management as a result of net inflows into various solutions and of stronger stock market performance in fiscal 2021.

Revenues from credit fees and revenues from acceptances and letters of credit and guarantee grew $39 million compared to fiscal 2020 due to greater credit activity in Commercial Banking and the Financial Markets segment. Also during fiscal 2021, card revenues and revenues from deposits and payment service charges rose 7% and 5%, respectively, as economic activity gradually rebounded and produced greater transaction volume in fiscal 2021, i.e., volume that had fallen in 2020 given the impacts of the COVID-19 pandemic on certain sectors of the economy and on consumer spending habits.

Trading revenues recorded in non-interest income amounted to $268 million in fiscal 2021 compared to $544 million in fiscal 2020. Trading revenues on a taxable equivalent basis[1] recorded in non-interest income amounted to $276 million in fiscal 2021, down from $601 million in fiscal 2020. Including the portion recorded in net interest income, trading activity revenues on a taxable equivalent basis[1] amounted to $1,238 million in fiscal 2021, a $168 million year-over-year decrease (Table 5, page 117) attributable to decreases in revenues from equity securities and fixed-income securities as well as in revenues from commodities and foreign exchange activities of the Financial Markets segment. The trading activity revenues on a taxable equivalent basis of the other segments also decreased year over year.

In fiscal 2021, gains on non-trading securities rose $58 million year over year, mainly due to Treasury activities. The fiscal 2021 foreign exchange revenues and insurance revenues rose $38 million and $3 million, respectively, year over year. The share in the net income of associates and joint ventures was down $5 million. Other non-interest income amounted to $325 million in fiscal 2021, a $207 million increase that was mainly due to a gain realized on the disposal of certain loan portfolios in fiscal 2021 as well as to favourable impacts of a fair value remeasurement of certain Credigy loan portfolios, of gains on investments, and of a $33 million gain on a remeasurement of the previously held equity interest in Flinks. These favourable factors were tempered by a $30 million loss related to a fair value measurement of the Bank's equity interest in AfrAsia Bank Limited (AfrAsia). In fiscal 2020, other revenues had also included a $24 million foreign currency translation loss on a disposal of subsidiaries.

Non-Interest Expenses

For fiscal 2021, non-interest expenses stood at $4,853 million, up $308 million from fiscal 2020 (Table 6, page 118). These 2021 non-interest expenses included $9 million in impairment losses on intangible assets. In fiscal 2020, non-interest expenses had included $71 million in impairment losses on premises and equipment and on intangible assets, $48 million in severance pay, and a $13 million charge related to Maple. The fiscal 2021 non-interest expenses excluding specified items stood at $4,844 million, up $431 million or 10% year over year.

For fiscal 2021, compensation and employee benefits stood at $3,027 million, a 12% year-over-year increase that was essentially attributable to higher variable compensation associated with revenue growth. An increase in technology expenses, including amortization, came from significant technology investments made by the Bank for its transformation plan and for business development purposes. These increases were tempered, however, by decreases in certain variable expenses, in particular the compensatory tax on salaries, as well as in the expenses incurred by the Bank to take measures in response to COVID-19.

Provisions for Credit Losses

For fiscal 2021, the Bank recorded $2 million in provisions for credit losses compared to $846 million in fiscal 2020 (Table 7, page 119). This $844 million decrease was due to lower provisions for credit losses on non-impaired loans owing to improvements in the macroeconomic outlook and in credit conditions in fiscal 2021, as opposed to the significant deterioration in the macroeconomic outlook caused by COVID-19 in fiscal 2020. This decrease was also due to provisions for credit losses recorded on Personal Banking impaired loans (including credit card receivables) that were below pre-pandemic levels, in particular due to fewer cases of insolvency, a reduction in client spending in the context of the pandemic, and various assistance measures implemented by governments. Provisions for credit losses on impaired loans in Commercial Banking and in the USSF&I segment, essentially the Credigy subsidiary, were down $78 million and $52 million, respectively, during fiscal 2021. In the Financial Markets segment, the fiscal 2021 provisions for credit losses on impaired loans were up $7 million year over year. At $183 million, the fiscal 2021 provisions for credit losses on impaired loans (excluding POCI loans) represented 0.11% of average loans and acceptances, down from 0.23% in fiscal 2020 given a sharp decline in credit loss provisions on impaired loans in fiscal 2021.

Income Taxes

Detailed information about the Bank's income taxes is provided in Note 24 to the consolidated financial statements. For fiscal 2021, income taxes stood at $895 million, representing an effective tax rate of 22% compared to $453 million and an effective tax rate of 18% in fiscal 2020. This change in the effective tax rate stems from a higher level and proportion of tax-exempt dividend income in fiscal 2020 as well as from a decrease in the income tax rate applicable to the ABA Bank subsidiary in 2020 due to tax incentive measures granted by the Cambodian government.

(1) For additional information on non-GAAP financial measures, see the Financial Reporting Method section on pages 18 to 21.

Business Segment Analysis

The Bank carries out its activities in four business segments, which are defined below. For presentation purposes, other activities are grouped in the *Other* heading. Each reportable segment is distinguished by services offered, type of clientele, and marketing strategy.

National Bank of Canada

Business Segments	Personal and Commercial	Wealth Management	Financial Markets	U.S. Specialty Finance and International
Core Activities	• Banking services • Credit services • Financing • Investment solutions • Insurance	• Full-service brokerage • Private banking • Direct brokerage • Investment solutions • Administrative and trade execution services • Transaction products for advisors • Trust and estate services	• Equities, fixed-income securities, commodities and foreign exchange • Corporate banking • Investment banking	• U.S. Specialty Finance – Credigy • International – ABA Bank (Cambodia) – Minority interests in emerging markets

Other: Treasury activities, liquidity management, Bank funding, asset/liability management, Flinks subsidiary activities, and corporate units

Results by Business Segment[1]

Year ended October 31[2]
(millions of Canadian dollars)

	Personal and Commercial		Wealth Management		Financial Markets		USSF&I		Other		Total	
	2021	2020	**2021**	2020	**2021**	2020	**2021**	2020	**2021**	2020	**2021**	2020
Net interest income	**2,583**	2,445	**448**	442	**1,226**	946	**907**	807	**(381)**	(385)	**4,783**	4,255
Non-interest income	**1,103**	1,012	**1,721**	1,417	**920**	1,108	**94**	13	**306**	122	**4,144**	3,672
Total revenues	**3,686**	3,457	**2,169**	1,859	**2,146**	2,054	**1,001**	820	**(75)**	(263)	**8,927**	7,927
Non-interest expenses	**1,958**	1,892	**1,277**	1,125	**880**	812	**315**	319	**423**	397	**4,853**	4,545
Income before provisions for credit losses and income taxes	**1,728**	1,565	**892**	734	**1,266**	1,242	**686**	501	**(498)**	(660)	**4,074**	3,382
Provisions for credit losses	**6**	517	**1**	7	**10**	239	**(15)**	80	**–**	3	**2**	846
Income before income taxes (recovery)	**1,722**	1,048	**891**	727	**1,256**	1,003	**701**	421	**(498)**	(663)	**4,072**	2,536
Income taxes (recovery)	**456**	278	**236**	192	**333**	265	**146**	69	**(276)**	(351)	**895**	453
Net income	**1,266**	770	**655**	535	**923**	738	**555**	352	**(222)**	(312)	**3,177**	2,083
Non-controlling interests	**–**	–	**–**	–	**–**	–	**–**	34	**–**	8	**–**	42
Net income attributable to the Bank's shareholders and holders of other equity instruments	**1,266**	770	**655**	535	**923**	738	**555**	318	**(222)**	(320)	**3,177**	2,041
Average assets[3]	**127,716**	117,338	**7,146**	5,917	**150,147**	123,943	**16,150**	14,336	**62,503**	56,665	**363,662**	318,199

(1) For additional information on the presentation of results by business segment, see Note 30 to the consolidated financial statements.
(2) For the year ended October 31, 2020, certain amounts have been reclassified.
(3) For additional information on supplementary financial measures composition, see the Glossary section on pages 123 to 126.

Business Segment Analysis | Personal and Commercial

The Personal and Commercial segment meets the financial needs of close to 2.6 million individuals and over 140,000 businesses across Canada. These clients entrust the Bank to manage, invest, and safeguard their assets and to finance their projects. Clients turn to the Bank's experienced advisors who take the time to understand their specific needs and help them reach their financial goals. And thanks to the Bank's convenient self-banking channels, 384 branches and 927 banking machines across Canada, clients can do their daily banking whenever and wherever they wish.

Personal Banking

Personal Banking provides a complete range of financing and investment products and services, mainly in Quebec, to help clients reach their financial goals throughout every stage in their lives. It offers everyday transaction solutions, mortgage loans and home equity lines of credit, consumer loans, payment solutions, savings and investment solutions as well as a range of insurance products.

Commercial Banking

Commercial Banking serves the financial needs of small- and medium-sized enterprises (SMEs) and large corporations, helping them to achieve growth. It offers a full line of financial products and services, including credit, deposit, and investment solutions as well as international trade, foreign exchange transaction, payroll, cash management, insurance, electronic transaction, and complementary services. With deep roots in the business community for over 160 years, Commercial Banking is Quebec's leading provider of the core banking products for businesses and is also known across Canada for its expertise in targeted specialized industries such as health, agriculture and agri-food, technology, creative industries, real estate, and energy.

Economic and Market Review

In Canada, the economic recovery is continuing, as health measures are being eased, and compares favourably to the worldwide recovery. Overall, the Canadian labour market has bounced back well from the pandemic, although certain sectors hit particularly hard by the crisis are still lagging. A labour shortage, resulting in higher employee wages, should spur businesses to intensify capital investments given their solid balance sheets. Bolstered by generous government assistance programs, households and businesses have avoided the worst of the crisis, with insolvencies posting historically low levels. Some households even managed to take advantage of the crisis to put their finances in order. They now find themselves with a considerable surplus of savings that are ready to fuel the economy. Given a robust global economic recovery in 2021 combined with numerous global supply chain issues exacerbated by strong demand, inflation has risen to levels not seen in many years. As a result, market interest rates are on the rise and a Bank of Canada response on the policy rate is expected in the first half of 2022. A normalization of the monetary policy should cool the residential real estate market, which has seen sharp price growth due to strong demand and limited supply.

The economic environment in 2021 and the outlook for 2022 are discussed in more detail in the Economic Review and Outlook section on page 26.

Key Success Factors

- Strong penetration in our core Quebec market thanks to a full range of personal and commercial banking services.
- Well-established and enduring client relationships grounded in an ability to provide both advice and a full range of solutions tailored to specific client needs.
- Vast sales force in Quebec, consisting of both generalists and specialists, positioning the Bank to offer the best advice to clients.
- Unmatched closeness to Quebec entrepreneurs, with leading expertise in business lending and risk management solutions.
- Recognized expertise in specialized industries across Canada.
- Ability to meet all the needs facing businesses and entrepreneurs in collaboration with other Bank segments.

Objectives and Strategies

The Personal and Commercial segment is targeting growth by becoming a more simple, efficient bank focused on constantly improving the client experience.

Strategic Priorities	2021 Achievements and Highlights
Maintain volume growth and accelerate net client acquisition	> Maintained the client acquisition strategy by sustaining our presence in high-growth markets and among target clients such as newcomers, professionals, Gen Z, millennials, and SMEs. > Improved accessibility to our solutions across all channels by enhancing our account opening and credit card sign-up processes. > Continued to support Commercial Banking clients, notably through the government support measures deployed in response to the COVID-19 pandemic. > Deployed targeted campaigns that showcase an advisory offering tailored to major life moments. > Enhanced financing programs for professional clientele by expanding eligible clientele and adding complementary services. > Deployed the SME Growth Fund to support businesses in their digital transformation and growth projects. > For a second straight year, ranked first among credit card issuers in Canada for the quality of client experience (Forrester CX index). > Gained market share in Quebec's residential financing sector. > Achieved synergies among the business segments and initiated a common business development approach in order to provide an integrated service offering to clients.
Improve the client experience	> Enhanced the capabilities of the transactional platform and the mobile app to deliver a simpler, safer, and more intuitive digital experience for all our clients. > Redefined our distribution network by strengthening our capacity to provide proactive advice (in addition to transactional services) and by creating a clearer career development path for our advisory roles. > Improved our client-conversation ecosystem by permitting communication in the mobile channel and by personalizing contacts. > Implemented a proactive, remote advisory service in investment in collaboration with the Wealth Management segment to ensure a top quality management of our investor clientele. > Continued to transform the branch network experience to help clients switch to self-service and by being proactive with the advisory offering.
Accelerate the digital transformation	> Simplified the transactional banking capabilities most frequently used by Personal and Commercial clients on our priority approaches by ensuring an integrated experience among the channels. > Finalized the automation of the financing process for all Commercial Banking segments, thereby providing a simple and quick experience. > Rolled out a new, 100% online account opening experience for new retail clients on the Bank's website at nbc.ca site as well as automated registration to our digital transactional platform. > Enhanced our digital payment experience by adding several self-serve solutions such as new international transfer solutions, instant credit card transfers as well as new national transfer options. > Added a Help Centre on the Bank's website at nbc.ca, which centralizes the answers to user questions about our digital solutions (frequently asked questions, chatbot, search engine). > Implemented mechanisms whereby clients can consult with their advisor remotely (virtual meetings, document exchange, secure documents).
Improve efficiency	> Simplified and automated client processes, whether they be retail clients (account opening, payments, home purchase and savings) or business clients (account opening, financing, and cash management). > Simplified the product offering for priority segments.

Priorities and Outlook for 2022

Maintain volume growth and accelerate net client acquisition
- Increase our visibility and proximity during targeted campaigns.
- Enhance coverage in promising markets and among high-growth target clientele (newcomers, millennials, Gen Z, professionals, SMEs, and specialized commercial services).
- Enrich our digital acquisition capabilities in order to boost sales.
- Continue modernizing our range of cash management products, adapting them to client needs and helping business clients manage their cash cycle.
- Strengthen the ties between the private banking services and commercial sector activities.

Optimize the client experience
- Continue improving the capabilities on our mobile app and adding self-serve options to our digital channels.
- Enhance our client-conversation platforms to ensure personalized contact across all our channels.
- Modernize our payment ecosystem and enhance our payment facilities offering.
- Continue developing a distinctive, client-centric, and advisory-driven distribution approach.

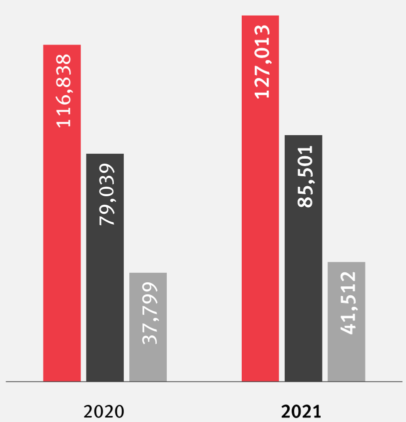
Improve efficiency
- Continue simplifying client processes, whether they be retail clients (account opening and payments) or commercial clients (account opening, financing, and cash management).
- Adapt our product offering to evolving market needs (transactional solutions, cards, payments, cash management).
- Optimize the sales force support structure by reducing administrative tasks, thereby maximizing time for advisory activities.

Segment Results – Personal and Commercial

Year ended October 31 (millions of Canadian dollars)	2021	2020[1]	% change
Net interest income	2,583	2,445	6
Non-interest income	1,103	1,012	9
Total revenues	3,686	3,457	7
Non-interest expenses	1,958	1,892	3
Income before provisions for credit losses and income taxes	1,728	1,565	10
Provisions for credit losses	6	517	(99)
Income before income taxes	1,722	1,048	64
Income taxes	456	278	64
Net income	1,266	770	64
Net interest margin[2]	2.12 %	2.19 %	
Average interest-bearing assets[2]	121,593	111,488	9
Average assets[2]	127,716	117,338	9
Average loans and acceptances[2]	127,013	116,838	9
Net impaired loans[2]	218	412	(47)
Net impaired loans as a % of loans and acceptances[2]	0.2 %	0.4 %	
Average deposits[2]	77,051	67,378	14
Efficiency ratio[2]	53.1 %	54.7 %	

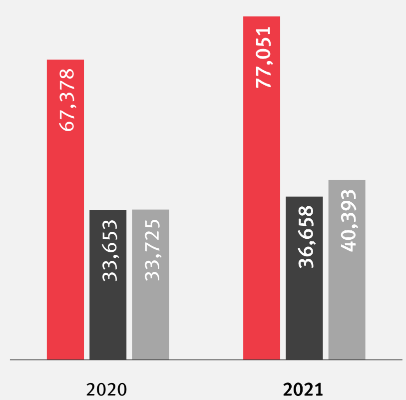
(1) For the year ended October 31, 2020, certain amounts have been reclassified.
(2) For additional information on supplementary financial measures composition, see the Glossary section on pages 123 to 126.

Average Loans and Acceptances
Year ended October 31
(millions of Canadian dollars)



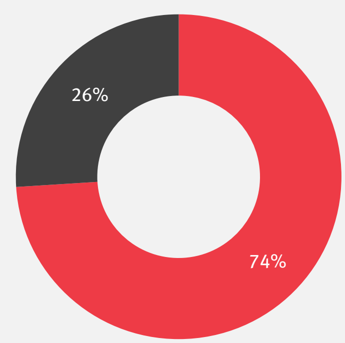
- Total – Personal and Commercial Banking
- Personal Banking
- Commercial Banking

Average Deposits
Year ended October 31
(millions of Canadian dollars)



- Total – Personal and Commercial Banking
- Personal Banking
- Commercial Banking

Total Revenues by Geographic Distribution
Year ended October 31, 2021



- Province of Quebec (2020: 75%)
- Other provinces (2020: 25%)

Financial Results

In the Personal and Commercial segment, the fiscal 2021 net income totalled $1,266 million compared to $770 million in fiscal 2020, a 64% increase that was essentially due to the impacts of COVID-19 on macroeconomic factors, which had affected the provisions for credit losses recorded by the Bank in fiscal 2021 and fiscal 2020, and to a $229 million increase in the segment's total revenues. The segment's income before provisions for credit losses and income taxes totalled $1,728 million in fiscal 2021, up 10% year over year. The growth in total revenues was driven by a $138 million increase in net interest income and a $91 million increase in non-interest income. The increase in net interest income came mainly from growth in personal and commercial loans and deposits, tempered, however by a net interest margin that decreased to 2.12% in fiscal 2021 from 2.19% in fiscal 2020, mainly due to deposit margins and, to a lesser extent, loan margins.

For fiscal 2021, Personal and Commercial's non-interest expenses stood at $1,958 million, a 3% year-over-year increase that was mainly attributable to increases in operations support charges and amortization expense as well as to higher compensation and employee benefits. These increases were partly offset by a decrease in certain variable expenses. At 53.1%, the segment's 2021 efficiency ratio improved by 1.6 percentage points from 54.7% in 2020.

For fiscal 2021, Personal and Commercial recorded $6 million in provisions for credit losses, $511 million less than the $517 million recorded in fiscal 2020. This decrease stems from reversals of allowances for credit losses on non-impaired loans given a more favourable macroeconomic outlook and improved credit conditions in fiscal 2021, as substantially higher provisions for credit losses had been recorded in fiscal 2020 to reflect a significant deterioration in the macroeconomic outlook caused by COVID-19. In addition, the provisions for credit losses on Personal Banking impaired loans and on Commercial Banking impaired loans as well as on impaired credit card receivables were below pre-pandemic levels, in particular due to fewer cases of insolvency and to the various assistance measures deployed by governments.

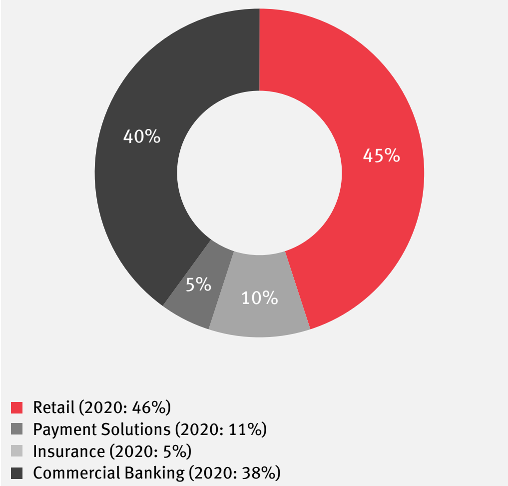
Personal Banking

For fiscal 2021, Personal Banking's total revenues amounted to $2,228 million, up 4% from $2,148 million in fiscal 2020. An 8% increase in loan volumes and 9% growth in deposit volumes were tempered by a lower net interest margin on loans and deposits. Non-interest income grew $43 million, essentially due to insurance revenues, to internal commission revenues related to the distribution of Wealth Management products, and to credit card revenues. Non-interest expenses rose $44 million in fiscal 2021, mainly due to higher operations support charges and to an increase in technology investment expenses.

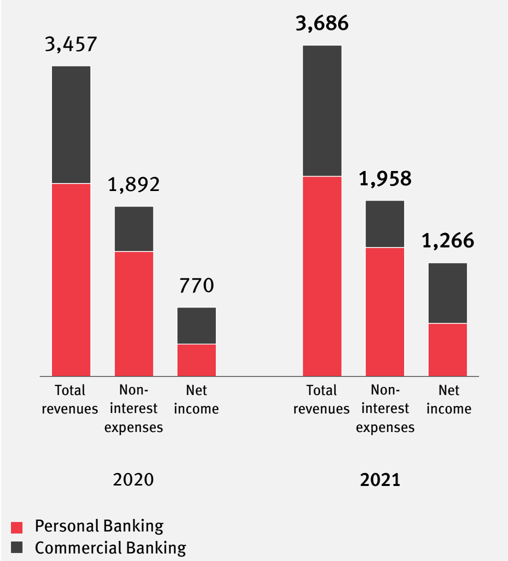
Commercial Banking

For fiscal 2021, Commercial Banking's total revenues amounted to $1,458 million, rising 11% from $1,309 million in fiscal 2020. Its net interest income was up year over year, essentially due to growth in loans and deposits, which rose 10% and 20%, respectively, tempered by a narrowing of the net interest margin on loans and deposits. Non-interest income was also up, rising $48 million compared to fiscal 2020, mainly due to increases in bankers' acceptance revenues, in revenues from derivative financial instruments, as well as in credit fee revenues. Non-interest expenses rose $22 million, mainly due to higher compensation and employee benefits as well as to higher operations support charges.

Total Revenues by Category
Year ended October 31, 2021



Operating Results
Year ended October 31
(millions of Canadian dollars)



Business Segment Analysis | Wealth Management

As a leader in Quebec and firmly established across Canada, the Wealth Management segment serves all market segments by emphasizing advisory services and close client relationships. It delivers a full range of wealth management products and solutions through a multi-channel distribution network and a differentiated business model. The Wealth Management segment also proposes services to independent advisors as well as to institutional clients.

Business Units

Full-Service Brokerage
Drawing on the largest network of investment advisors in Quebec, National Bank Financial – Wealth Management (NBFWM) provides wealth management advisory services through 800-plus advisors at close to 100 service points across Canada. Its advisors serve approximately 400,000 retail clients, proposing portfolio management services, financial and succession planning services, and insurance services while working in close collaboration with other segments of the Bank.

Private Banking
Private Banking 1859 (PB1859) offers highly personalized wealth management services and advice across Canada, helping affluent clients benefit from comprehensive management of their personal and family fortunes. As a true market leader in Quebec, PB1859 continues to expand its operations across Canada with its extensive range of financial solutions and strategies covering the protection, growth, and transition of wealth.

Direct Brokerage
National Bank Direct Brokerage (NBDB) offers a multitude of financial products and investment tools to self-directed investors across Canada through its online investment solution. NBDB helps customers who want to manage their own investments to do so through a trading platform and an optimized mobile trading platform or by speaking directly to a representative on the phone.

Investment Solutions
National Bank Investments Inc. (NBI) manufactures and offers mutual funds, investment solutions, and services to consumers and institutional investors through the Bank's extended network. With its open architecture model, NBI is Canada's largest investment fund manager to entrust the management of its investments exclusively to external portfolio managers.

Administrative and Trade Execution Services
National Bank Independent Network (NBIN) is a Canadian leader in providing administrative services such as trade execution, custodial services, and brokerage solutions to many independent financial services firms across Canada, in particular to introducing brokers, portfolio managers, and investment fund managers.

Transaction Products
The Wealth Management segment provides independent advisors across Canada with an extensive range of investment products, including guaranteed investment certificates (GICs), mutual funds, notes, structured products, and monetization, helping to support their own business needs and client relationships.

Trust and Estate Services
Through National Bank Trust Inc. (NBT), the Wealth Management segment provides retail and institutional clients with turnkey services and solutions. Its team of experts offers a full range of high value-added services designed to consolidate, protect, and transfer its customers' wealth and give them peace of mind. NBT also offers integrated trustee and depository services as well as securities custody services.

Economic and Market Review

In 2020 and 2021, political decision-makers took extraordinary measures to limit the negative impact of the COVID-19 health measures. Governments vigorously supported households and businesses in difficulty. Central banks lowered interest rates to nearly zero and rolled out aggressive stimulus programs. With these interventions—unprecedented in scope—a robust economic recovery has emerged and the stress on financial markets has swiftly eased and remains in check. As a result, business profits have rebounded sharply and risk assets have benefitted from extremely accommodating interest rates. Households have experienced an unprecedented wealth effect since the start of the pandemic, not only because of the strong financial market performance but also because of the rise in housing prices. Overall, the current environment remains poised for relatively robust economic growth again in 2022. Still, a normalization of interest rates in the high inflationary context could produce a resurgence in market volatility.

The economic environment in 2021 and the outlook for 2022 are discussed in more detail in the Economic Review and Outlook section on page 26.

Key Success Factors

- Leadership position in Quebec in terms of market share and brand recognition.
- Largest manager of managers in Canada (open architecture); clients benefitting from objective advice.
- Leadership position in Canada in securities custody and brokerage services for independent wealth management firms.
- Firmly rooted across Canada in full-service brokerage services.
- Ability to forge solid, lasting, and growing client relationships built on personalized advice and solutions provided at every life stage.
- High level of client satisfaction with private management, full-service brokerage, and direct brokerage services.
- Proven track record and excellent reputation as a business partner among non-bank financial institutions.
- Strong synergies with the Personal and Commercial segment through which a holistic service offering is delivered.
- New synergy-building program that emphasizes collaboration between Wealth Management employees and employees from other Bank segments.

Objectives and Strategies

The Wealth Management segment will capitalize on the strength of the Bank's brand by generating sustained earnings growth, improving client satisfaction, and maintaining high employee engagement. It distinguishes itself from the competition by offering an exceptional experience in terms of advice, offering innovative solutions and impeccable service thanks to agile and aligned multifunctional teams. The Wealth Management segment seeks to increase market penetration across Canada through organic growth as well as targeted activities and partnerships.

Strategic Priorities	2021 Achievements and Highlights
Transform our partnership with clients	> Implemented a new $0 commission rate for investors using the online brokerage platform. > Upgraded accessibility standards for our clients on the online brokerage platform. > Implemented client feedback tools that return client comments and opinions much faster than before. > Deployed a new hybrid model with the Personal and Commercial segment for more modest portfolios. > Implemented a client relationship management (CRM) solution that helps investment advisors provide clients with a highly personalized level of service. > Implemented a new registry for all the mutual funds and GICs of Personal and Commercial segment clients.
Invest in high-growth markets	> Experienced strong growth in the number of clients as well as in assets under administration and in assets under management in Wealth Management's various business units. > Constantly improved cross-selling in partnership with other Bank segments, notably the Personal and Commercial segment. > Launched our first socially responsible exchange-traded fund (ETF) investments. > Actively recruited investment advisors to raise our market share. > Implemented a fully-paid securities lending program within all the wealth management business units offering brokerage services. This new service is a partnership designed by NBIN and the Financial Markets segment to meet the more specific needs of a large niche clientele.
Continue transforming our culture	> Promoted a joint mission and an integrated client approach. > Focused on collaboration between employees of the Wealth Management segment and other segments of the Bank. > Implemented concrete measures to promote innovation and accelerate the transformation. > Adapted ways of working and communicating through an accelerated deployment of the tools needed for remote working.

Priorities and Outlook for 2022

Highly engaged clients thanks to an exceptional advisory-based experience
- Simplify and enhance our banking/credit experience for Wealth Management clients.
- Leverage our growth strategies (intersegment synergies, looking beyond Quebec, segments with strong potential).
- Migrate our traditional service institutional clientele from securities custody services to our asset management offering.
- Improve our client satisfaction surveys and optimize our client engagement tools.
- Develop a fully integrated solution to support advisors in becoming independent.

Best-in-class investment and digital solutions
- Capitalize on our internal capabilities to target strong growth segments (ETFs, private and non-traditional investments).
- Develop our digital strategy to improve the client and employee experience (direct brokerage mobile application and single sign-on).
- Expand the scope of advisory-based solutions (disbursement solution, lifecycle-based advice, reverse mortgages).
- Establish our ESG investing strategy and deploy it across all business units and product lines.

Fast, expert and flawless
- Focus on our data strategy and the 360-degree view.
- Continue to automate and digitalize our processes and operational services.
- Finalize the implementation of our new institutional account platform.

Entrepreneurial culture and talent development
- Further improve and promote diversity at every level of the Wealth Management segment.
- Continue to attract and retain top talent.
- Implement a continuous development culture.
- Implement and improve our flexible hybrid work model.

Segment Results – Wealth Management

Year ended October 31 (millions of Canadian dollars)	2021	2020[1]	% change
Net interest income	448	442	1
Fee-based revenues	1,316	1,087	21
Transaction and other revenues	405	330	23
Total revenues	2,169	1,859	17
Non-interest expenses	1,277	1,125	14
Income before provisions for credit losses and income taxes	892	734	22
Provisions for credit losses	1	7	(86)
Income before income taxes	891	727	23
Income taxes	236	192	23
Net income	655	535	22
Average assets[2]	7,146	5,917	21
Average loans and acceptances[2]	5,998	4,776	26
Net impaired loans[2]	16	2	
Average deposits[2]	33,934	34,507	(2)
Efficiency ratio[2]	58.9 %	60.5 %	

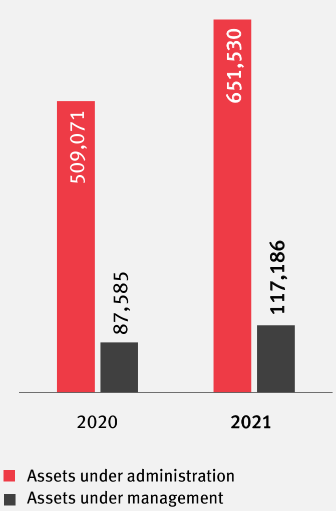
(1) For the year ended October 31, 2020, certain amounts have been reclassified.
(2) For additional information on supplementary financial measures composition, see the Glossary section on pages 123 to 126.

Assets Under Administration and Assets Under Management – Wealth Management

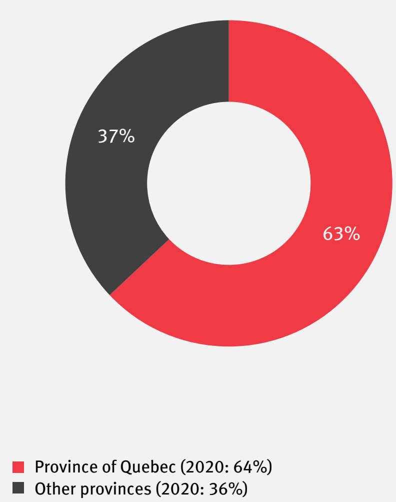
As at October 31 (millions of Canadian dollars)	2021	2020	% change
Assets under administration[1]	651,530	509,071	28
Assets under management[1]			
Individual	64,941	48,140	35
Mutual funds	52,245	39,445	32
	117,186	87,585	34

(1) For additional information on supplementary financial measures composition, see the Glossary section on pages 123 to 126.

Assets Under Administration and Assets Under Management
Year ended October 31
(millions of Canadian dollars)



Total Revenues by Geographic Distribution
Year ended October 31, 2021



Financial Results

In the Wealth Management segment, net income totalled $655 million in fiscal 2021, up 22% from $535 million in fiscal 2020. The segment's total revenues amounted to $2,169 million in fiscal 2021 compared to $1,859 million in fiscal 2020, a 17% increase owing in part to a 21% increase in fee-based revenues given growth in average assets under administration and average assets under management generated by net inflows into various solutions and by stronger stock market performance in fiscal 2021. Transaction-based and other revenues were also up, rising 23% due to growth in transaction volume driven by stronger stock market performance in fiscal 2021. The segment's net interest income increased slightly, rising 1%, as growth in loan volume was tempered by a lower deposit margin.

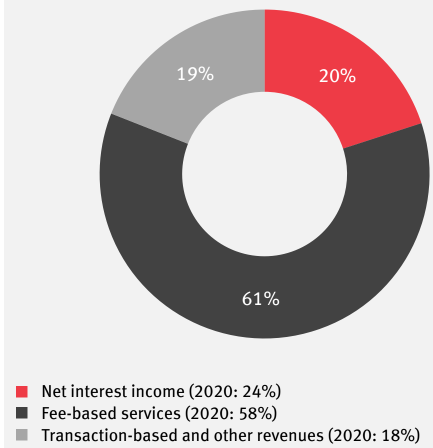
For fiscal 2021, Wealth Management's non-interest expenses stood at $1,277 million compared to $1,125 million in fiscal 2020, an increase attributable to higher compensation and employee benefits, notably the variable compensation associated with revenue growth, as well as to higher external management fees and operations support charges related to the segment's business growth and initiatives. At 58.9%, the segment's 2021 efficiency ratio improved by 1.6 percentage points from 60.5% in 2020.

Wealth Management recorded $1 million in provisions for credit losses for fiscal 2021, whereas $7 million had been recorded in fiscal 2020 to reflect a deterioration in the macroeconomic outlook caused by COVID-19.

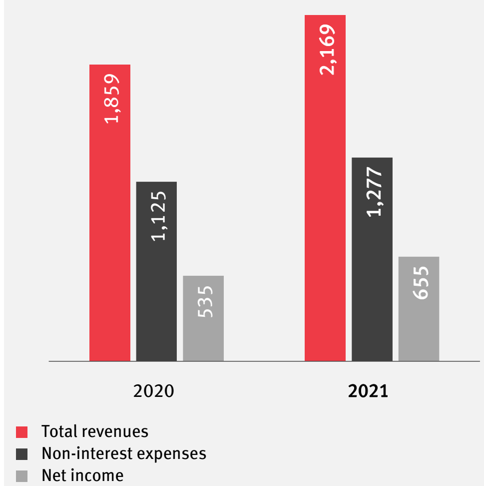
Assets Under Administration and Assets Under Management
As at October 31, 2021, assets under administration totalled $651.5 billion, rising $142.5 billion since October 31, 2020. This increase came from net inflows into various solutions and from stronger stock market performance in fiscal 2021.

In the individual category, assets under management amounted to $64.9 billion as at October 31, 2021 compared to $48.1 billion as at October 31, 2020. In the mutual funds category, assets under management totalled $52.2 billion as at October 31, 2021, rising 32% since October 31, 2020.

Total Revenues by Category
Year ended October 31, 2021



Operating Results
Year ended October 31, 2021
(millions of Canadian dollars)



Business Segment Analysis | Financial Markets

The Financial Markets segment offers a complete suite of products and services to corporations, institutional clients, and public-sector entities. Whether providing comprehensive advisory services and research or capital markets products and services, the segment focuses on relationships with clients and their growth. Over 800 professionals serve client needs through offices in North America, Europe, the UK, and Asia.

Business Units

The Financial Markets segment operates two main business units: Global Markets as well as Corporate and Investment Banking.

Global Markets
Financial Markets is a Canadian leader in risk management solutions and structured products and is the largest market-maker in exchange-traded funds (ETFs) in Canada by volume. The segment offers solutions covering fixed income securities, currencies, equities and commodities in order to mitigate the financial and business risks of clients. It also provides new product development expertise to asset managers and fund companies and supports their success by providing liquidity, research, and counterparty services. Financial Markets also provides tailored investment products across all asset classes to institutional and retail distribution channels.

Corporate and Investment Banking
Financial Markets provides corporate banking, advisory, and capital markets services. It offers loan origination and syndication to large corporations for project financing, merger and acquisition transactions, and corporate financing solutions. The segment is also an investment banking leader in Quebec and across Canada. Its comprehensive services include strategic advisory for financing and mergers and acquisitions as well as for debt and equity underwriting. It is the Canadian leader in government debt and corporate high-yield debt underwriting. Dominant in Quebec, the segment is the leader in debt underwriting for provincial and municipal governments across Canada while growing its national position in infrastructure and project financing. Financial Markets is active in securitization financing, mainly Government of Canada-insured mortgages and mortgage-backed securities.

Economic and Market Review

Thanks to aggressive intervention by political decision-makers, the economic recovery is in full swing as vaccination campaigns helped maintain the easing of health measures. Households were supported during the various waves of infection and are well positioned to contribute to the economic recovery. The rebound in Canada's labour market is at a point where households are able to support growth even as government assistance programs end. This context helped drive business profitability, which has been beneficial to hiring and investment growth. The stress on the financial markets was short-lived at the start of the pandemic and has subsequently remained in check. Financial conditions have, therefore, been extremely accommodating thanks to the actions taken by central banks and the solid performance posted by risk asset classes in recent months. However, a resurgence in volatility must not be discounted as the central banks move forward with an interest rate normalization process in a context where the supply chain is strained. Moreover, the pandemic could still hold some unwelcome surprises, as seen by the rise of the Delta variant, which resulted in strong outbreaks of COVID-19.

The economic environment in 2021 and the outlook for 2022 are discussed in more detail in the Economic Review and Outlook section on page 26.

Key Success Factors

- Pan-Canadian franchise with established leadership in government debt underwriting, ETF market-making, and securities lending and recognized capabilities in risk management solutions, structured products, and equity derivatives.
- Focused on client relationships and diversified client activity and revenue mix.
- Sound risk management.
- Flexible approach to capital allocation and proven ability to adapt to evolving capital market conditions and to deliver consistent financial performance.
- Entrepreneurial culture: Integrated approach, teamwork, and alignment among all groups, including other segments of the Bank.

Objectives and Strategies

Strategic Priorities	2021 Achievements and Highlights
Maintain leadership in Canadian debt underwriting	Ranked number one in government debt underwriting once again, sustaining our first-place ranking for the last seven years: > Inaugural joint lead on World Bank's (International Bank for Reconstruction and Development) $1.5 billion sustainable development bond due January 14, 2026. > Inaugural joint lead on the Province of Ontario's $1.25 billion green bond due February 1, 2027. > Joint lead on CDP Financial Inc.'s $1.25 billion new issuance due October 19, 2026 (the issuer's first deal in Canadian dollars in over a decade). > Lead on First Nations Finance Authority's $354 million re-opening due June 16, 2030 (FNFA's largest transaction ever). > Inaugural joint lead on the City of Ottawa's $225 million green bond re-opening due May 11, 2051. Led in corporate debt underwriting: > Supported Aéroports de Montréal during challenging times: o Sole financial advisor to Aéroports de Montréal in securing a milestone financing from multiple government stakeholders for a total of $500 million for the Réseau express métropolitain (REM) station, a key public transit infrastructure project in Montreal. o Joint solicitation agent on a consent solicitation process to obtain bondholder support to temporarily waive certain provisions under its master trust indenture. o Joint bookrunner on a $400 million 30-year revenue bond offering. > Joint lead agent on a US$150 million private placement of senior notes for Capital Power Corporation. > Joint bookrunner on a dual-tranche offering for Enbridge Inc. of $1.1 billion sustainability-linked notes and $400 million in senior unsecured notes. > Joint bookrunner on a $500 million 30-year senior unsecured notes offering for Ontario Power Generation Inc. > Joint bookrunner on the inaugural $200 million SECURE Energy Services Inc. high-yield offering and sole underwriter of the $140 million re-opening of the notes. > Joint global coordinator and joint bookrunner on a cross-border offering of high-yield notes for Videotron Ltd., raising $750 million and US$500 million in June 2021, and joint bookrunner on a $650 million offering of high-yield notes in January 2021.
Maintain leadership in investment products	Led in quality and innovation in Canada: > Awarded, for a fifth consecutive year, SRP's "Best Product Performance in Canada" award for our notes and market-linked GICs. The SRP Awards are based on an analysis of the largest structured product database, and winners are selected based on the measurable performance of their products. > Pioneered the launch of 4 Purpose Investments Inc. mutual funds that replicate strategies usually offered via structured notes. With over $1.6 billion in assets under management, these funds are helping investors gain access to both income and growth strategies while diversifying their portfolios away from more traditional asset classes. > Continued to leverage its trading technology to help publicly listed corporations and investment funds to better manage their float, resulting in close to $1.0 billion raised for such issuers. Built momentum for our international issuances by expanding our network: > Established a solid international franchise, attracting a wide range of investors from both retail and institutional channels. Maintained our ETF leadership position by evergreening and improving our trading systems and infrastructure: > Implemented new technologies and state-of-the-art trading infrastructures and networks to support our market making functions for over 1,100 ETFs in Canada. > Assigned as the lead market maker on close to one in three funds launched by independent asset managers in 2021.

Strategic Priorities	2021 Achievements and Highlights
Expand our client coverage to increase our presence in advisory services	Involved in significant mandates, including: > Financial co-advisor to New Look Vision Group Inc. on the acquisition of the company by a consortium of investors led by FFL Partners, LLC and Caisse de dépôt et placement du Québec for a total enterprise value of $970 million. > Exclusive financial advisor to Savaria Corporation on its acquisition of Handicare Group AB for $521 million. In connection with the transaction, the Bank was also sole underwriter of committed credit facilities totalling $600 million; acted as co-bookrunner for a $122 million equity private placement and was sole provider of F/X hedge solutions. > Co-financial advisor to The Lion Electric Company in its US$1.9 billion merger with special purpose acquisition company (SPAC) Northern Genesis Acquisition Corp., which resulted in net proceeds of US$490 million and listing on the New York Stock Exchange and Toronto Stock Exchange. > Sole financial advisor to WSP Global Inc. on the US$1.14 billion acquisition of Golder Associates. In connection with the transaction, the Bank also acted as joint bookrunner on a US$960 million fully committed bank financing. > Exclusive financial advisor to Whitecap Resources Inc. (Whitecap) on the acquisition of TORC Oil & Gas Ltd. for approximately $900 million in December 2020, and exclusive financial advisor to Whitecap on the sale of a gross overriding royalty on its working interest in the Weyburn CO_2 Sequestration Project (the Weyburn Project) for cash proceeds of $188 million in October 2021. Driven by the Weyburn Project, Whitecap holds a net negative-emitter status, permanently storing more CO_2 than they emit through operations, which has been maintained following the announced transactions. > Co-financial advisor to J.C. Flowers & Co. LLC and Värde Partners, Inc. on the sale of Fairstone Financial Holdings Inc. to Duo Bank of Canada.
Leverage leadership in equity distribution to increase lead and co-lead positions	> Joint bookrunner on Northland Power Inc.'s $990 million bought deal equity offering, the proceeds of which were predominately used to finance the acquisition of a portfolio of operating onshore renewable assets in Spain with a total combined net capacity of 551 megawatts, as well as address the funding of existing development projects. > Joint bookrunner on Premium Brands Holdings Corporation's $230 million bought deal public offering of common shares. This was the largest public equity offering in the company's history, and the eleventh consecutive financing in which the Bank participated, raising aggregate gross proceeds of $1.3 billion. > Co-lead underwriter and joint bookrunner on a $161 million initial public offering of Tidewater Renewables Ltd. (including the exercise of the underwriters' over-allotment option). The transaction represented the spin-out of a number of energy transition assets from Tidewater Midstream and Infrastructure Ltd., including the first commercial renewable diesel and renewable hydrogen complex in Canada, which is currently under construction. > Lead left bookrunner on Ballard Power Systems Inc.'s first bought deal offering in 20 years in November 2020, raising over US$400 million. The Bank subsequently raised an additional US$550 million for Ballard in February 2021, as joint bookrunner via a public bought deal of common shares. In aggregate, the gross proceeds raised over US$950 million in full year 2021 to further strengthen the balance sheet, thereby providing the additional flexibility to fund its growth strategy, including through activities such as product innovation, investments in production capacity expansion and localization, future acquisitions and strategic expansion and investments. In total, the Bank helped raise over US$1.2 billion in the past two years. > Joint bookrunner on Nuvei Corporation's US$500 million secondary offering of shares in June 2021. This was the third consecutive Nuvei equity financing in which the Bank participated, raising aggregate gross proceeds of US$1,837 million. > Joint bookrunner on Dialogue Health Technologies Inc.'s $115 million initial public offering. We were happy to have led the execution of such a transaction, which garnered significant investor demand during the midst of market uncertainty and COVID-19. We look forward to continuing our longstanding relationship with the company.

Priorities and Outlook for 2022

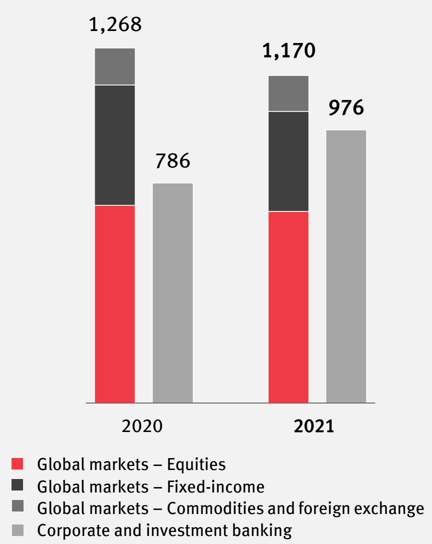
- Continue to expand activities in our areas of expertise with a constant focus on Canadian clients and a targeted presence outside Canada.
- Continue to be a strategic partner for our clients.
- Increase market share among corporations for all fee-based products.
- Maintain our leadership in established businesses across Canada: Government issuances, structured products from ETF markets, and securities lending.
- Continue to automate processes, use artificial intelligence, and increase data-sharing across the Financial Markets segment.
- Continue to optimize our collaboration with other segments of the Bank.
- Maintain tight cost control and an industry-leading efficiency ratio.

Segment Results – Financial Markets

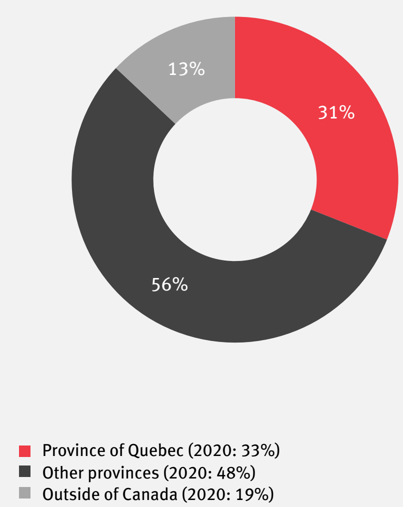
Year ended October 31 (taxable equivalent basis)[1] (millions of Canadian dollars)	2021	2020[2]	% change
Global markets			
Equities	685	706	(3)
Fixed-income	357	430	(17)
Commodities and foreign exchange	128	132	(3)
	1,170	1,268	(8)
Corporate and investment banking	976	786	24
Total revenues on a taxable equivalent basis	2,146	2,054	4
Non-interest expenses	880	812	8
Income before provisions for credit losses and income taxes on a taxable equivalent basis	1,266	1,242	2
Provisions for credit losses	10	239	(96)
Income before income taxes on a taxable equivalent basis	1,256	1,003	25
Income taxes on a taxable equivalent basis	333	265	26
Net income	923	738	25
Average assets[3]	150,147	123,943	21
Average loans and acceptances[3] (Corporate Banking only)	18,518	18,782	(1)
Net impaired loans[3]	9	21	(57)
Average deposits[3]	43,397	35,433	22
Efficiency ratio on a taxable equivalent basis[4]	41.0 %	39.5 %	

(1) For additional information on non-GAAP financial measures, see the Financial Reporting Method section on pages 18 to 21.
(2) For the year ended October 31, 2020, certain amounts have been reclassified.
(3) For additional information on supplementary financial measures composition, see the Glossary section on pages 123 to 126.
(4) For additional information on non-GAAP ratios, see the Financial Reporting Method section on pages 18 to 21 and see the Glossary section on pages 123 to 126.

Total Revenues by Category
Year ended October 31
(taxable equivalent basis)[1]
(millions of Canadian dollars)



Total Revenues by Geographic Distribution
Year ended October 31, 2021
(on a taxable equivalent basis)[1]



(1) For additional information on non-GAAP financial measures, see the Financial Reporting Method section on pages 18 to 21.

Financial Results

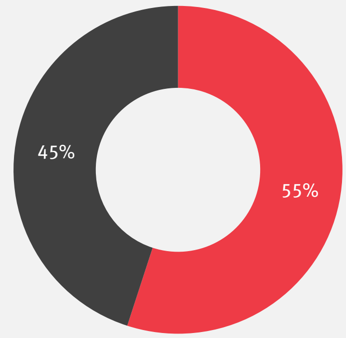
In the Financial Markets segment, net income totalled $923 million for fiscal 2021, a 25% year-over-year increase arising from a decrease in provisions for credit losses and from growth in total revenues. The segment's income before provisions for credit losses and income taxes on a taxable equivalent basis totalled $1,266 million in fiscal 2021, up $24 million or 2% from fiscal 2020. Its fiscal 2021 total revenues on a taxable equivalent basis amounted to $2,146 million, up $92 million or 4% from $2,054 million in fiscal 2020. Global markets revenues declined 8% given decreases across all types of revenues, which had benefitted from a favourable context in fiscal 2020. For fiscal 2021, the segment's corporate and investment banking revenues grew 24% year over year, mainly due to increases in revenues from capital markets activities, in revenues from merger and acquisition activities, and in banking service revenues.

The segment's fiscal 2021 non-interest expenses posted a year-over-year increase of 8%, essentially due to higher compensation and employee benefits, notably the variable compensation associated with revenue growth, as well as to higher technology investment expenses and operations support charges. The segment's fiscal 2021 efficiency ratio on a taxable equivalent basis was 41.0% versus 39.5% in fiscal 2020.

Financial Markets recorded $10 million in provisions for credit losses for fiscal 2021 compared to $239 million in fiscal 2020. This decrease was due to reversals of credit loss provisions on non-impaired loans in fiscal 2021 given improved macroeconomic outlook and credit conditions, as opposed to the substantial credit loss provisions recorded in fiscal 2020 to reflect a significant deterioration in the macroeconomic outlook caused by COVID-19. For fiscal 2021, the provisions for credit losses on impaired loans were up $7 million year over year.

Total Revenues by Category

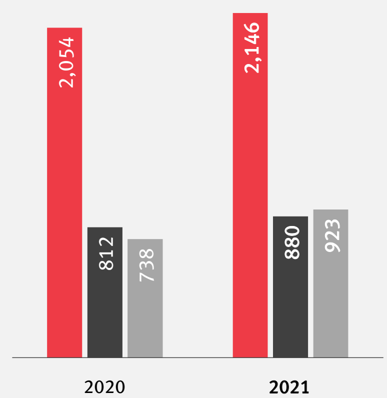
Year ended October 31, 2021
(taxable equivalent basis)(1)



- Global markets (2020: 62%)
- Corporate and investment banking (2020: 38%)

Operating Results

Year ended October 31
(taxable equivalent basis)(1)
(millions of Canadian dollars)



- Total revenues
- Non-interest expenses
- Net income

(1) For additional information on non-GAAP financial measures, see the Financial Reporting Method section on pages 18 to 21.

Business Segment Analysis | U.S. Specialty Finance and International

The Bank complements its Canadian growth with a targeted, disciplined international strategy that aims for superior returns. The Bank is currently focused on specialty finance in the U.S. through Credigy and on personal and commercial banking in Cambodia through ABA Bank. The Bank also holds minority positions in financial groups operating in French-speaking Africa and Africa-Asia. The Bank currently has a moratorium on any new significant investments in emerging markets. During fiscal 2021, the U.S. Specialty Finance and International (USSF&I) segment generated 11% of the Bank's consolidated total revenue and 17% of its net income.

U.S. Specialty Finance – Credigy

Founded in 2001, Credigy is a specialty finance company with flexibility across its capital structure to acquire or finance a diverse range of assets. Based in Atlanta, Georgia, Credigy is primarily active in performing assets covering a broad range of asset classes, mostly secured consumer receivables in the U.S. market.

Economic and Market Review

As was seen in Canada, the U.S. economic recovery was surprisingly robust. The consumer services sector continues to gradually recover while the consumer goods sector is slowing after hitting record highs. However, this slowdown is partly due to the supply chain bottlenecks that are hobbling certain industries, in particular the automotive sector. We expect these issues to fade in 2022 such that demand bounces back. The job market recovery has disappointed in recent months given a resurgence of COVID-19 cases and the job market is still posting a labour shortage of almost 4 million workers compared with its pre-pandemic level. We will, however, continue to anticipate additional progress in the coming months amid a backdrop where there are currently acute labour shortages in light of numerous economic indicators. Such progress, combined with the improved financial position of households, suggests another year of robust growth next year, driven mainly by consumption. In addition to having a considerable surplus of savings, households have experienced an unprecedented wealth effect from the onset of the pandemic, not only because of the strong financial market performance but also because of the rise in housing prices. The real estate market has cooled off after a very strong upsurge, with activity remaining strong on a historical basis. Despite an inflation level not seen in 30 years, the U.S. Federal Reserve continues to favour a very accommodative policy, which should continue over several more quarters in anticipation of the labour market returning to its pre-pandemic level.

The economic environment in 2021 and the outlook for 2022 are discussed in more detail in the Economic Review and Outlook section on page 26.

Key Success Factors

- Ability to seize opportunities in response to rapidly changing market conditions through a disciplined yet adaptable investment strategy.
- Diversification across several classes of performing assets.
- Market credibility achieved through over 330 transactions life-to-date, representing over US$19 billion in total investments.
- Rigorous underwriting approach strengthened by a continuous refinement of modelling and analytics capabilities as well as expertise in specific asset classes.
- Proven expertise in the successful management and servicing of consumer assets.
- Resilience to economic downturns achieved through limited exposure to unsecured assets, due to investments with high credit profiles and structural enhancements that provide downside protection.

Objectives and Strategies

Credigy aims to provide customized solutions for the acquisition or financing of assets related to consumer receivables in pursuit of the best risk-adjusted returns and a return on assets (ROA) of at least 2.5%.

Strategic Priorities	2021 Achievements and Highlights
Sustain deal flow by being a partner of choice for bank and non-bank institutions facing complex challenges and strategic changes	> Conducted active monitoring of the economy and opportunities. > Achieved a balance in transactions among new and existing partners. > Maintained average assets of approximately $7.5 billion.
Maintain a diversified mix of performing assets	> Performing assets accounted for 98% of assets. > Continued asset class diversification focused on secured high-quality consumer assets. > Leveraged flexibility to invest via financing and direct acquisition.

Strategic Priorities	2021 Achievements and Highlights
Achieve best risk-adjusted returns	> Refined and monitored credit models to target the best risk-return investments. > Structured the majority of investments to provide downside protection. > Maintained a disciplined approach to ensure a risk-return balance and a return on assets (ROA) of at least 2.5%.

In 2021, Credigy relied on its flexible, disciplined investment approach to seize emerging opportunities and to manage pandemic-related risks.

Priorities and Outlook for 2022

- Actively monitor macroeconomic conditions in order to implement risk mitigation strategies.
- Favour asset diversification and a balanced risk-return investment profile.
- Leverage relationships with current and prospective partners.
- Deliver asset growth by favouring investments with structural enhancements that provide protection against the risks of an economic slowdown.
- Remain prepared to seize opportunities, particularly in response to rapidly evolving conditions in liquidity markets.

International – ABA Bank

Established in 1996, ABA Bank provides financial services to individuals and businesses in Cambodia. It is the third largest and fastest-growing commercial bank in Cambodia with a return on equity (ROE) of more than 20%. ABA Bank offers a full spectrum of financial services to micro, small and medium enterprises (MSMEs) as well as to individuals through 79 branches, 786 ATMs and other self-service machines, and advanced online banking and mobile banking platforms. It has been selected as the Best Bank in Cambodia by *Global Finance* (seventh consecutive year) and *Euromoney* (eighth consecutive year) magazines.

Economic and Market Review

The pandemic continues to affect Cambodia's economic growth, most notably in the tourism industry. An effective vaccination campaign (78% of the population vaccinated as of October 2021) played a favourable role in removing the restrictions on foreign visitors announced since October 2021. After a 3% contraction in 2020, the economy is expected to grow by 2% in 2021. In 2022, growth rates should progress further towards historical growth rates of 7%, as global consumption and tourism return to more normalized levels. Cambodia will also continue to benefit from increased regional economic integration under the Association of Southeast Asian Nations (ASEAN) trade association. The Cambodian market is underbanked; there is a high adoption and use of mobile technology and social media in the country, and over 65% of the population of 16.7 million is under 35 years of age.

Key Success Factors

- Loan strategy targeting MSMEs with simple products.
- Disciplined risk management that drives high credit quality.
- Ability to fund loan growth through the deposit strategy.
- Deposit strategy based on state-of-the art technology, leading to a self-sufficient and expanding transactional banking ecosystem.
- Experienced leadership team and skilled workforce supported by robust training programs.
- Governance structure based on rigorous Canadian standards while providing local management with the autonomy to pursue strategic priorities and business objectives.
- Leveraging National Bank's reputation as a world-class financial institution.

Objectives and Strategies

ABA Bank is pursuing an omnichannel banking strategy with the goal of becoming the lending partner of choice to MSMEs while increasing market penetration in deposits and transactional services for retail and business clients.

Strategic Priorities	2021 Achievements and Highlights
Grow market share in MSME lending	> Achieved 31% growth in loan volumes. > Opened two new branches, bringing the total to 79 throughout the country. > Secured its position as the third-largest bank in the market by increasing market share. > Adapted the MSME lending strategy to support the growing business needs of customers as they become more mature.
Maintain credit quality	> Maintained a well-diversified portfolio (98% of loans are secured). > At 0.8% of the loan portfolio as at October 31, 2021, non-performing loans were below market average. > Prolonged the payment deferral policy established in 2020 to offer relief to ABA Bank clients affected by the slowdown caused by the COVID-19 pandemic. > Standard & Poor's maintained ABA Bank's long-term credit rating at B+ with a stable outlook based on its strengthening business franchise underpinned by a growing market share and above-average profitability.
Sustain growth in deposits and transactional services	> Grew deposits 34% from fiscal 2020. > Continued to enhance self-banking capabilities, including the market-leading full-scale mobile banking application in Cambodia. > Self-banking transactions made up 98% of total transactions. > Further expanded ABA 24/7, a network of standalone self-banking locations that provide customers with round-the-clock access to their accounts and now has 16 locations throughout the country.
Maintain international recognition of ABA Bank's progress	> *Global Finance* magazine named ABA Bank the "Best Bank in Cambodia" for the seventh consecutive year. > *Euromoney* magazine named ABA Bank the "Best Bank in Cambodia" for the eighth consecutive year. > *Asian Banking and Finance* magazine named ABA Bank the "Domestic Retail Bank of the Year" for 2021.

Throughout the ongoing pandemic situation, ABA Bank has stood out through its capacity to essentially remain open throughout the lockdown periods and by leveraging its market-leading digital platform. ABA Bank also donated $1 million to support the country's efforts to curb the spread of COVID-19.

Priorities and Outlook for 2022

Maintain double-digit growth and a strong return on equity by continuing to target the MSME market

- Open two branches in 2022 to extend its reach in Cambodia, continue the modernization of its branch network, and gain direct access to a larger pool of MSME customers and retail deposits.
- Increase the deposit base by providing convenience to retail customers through an advanced digital and self-banking infrastructure and an expanding network of self-service locations.
- Focus on MSME clients in industries that have been minimally affected by the current economic slowdown.
- Adapt the product offering to support the growth and evolving needs of ABA Bank's clients.

Ensure a solid foundation for sustainable long-term growth

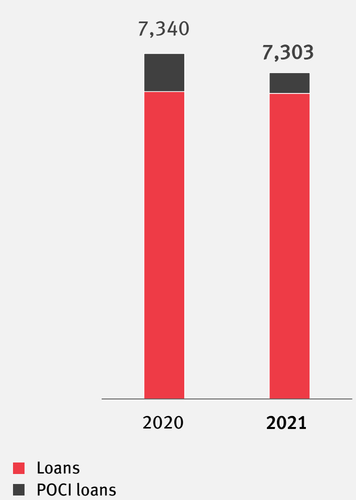
- Maintain strong governance, disciplined risk management, and sound business processes.
- Further develop its transactional banking model to accelerate the migration of cash transactions, payments, and money transfers to self-service and digital banking channels.
- Ensure strong credit quality across the loan portfolio to keep non-performing loan levels below market averages.
- Continue to target fully collateralized loans to limit potential losses.

Segment Results – USSF&I

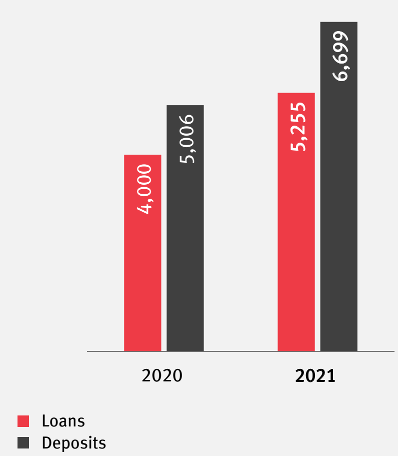
Year ended October 31 (millions of Canadian dollars)	2021	2020	% change
Total revenues			
Credigy	486	406	20
ABA Bank	510	410	24
International	5	4	
	1,001	820	22
Non-interest expenses			
Credigy	139	144	(3)
ABA Bank	173	171	1
International	3	4	
	315	319	(1)
Income before provisions for credit losses and income taxes	686	501	37
Provisions for credit losses			
Credigy	(41)	59	
ABA Bank	26	21	24
	(15)	80	
Income before income taxes	701	421	67
Income taxes			
Credigy	86	43	
ABA Bank	60	26	
	146	69	
Net income			
Credigy	302	160	89
ABA Bank	251	192	31
International	2	–	
	555	352	58
Non-controlling interests	–	34	
Net income attributable to the Bank's shareholders and holders of other equity instruments	555	318	75
Average assets(1)	16,150	14,336	13
Average loans and receivables(1)	12,558	11,340	11
Net impaired loans – Stage 3(1)	40	30	33
Purchased or originated credit-impaired (POCI) loans	464	855	(46)
Average deposits(1)	6,699	5,006	34
Efficiency ratio(1)	31.5 %	38.9 %	

(1) For additional information on supplementary financial measures composition, see the Glossary section on pages 123 to 126.

Average Loans and Receivables – Credigy
Year ended October 31
(millions of Canadian dollars)



Average Loans and Average Deposits – ABA Bank
Year ended October 31
(millions of Canadian dollars)



Financial Results

In the USSF&I segment, net income totalled $555 million in fiscal 2021, up 58% from $352 million in fiscal 2020. The segment's fiscal 2021 total revenues amounted to $1,001 million versus $820 million in fiscal 2020, a 22% increase driven mainly by higher revenues at the ABA Bank subsidiary, which rose $100 million owing to loan and deposit growth, as well as by higher revenues at the Credigy subsidiary, which rose $80 million following a disposal of loan portfolios and fair value remeasurements of certain loan portfolios.

The segment's non-interest expenses stood at $315 million in fiscal 2021 compared to $319 million in fiscal 2020, a $4 million decrease attributable to a decline in Credigy's non-interest expenses given lower service charges.

Provisions for credit losses were down $95 million compared to fiscal 2020, resulting in part from a more favourable macroeconomic outlook as well as from a remeasurement of POCI loan portfolios at Credigy.

Credigy

For fiscal 2021, the Credigy subsidiary's net income, as reported in the USSF&I segment, totalled $302 million, up 89% from fiscal 2020. The subsidiary's fiscal 2021 total revenues amounted to $486 million, up from $406 million in fiscal 2020. Growth in loan portfolios and strong performance in certain portfolios led to higher net interest income, while an increase in non-interest income came from a $26 million gain recorded in the first quarter of 2021 following a disposal of loan portfolios, from a favourable impact of remeasuring certain loan portfolios at fair value, and from sound performance by certain loan portfolios in fiscal 2021, whereas the impacts of the COVID-19 pandemic had had an unfavourable impact on the performance of these same portfolios in fiscal 2020. Credigy's non-interest expenses were down $5 million year over year given a decrease in service charges, partly offset by an increase in variable compensation. Credigy's provisions for credit losses were down $100 million year over year, resulting in part from a more favourable macroeconomic outlook, a remeasurement of POCI loan portfolios, and a decrease in provisions for credit losses on impaired loans.

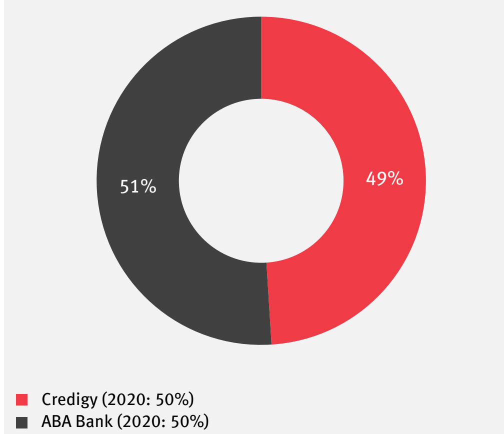
During fiscal 2021, the Bank acquired the entire remaining non-controlling interest in the Credigy subsidiary. For additional information, see Note 31 to the consolidated financial statements.

ABA Bank

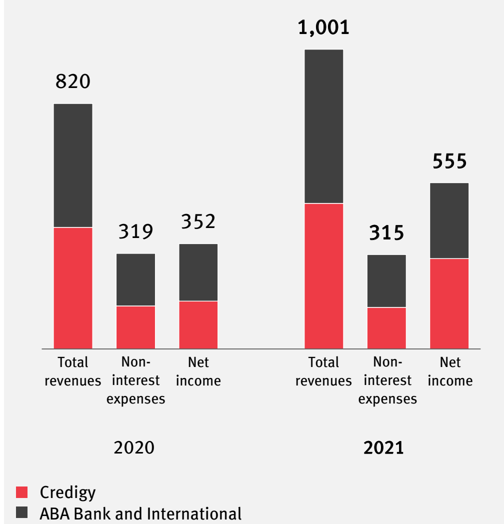
For fiscal 2021, ABA Bank's net income totalled $251 million, up 31% from fiscal 2020. Growth in the subsidiary's business activities, mainly in the form of sustained loan and deposit growth, drove total revenues up 24% year over year. However, this growth was tempered by lower interest rates and by exchange rate movement. At $173 million, ABA Bank's non-interest expenses remained relatively stable compared with fiscal 2020, as higher variable compensation was offset by exchange rate movement. The subsidiary recorded $26 million in provisions for credit losses in fiscal 2021, up $5 million year over year, as provisions for credit losses on non-impaired loans rose, essentially due to an anticipated impact on clients from an increase in COVID-19 cases in fiscal 2021.

The subsidiary's fiscal 2021 effective tax rate increased, mainly due to tax incentive measures granted by the Cambodian government and recorded during the second quarter of fiscal 2020.

Total Revenues by Category
Year ended October 31, 2021



Operating Results
Year ended October 31
(millions of Canadian dollars)



Business Segment Analysis | Other

The *Other* heading reports on Treasury operations, liquidity management, Bank funding, asset and liability management, the activities of the Flinks subsidiary, certain specified items, and the unallocated portion of corporate units. Corporate units include Information Technology, Risk Management, Employee Experience, Operations, and Finance. These units provide advice and guidance throughout the Bank and to its business segments in addition to expertise and support in their respective fields.

Segment Results – Other

Year ended October 31 (taxable equivalent basis)(1) (millions of Canadian dollars)	2021	2020(2)
Net interest income on a taxable equivalent basis	(200)	(177)
Non-interest income on a taxable equivalent basis	314	179
Total revenues on a taxable equivalent basis	114	2
Non-interest expenses	423	397
Income before provisions for credit losses and income taxes on a taxable equivalent basis	(309)	(395)
Provisions for credit losses	–	3
Income before income taxes on a taxable equivalent basis	(309)	(398)
Income taxes (recovery) on a taxable equivalent basis	(87)	(86)
Net loss	(222)	(312)
Non-controlling interests	–	8
Net loss attributable to the Bank's shareholders and holders of other equity instruments	(222)	(320)
Specified items after income taxes(1)	(7)	(133)
Net loss excluding specified items(1)	(215)	(179)
Specified items after income taxes and non-controlling interests(1)	(7)	(123)
Net loss attributable to the Bank's shareholders and holders of other equity instruments excluding specified items(1)	(215)	(197)
Average assets(3)	62,503	56,665

(1) For additional information on non-GAAP financial measures, see the Financial Reporting Method section on pages 18 to 21.
(2) For the year ended October 31, 2020, certain amounts have been reclassified.
(3) For additional information on supplementary financial measures composition, see the Glossary section on pages 123 to 126.

Financial Results

For the *Other* heading of segment results, there was a net loss of $222 million in fiscal 2021 compared to a net loss of $312 million in fiscal 2020. This change in net loss was mainly due to gains on investments, a $33 million gain on remeasurement of the previously held equity interest in Flinks, and a decrease in the expenses incurred by the Bank to protect the health and safety of employees and clients in response to COVID-19, which were higher in fiscal 2020. These items were partly offset by a loss of $30 million ($26 million net of income taxes) on a fair value remeasurement of the Bank's equity interest in AfrAsia, as well as by an increase in variable compensation associated with revenue growth. In fiscal 2021, the specified items had an unfavourable impact of $7 million on the *Other* heading's net income compared with an unfavourable impact of $133 million in fiscal 2020. Revenues from Treasury activities were lower in fiscal 2021 compared to fiscal 2020, partly due to the market volatility experienced in fiscal 2020.

The specified items, net of income taxes, recorded in fiscal 2021 consisted of a $7 million impairment loss on intangible assets. The specified items, net of income taxes, recorded in fiscal 2020 had included a $36 million foreign currency translation loss on a disposal of Credigy subsidiaries in Brazil, $52 million in impairment losses on premises and equipment and on intangible assets, $35 million in severance pay, and a $10 million charge related to Maple. For fiscal 2021, net loss excluding specified items stood at $215 million compared to a $179 million net loss in fiscal 2020.

Quarterly Financial Information

Several trends and factors have an impact on the Bank's quarterly net income, revenues, non-interest expenses and provisions for credit losses. The following table presents a summary of results for the past eight quarters.

Quarterly Results Summary[1]

(millions of Canadian dollars)				2021				2020
	Q4	Q3	Q2	Q1	Q4	Q3	Q2	Q1
Statement of income data								
Net interest income	1,190	1,230	1,156	1,207	1,124	1,096	1,105	930
Non-interest income	1,021	1,024	1,082	1,017	876	872	931	993
Total revenues	2,211	2,254	2,238	2,224	2,000	1,968	2,036	1,923
Non-interest expenses	1,258	1,216	1,199	1,180	1,259	1,074	1,121	1,091
Income before provisions for credit losses and income taxes	953	1,038	1,039	1,044	741	894	915	832
Provisions for credit losses	(41)	(43)	5	81	110	143	504	89
Income taxes	218	242	233	202	139	149	32	133
Net income	776	839	801	761	492	602	379	610

(1) For additional information about the 2021 fourth quarter results, visit the Bank's website at nbc.ca or the SEDAR website at sedar.com to consult the Bank's *Press Release for the Fourth Quarter of 2021,* published on December 1, 2021. A summary of results for the past 12 quarters is provided in Table 1 on pages 114 and 115 of this MD&A.

The above analysis of the past eight quarters shows the sustained performance of all the business segments and helps readers identify the items that have favourably or unfavourably affected results. In fiscal 2021, net income posted year-over-year growth in every quarter. This significant growth came from the net income increases generated in each business segment, notably driven by higher revenues and by lower provisions for credit losses given an improved macroeconomic outlook in fiscal 2021. During the fourth quarter of fiscal 2021, the Bank recorded $7 million in impairment losses (net of income taxes) on intangible assets, whereas, in the fourth quarter of fiscal 2020, the Bank had recorded a foreign currency translation loss on a disposal of subsidiaries, impairment losses on premises and equipment and on intangible assets, and severance pay, all of which combined had a $133 million unfavourable impact on net income.

Net interest income posted year-over-year increases for every quarter of fiscal 2021. These increases were mainly driven by personal and commercial loan and deposit growth, by trading activity revenues in the Financial Markets segment, by loan portfolio growth at the Credigy subsidiary, and by increases in the net interest income of the ABA Bank subsidiary owing to sustained business growth. In the Wealth Management segment, the fiscal 2021 net interest income posted year-over-year growth in every quarter except the first quarter of fiscal 2021, as deposit margins narrowed due to lower interest rates, partly offset by growth in loan volume.

In fiscal 2021, non-interest income posted year-over-year increases in every quarter. These increases were driven by sustained business growth across all the business segments except for Financial Markets, which saw non-interest income decline due to trading activity revenues. In the Wealth Management segment, non-interest income grew substantially in every quarter of fiscal 2021 given growth in average assets under administration and under management as a result of net inflows into various solutions and of stronger stock market performance in fiscal 2021. In the USSF&I segment, non-interest income included a gain on the disposal of loan portfolios in the first quarter of 2021. And in the fourth quarter of fiscal 2020, non-interest income had included a foreign currency translation loss on a disposal of subsidiaries.

In fiscal 2021, non-interest expenses posted year-over-year increases in every quarter except the fourth quarter, wherein it remained stable. The increases were attributable to compensation and employee benefits and to technology investment expenses incurred as part of the Bank's transformation plan and for business development. These increases were tempered, however, by decreases in certain expenses, in particular the compensatory tax on salaries and the expenses incurred by the Bank to implement health and safety measures for employees and clients in response to COVID-19, which were higher in the corresponding quarters of fiscal 2020. In the fourth quarter of fiscal 2021, non-interest expenses included $9 million in impairment losses on intangible assets, whereas, in the fourth quarter of fiscal 2020, they had included $71 million in impairment losses on premises and equipment and on intangible assets and $48 million in severance pay. And in the first quarter of fiscal 2020, non-interest expenses had included a $13 million charge related to Maple.

Year over year, the Bank's provisions for credit losses decreased in every quarter of fiscal 2021. These decreases were attributable to reversals of allowances for credit losses on non-impaired loans, recorded as of the second quarter of fiscal 2021, to reflect improvements in the macroeconomic outlook and in credit conditions in fiscal 2021, as opposed to the substantial deterioration in the macroeconomic outlook caused by COVID-19 in fiscal 2020, especially in the second quarter of fiscal 2020, when the Bank recorded very high credit loss provisions on non-impaired loans. The decreases in provisions for credit losses were also due to lower credit loss provisions on impaired loans, essentially those in Personal and Commercial Banking and at the Credigy subsidiary. In addition, significant remeasurements of POCI loan portfolios at the Credigy subsidiary contributed to a year-over-year decrease in provisions for credit losses in the third quarter of fiscal 2021.

The change in the effective tax rates between the quarters of fiscal 2020 and fiscal 2021 came essentially from a higher level and proportion of tax-exempt dividend income in every quarter of fiscal 2020. In addition, a lower effective tax rate in the second quarter of 2020 was attributable to a lower tax rate at the ABA Bank subsidiary given tax incentives granted by the Cambodian government.

Analysis of the Consolidated Balance Sheet

Consolidated Balance Sheet Summary

As at October 31 (millions of Canadian dollars)	2021	2020	% change
Assets			
Cash and deposits with financial institutions	33,879	29,142	16
Securities	106,304	102,131	4
Securities purchased under reverse repurchase agreements and securities borrowed	7,516	14,512	(48)
Loans and acceptances, net of allowances	182,689	164,740	11
Other	25,407	21,100	20
	355,795	331,625	7
Liabilities and equity			
Deposits	240,938	215,878	12
Other	95,233	98,589	(3)
Subordinated debt	768	775	(1)
Equity attributable to the Bank's shareholders and holders of other equity instruments	18,853	16,380	15
Non-controlling interests	3	3	–
	355,795	331,625	7

As at October 31, 2021, the Bank had total assets of $355.8 billion, rising $24.2 billion or 7% from $331.6 billion since year-end 2020.

Cash and Deposits With Financial Institutions

At $33.9 billion as at October 31, 2021, cash and deposits with financial institutions rose $4.8 billion since October 31, 2020, mainly due to greater deposits with the Bank of Canada and the U.S. Federal Reserve. The high level of cash and deposits with financial institutions came partly from the liquidity obtained as part of financing initiatives deployed by the Canadian government in 2020, through the Bank of Canada, to support the Canadian financial system in response to COVID-19. The Bank's liquidity and funding risk management practices are described on pages 94 to 103 of this MD&A.

Securities

Since October 31, 2020, securities rose $4.2 billion due to a $6.5 billion or 8% increase in securities at fair value through profit or loss, particularly equity securities, tempered by a $2.3 billion decrease in securities other than those measured at fair value through profit or loss. Securities purchased under reverse repurchase agreements and securities borrowed decreased by $7.0 billion, mainly related to activities in the Financial Markets segment and Treasury. The Bank's market risk management policies are described on pages 87 to 93 of this MD&A.

Loans and Acceptances

Totalling $182.7 billion as at October 31, 2021, and representing 51% of total assets, loans and acceptances, net of allowances for credit losses, rose $18.0 billion or 11% since October 31, 2020.

Residential mortgage loans outstanding totalled $72.5 billion as at October 31, 2021, rising $7.5 billion or 12% since October 31, 2020. This growth was driven mainly by sustained demand for mortgage credit in the Personal and Commercial segment. Personal loans totalled $41.1 billion at year-end 2021, rising $3.5 billion from $37.6 billion at year-end 2020, due mainly to business growth at Personal Banking, in the Wealth Management segment, and at the ABA Bank subsidiary, tempered by a decrease in outstanding loan portfolios of the Credigy subsidiary following repayments and a disposal of loan portfolios. As for credit card receivables, they totalled $2.2 billion, rising $0.1 billion since October 31, 2020.

At $67.9 billion as at October 31, 2021, loans and acceptances to businesses and government increased $6.6 billion or 11% since October 31, 2020 owing mainly to growth in the business activities of Commercial Banking and the Credigy subsidiary.

Table 9 (page 121) shows gross loans and acceptances by borrower category as at October 31, 2021. At $89.0 billion as at October 31, 2021, residential mortgages (including home equity lines of credit) have posted strong growth since 2017 and account for 49% of total loans and acceptances. This growth in residential mortgages was driven by sustained demand for mortgage credit. As for personal loans, they totalled $16.5 billion as at October 31, 2021. With respect to commercial loans, there was year-over-year growth in the agriculture, utilities, finance and insurance, real estate and real-estate-construction, and other services categories. As at October 31, 2021, certain categories posted year-over-year decreases, notably the oil and gas and pipelines category. Furthermore, the Credigy subsidiary's POCI loans decreased since October 31, 2020 as a result of repayments and maturities of certain portfolios.

Impaired Loans

Impaired loans include loans classified in Stage 3 of the expected credit loss model and the purchased or originated credit-impaired (POCI) loans of the Credigy subsidiary.

As at October 31, 2021, gross impaired loans excluding POCI loans stood at $662 million compared to $817 million as at October 31, 2020 (Table 10, page 121). Net impaired loans excluding POCI loans stood at $283 million as at October 31, 2021 compared to $465 million as at October 31, 2020, a $182 million decrease arising from decreases in the net impaired loans of the Personal Banking and Commercial Banking loan portfolios and in the Financial Markets loan portfolios. This decrease was partly offset by an increase in the net impaired loans of the Wealth Management and ABA Bank loan portfolios. Gross POCI loans stood at $464 million as at October 31, 2021, whereas they had stood at $855 million as at October 31, 2020 as a result of repayments and maturities of certain loan portfolios.

A detailed description of the Bank's credit risk management practices is provided on pages 78 to 86 of this MD&A as well as in Note 7 to the consolidated financial statements.

Other Assets

As at October 31, 2021, other assets totalled $25.4 billion compared with $21.1 billion as at October 31, 2020, a $4.3 billion increase that came mainly from a $3.1 billion increase in derivative financial instruments related to the activities of the Financial Markets segment as well as from a $0.6 billion increase in defined benefit pension plan assets.

Deposit Liability

At $240.9 billion as at October 31, 2021, deposits increased by $25.0 billion or 12% since year-end 2020. At $70.1 billion, personal deposits, as presented in Table 12 (page 122), increased $2.6 billion since October 31, 2020 and accounted for 29% of all deposits. This increase was driven by business growth in Personal Banking, in the Financial Markets segment, and at the ABA Bank subsidiary, tempered by lower deposits in the Wealth Management segment.

As shown in Table 12, business and government deposits totalled $167.9 billion, rising $24.1 billion from $143.8 billion since year-end 2020. This increase came from the funding activities of the Financial Markets segment and of Treasury, including $3.5 billion in deposits subject to bank recapitalization (bail-in) conversion regulations, as well as from Commercial Banking activities. Deposits from deposit-taking institutions decreased $1.6 billion since year-end 2020.

Other Liabilities

As at October 31, 2021, other liabilities stood at $95.2 billion, declining $3.4 billion since October 31, 2020, as a $3.9 billion increase in obligations related to securities sold short and a $6.5 billion increase in derivative financial instruments were more than offset by a $16.6 billion decrease in obligations related to securities sold under repurchase agreements and securities loaned.

Subordinated Debt and Other Contractual Obligations

Subordinated debt has remained relatively stable since October 31, 2020. The contractual obligations are presented in detail in Note 29 to the consolidated financial statements.

Equity

As at October 31, 2021, equity attributable to the Bank's shareholders and holders of other equity instruments was $18.9 billion, rising $2.5 billion from $16.4 billion since October 31, 2020. This increase was mainly due to net income net of dividends, by the $500 million issuance of LRCN – Series 2, by the issuance of common shares under the Stock Option Plan, by remeasurements of pension plans and other post-employment benefit plans, and by gains on cash flow hedges in accumulated other comprehensive income. These increases were partly offset by unrealized foreign currency translation losses on investments in foreign operations and by the $800 million in redemptions of the Series 34 and Series 36 preferred shares.

The Consolidated Statements of Changes in Equity on page 136 of this *Annual Report* present the items of equity. In addition, an analysis of the Bank's regulatory capital is presented in the Capital Management section of this MD&A.

Acquisitions

Acquisition of Flinks Technology Inc.

On September 8, 2021, the Bank finalized the acquisition of Flinks Technology Inc. (Flinks), a leading fintech company specialized in financial data aggregation and distribution, in which the Bank had already been holding a 30.2% equity interest. Flinks provides services to a wide North American fintech ecosystem and offers attractive data technology solutions. The acquisition strategically positions the Bank in a high-growth market to continue to enhance customer experiences and benefit from future technology-driven innovations. At the time of acquisition, the amount of which was $73 million in cash for voting preferred shares, the Bank was holding an 82.9% equity interest in Flinks, thereby giving it control thereover. Immediately after the acquisition, the Bank made an additional $30 million investment in voting right preferred shares, giving the Bank an 85.9% equity interest in Flinks. The amount of the $73 million purchase price, of the fair value of the previously held equity interest, and of the estimated value of the non-controlling interest established on the acquisition date, exceeded the fair value of the net assets acquired by $101 million. This excess amount has been recorded on the Consolidated Balance Sheet as goodwill and mainly represents the expected future profits of Flinks given its favourable position in this growth market. The goodwill is not deductible for tax purposes. The previously held equity interest, accounted for as an associate, was remeasured at fair value, generating a $33 million non-taxable remeasurement gain that was reported in the *Non-interest income – Other* item of the Consolidated Statement of Income.

Acquisition of the Entire Remaining Non-Controlling Interest in the Credigy Ltd. Subsidiary

On December 15, 2020, the Bank acquired the entire remaining non-controlling interest in the Credigy Ltd. subsidiary following a decision by the non-controlling shareholders to exercise their put options for an amount of $300 million according to an agreement reached in 2013. Following this transaction, Credigy Ltd. became a wholly owned subsidiary of the Bank.

Exposures to Certain Activities

The Financial Stability Board (FSB) formed a working group, the Enhanced Disclosure Task Force (EDTF), that was mandated to develop principles for enhancing the risk disclosures of major banks. The EDTF published a report containing 32 recommendations. The risk disclosures required by the EDTF are provided in this *Annual Report* and in the documents entitled *Supplementary Regulatory Capital and Pillar 3 Disclosure* and *Supplementary Financial Information*, which are available on the Bank's website at nbc.ca. In addition, on page 13 of this *Annual Report* is a table of contents that readers can use to locate information relative to the 32 recommendations.

The FSB recommendations seek to enhance the transparency and measurement of certain exposures, in particular structured entities, subprime and Alt-A exposures, collateralized debt obligations, residential and commercial mortgage-backed securities, and leveraged financing structures. The Bank does not market any specific mortgage financing program to subprime or Alt-A clients. The Bank does not have any significant direct position in residential and commercial mortgage-backed securities that are not insured by the CMHC. Credit derivative positions are presented in the *Supplementary Regulatory Capital and Pillar 3 Disclosure* report, which is available on the Bank's website at nbc.ca.

Leveraged finance is commonly employed to achieve a specific objective, for example, to make an acquisition, complete a buy-out or repurchase shares. Leveraged finance risk exposure takes the form of both funded and unfunded commitments. As at October 31, 2021, total commitments for this type of loan stood at $4,048 million ($3,681 million as at October 31, 2020). Details about other exposures are provided in the table concerning structured entities in Note 27 to the consolidated financial statements.

Related Party Transactions

In the normal course of business, the Bank provides various banking services and enters into contractual agreements and other transactions with associates, joint ventures, directors, key officers and other related parties. These agreements and transactions are entered into under conditions similar to those offered to non-related third parties.

In accordance with the *Bank Act* (Canada), the aggregate of loans granted to key officers of the Bank, excluding mortgage loans granted on their principal residence, cannot exceed twice the officer's annual salary.

Loans to eligible key officers are granted under the same conditions as those granted to any other employee of the Bank. The main conditions are as follows:

- the employee must meet the same credit requirements as a client;
- mortgage loans are offered at the preferential employee rate;
- home equity lines of credit bear interest at Canadian prime less 0.5%, but never lower than Canadian prime divided by two;
- personal loans bear interest at a risk-based regular client rate;
- credit card advances bear interest at a prescribed fixed rate in accordance with Bank policy;
- personal lines of credit bear interest at Canadian prime less 0.5%, but never lower than Canadian prime divided by two.

The Bank also offers a deferred stock unit plan to directors who are not Bank employees. For additional information, see Note 22 to the consolidated financial statements. Additional information on related parties is presented in Notes 9, 27 and 28 to the consolidated financial statements.

Income Taxes

In June 2021, the Bank was reassessed by the Canada Revenue Agency (CRA) for additional income tax and interest of approximately $115 million (including estimated provincial tax and interest) in respect of certain Canadian dividends received by the Bank during 2016.

In prior fiscal years, the Bank had been reassessed for additional income tax and interest of approximately $610 million (including provincial tax and interest) in respect of certain Canadian dividends received by the Bank during the 2015, 2014, 2013 and 2012 taxation years.

In the reassessments, the CRA alleges that the dividends were received as part of a "dividend rental arrangement".

The CRA may issue reassessments to the Bank for taxation years subsequent to 2016 in regard to activities similar to those that were the subject of the above-mentioned reassessments. The Bank remains confident that its tax position was appropriate and intends to vigorously defend its position. As a result, no amount has been recognized in the consolidated financial statements as at October 31, 2021.

Event After the Consolidated Balance Sheet

Repurchase of Common Shares

On November 30, 2021, the Bank's Board of Directors approved a normal course issuer bid, beginning December 10, 2021, to repurchase for cancellation up to 7,000,000 common shares (representing approximately 2% of its outstanding common shares) over the 12-month period ending December 9, 2022. Any repurchase through the Toronto Stock Exchange will be done at market prices. The common shares may also be repurchased through other means authorized by the Toronto Stock Exchange and applicable regulations, including private agreements or share repurchase programs under issuer bid exemption orders issued by the securities regulators. A private purchase made under an exemption order issued by a securities regulator will be done at a discount to the prevailing market price. The amounts that are paid above the average book value of the common shares are charged to *Retained earnings.* This normal course issuer bid is subject to the approval of OSFI and the Toronto Stock Exchange (TSX).

Securitization and Off-Balance-Sheet Arrangements

In the normal course of business, the Bank is party to various financial arrangements that, under IFRS, are not required to be recorded on the Consolidated Balance Sheet or are recorded under amounts other than their notional or contractual values. These arrangements include, among others, transactions with structured entities, derivative financial instruments, the issuance of guarantees, credit instruments, and financial assets received as collateral.

Structured Entities

The Bank uses structured entities, among other means, to diversify its funding sources and to offer services to clients, in particular to help them securitize their financial assets or provide them with investment opportunities. Under IFRS, a structured entity must be consolidated if the Bank controls the entity. Note 1 to the consolidated financial statements describes the accounting policy and criteria used for consolidating structured entities. Additional information on consolidated and non-consolidated structured entities is provided in Note 27 to the consolidated financial statements.

Securitization of the Bank's Financial Assets

Mortgage Loans

The Bank participates in two Canada Mortgage and Housing Corporation (CMHC) securitization programs: the Mortgage-Backed Securities Program under the *National Housing Act* (Canada) (NHA) and the Canada Mortgage Bond (CMB) Program. Under the first program, the Bank issues NHA securities backed by insured residential mortgage loans and, under the second, the Bank sells NHA securities to Canada Housing Trust (CHT), which finances the purchase through the issuance of mortgage bonds insured by CMHC. Moreover, these mortgage bonds feature an interest rate swap agreement under which a CMHC-certified counterparty pays CHT the interest due to investors and receives the interest on the NHA securities. As at October 31, 2021, the outstanding amount of NHA securities issued by the Bank and sold to CHT was $22.4 billion. The mortgage loans sold consist of fixed- or variable-rate residential loans that are insured against potential losses by a loan insurer. In accordance with the NHA-MBS Program, the Bank advances the funds required to cover late payments and, if necessary, obtains reimbursement from the insurer that insured the loan. The NHA-MBS and CMB programs do not use liquidity guarantee arrangements. The Bank uses these securitization programs mainly to diversify its funding sources. In accordance with IFRS, because the Bank retains substantially all of the risks and rewards of ownership of the mortgage loans transferred to CHT, the derecognition criteria are not met. Therefore, the insured mortgage loans securitized under the CMB Program continue to be recognized in *Loans* on the Bank's Consolidated Balance Sheet, and the liabilities for the considerations received from the transfer are recognized in *Liabilities related to transferred receivables* on the Consolidated Balance Sheet. For additional information, see Note 8 to the consolidated financial statements.

Credit Card Receivables

In April 2015, the Bank set up Canadian Credit Card Trust II (CCCT II) to continue its program of securitizing credit card receivables on a revolving basis. The Bank uses this entity for capital management and funding purposes. The Bank acts as the servicer of the receivables sold and maintains the client relationship. Furthermore, it administers the securitization program and ensures that all related procedures are stringently followed and that investors are paid according to the provisions of the program.

As at October 31, 2021, the credit card receivables portfolio held by CCCT II (net of the Bank Certificate held by the Bank) represented an amount outstanding of $1.9 billion. CCCT II issued notes to investors, $0.1 billion of which is held by third parties and $1.8 billion is held by the Bank. New receivables are periodically sold to the structure on a revolving basis to replace the receivables reimbursed by clients.

The different series of notes are rated by the Fitch and DBRS rating agencies. From this portfolio of sold receivables, the Bank retains the excess spread, i.e., the residual net interest income after all the expenses related to this structure have been paid, and thus provides first-loss protection. Furthermore, second-loss protection for issued series is provided by notes subordinated to the senior notes, representing 5.8% of the total amount of the series issued. The Bank controls CCCT II and thus consolidates it.

Securitization of Third-Party Financial Assets

The Bank administers multi-seller conduits that purchase financial assets from clients and finance those purchases by issuing commercial paper backed by the acquired assets. Clients use these multi-seller conduits to diversify their funding sources and reduce borrowing costs while continuing to service the financial assets and providing some amount of first-loss protection. Notes issued by the conduits and held by third parties provide additional credit loss protection. The Bank acts as a financial agent and provides administrative and transaction structuring services to these conduits. The Bank provides backstop liquidity and credit enhancement facilities under the commercial paper program. These facilities are presented and described in Notes 26 and 27 to the consolidated financial statements. The Bank has concluded derivative financial instrument contracts with these conduits, the fair value of which is presented on the Bank's Consolidated Balance Sheet. The Bank is not required to consolidate these conduits, as it does not control them.

Derivative Financial Instruments

The Bank uses various types of derivative financial instruments to meet its clients' needs, generate trading activity revenues, and manage its exposure to interest rate, foreign exchange and credit risk as well as other market risks. All derivative financial instruments are accounted for at fair value on the Consolidated Balance Sheet. Transactions in derivative financial instruments are expressed as notional amounts. These amounts are not presented as assets or liabilities on the Consolidated Balance Sheet. They represent the face amount of the contract to which a rate or price is applied to determine the amount of cash flows to be exchanged. Notes 1 and 16 to the consolidated financial statements provide additional information on the types of derivative financial instruments used by the Bank and their accounting basis.

Guarantees

In the normal course of business, the Bank enters into various guarantee contracts. The principal types of guarantees are letters of guarantee, backstop liquidity and credit enhancement facilities, certain securities lending activities, and certain indemnification agreements. Note 26 to the consolidated financial statements provides detailed information on these guarantees.

Credit Instruments

In the normal course of business, the Bank enters into various off-balance-sheet credit commitments. The credit instruments used to meet the financing needs of its clients represent the maximum amount of additional credit that the Bank could be required to extend if the commitments were fully drawn. For additional information on these off-balance-sheet credit instruments and other items, see Note 26 to the consolidated financial statements.

Financial Assets Received as Collateral

In the normal course of business, the Bank receives financial assets as collateral as a result of transactions involving securities purchased under reverse repurchase agreements, securities borrowing and lending agreements, and derivative financial instrument transactions. For additional information on financial assets received as collateral, see Note 26 to the consolidated financial statements.

Capital Management

Capital management has a dual role of ensuring a competitive return to the Bank's shareholders while maintaining a solid capital foundation that covers risks inherent to the Bank's business, supports its business segments, and protects its clients.

Capital Management Framework

The Bank's capital management policy defines guiding principles as well as the roles and responsibilities of its internal capital adequacy assessment process. This process aims to determine the capital that the Bank needs to pursue its business activities and accommodate unexpected losses arising from extremely adverse economic and operational conditions. The Bank has implemented a rigorous internal capital adequacy assessment process that comprises the following procedures:

- conducting an overall risk assessment;
- measuring significant risks and the capital requirements related to the Bank's financial budget for the next fiscal year and current and prospective risk profiles;
- integrating stress tests across the organization and executing sensitivity analyses to determine the capital buffer above minimum regulatory levels (for additional information on enterprise-wide stress testing, see the Risk Management section of this MD&A);
- aggregating capital and monitoring the reasonableness of internal capital compared with regulatory capital;
- comparing projected internal capital with regulatory capital levels, internal operating targets, and competing banks;
- attesting to the adequacy of the Bank's capital levels.

Assessing capital adequacy is an integral part of capital planning and strategy. The Bank sets internal capital ratio targets that include a discretionary cushion in excess of the regulatory requirements, which provides a solid financial structure and sufficient capital to meet management's business needs in accordance with its risk appetite, along with competitive returns to shareholders, under both normal market conditions and a range of severe but plausible stress testing scenarios. The internal capital adequacy assessment process is a key tool in establishing the Bank's capital strategy and is subject to quarterly reviews and periodic amendments.

Risk-adjusted return on capital and shareholder value added (SVA), which are obtained from an assessment of required economic capital, are calculated quarterly for each of the Bank's business segments. The results are then used to guide management in allocating capital among the various business segments.

Structure and Governance
Along with its partners from Risk Management, Global Funding and Treasury Group, and Finance, the Capital Management team is responsible for maintaining integrated control methods and processes so that an overall assessment of capital adequacy may be performed.

The Board oversees the structure and development of the Bank's capital management policy and ensures that the Bank maintains sufficient capital in accordance with regulatory requirements and in consideration of market conditions. The Board delegates certain responsibilities to the Risk Management Committee (RMC), which in turn recommends capital management policies and oversees their application. However, the Board, on the recommendation of the RMC, assumes the following responsibilities:

- reviewing and approving the capital management policy;
- reviewing and approving the Bank's risk appetite, including the main capital and risk targets and the corresponding limits;
- reviewing and approving the capital plan and strategy on an annual basis, including the Bank's internal capital adequacy assessment process;
- reviewing and approving the implementation of significant measures respecting capital, including contingency measures;
- reviewing significant capital disclosures, including Basel capital adequacy ratios;
- ensuring the appropriateness of the regulatory capital adequacy assessment.

The Office of the President is responsible for defining the Bank's strategy and plays a key role in guiding measures and decisions regarding capital. The Enterprise-Wide Risk Management Committee oversees capital management, which consists of reviewing the capital plan and strategy and implementing significant measures respecting capital, including contingency measures, and making recommendations with respect to these measures.

Basel Accord and Regulatory Environment

Basel Accord

The Basel Accord proposes a range of approaches of varying complexity, the choice of which determines the sensitivity of capital to risks. A less complex approach, such as the Standardized Approach, uses regulatory weightings, while a more complex approach uses the Bank's internal estimates of risk components to establish risk-weighted assets and calculate regulatory capital.

As required under Basel, risk-weighted assets (RWA) are calculated for each credit risk, market risk, and operational risk. The Bank uses the Advanced Internal Rating-Based (AIRB) Approach for credit risk to determine minimum regulatory capital requirements for a majority of its portfolios. The credit risk of certain portfolios considered to be less significant is weighted according to the Basel Standardized Approach. The simple risk-weighted method is used to calculate the charge related to banking book equity securities. This method requires proactive management of the capital allocated to portfolios with banking book equity securities, since, beyond a certain investment threshold, the cost of regulatory capital becomes prohibitive. As for operational risk, the Bank uses the Standardized Approach. Market risk-weighted assets are primarily determined using the Internal Model-Based Approach, while the Standardized Approach is used to assess interest-rate specific risk.

With respect to the risk related to securitization operations, the capital treatment depends on the type of underlying exposures and on the information available about the exposures. The Bank must use the Securitization: Internal Rating-Based Approach (SEC-IRBA) if it is able to apply an approved internal ratings-based model and has sufficient information to calculate the capital requirements for all underlying exposures in the securitization pool. Under this approach, the RWA is derived from a combination of supervisory inputs and inputs specific to the securitization exposure, such as the implicit capital charge related to the underlying exposures, the credit enhancement level, the effective maturity, the number of exposures, and the weighted average loss given default (LGD).

If the Bank cannot use the SEC-IRBA, it must use the Securitization: External Rating-Based Approach (SEC-ERBA) for the securitization exposures that are externally rated. This approach assigns risk weights to exposures using external ratings. The Bank uses the ratings assigned by Moody's, Standard & Poor's (S&P), Fitch, Kroll Bond Rating Agency, or DBRS or a combination of these ratings. The Bank uses the Securitization: Internal Assessment Approach (SEC-IAA) for unrated securitization exposures relating to the asset-backed commercial paper conduits it sponsors. The SEC-IAA rating methodologies used are mainly based on criteria published by the above-mentioned credit rating agencies and consider risks factors that the Bank deems relevant to assessing the credit quality of the exposures. The Bank's SEC-IAA includes an assessment of the extent by which the credit enhancement available for loss protection provides coverage of expected losses. The levels of stressed coverage the Bank requires for each internal risk rating are consistent with the requirements published by the rating agencies for equivalent external ratings by asset class. If the Bank cannot apply the SEC-ERBA or the SEC-IAA, it must use the supervisory formula under the Securitization Standardized Approach (SEC-SA). Under this approach, RWA is derived from inputs specific to the securitization exposure, such as the implicit capital charge related to the underlying exposures calculated under the standardized credit risk approach as well as credit enhancement and delinquency levels.

If none of the above approaches can be used, the securitization exposure must be assigned a risk weight of 1,250%. The Bank can apply a reduced capital charge for securitization exposures that meet the criteria of the Simple, Transparent and Comparable (STC) framework.

Capital ratios are calculated by dividing capital by risk-weighted assets. Credit, market, and operational risks are factored into the risk-weighted assets calculation for regulatory purposes. Basel rules apply at the consolidated level of the Bank. Assets of non-consolidated entities for regulatory purposes are therefore excluded from the risk-weighted assets calculation.

The definition adopted by the Basel Committee on Banking Supervision (BCBS) distinguishes between three types of capital. Common Equity Tier 1 (CET1) capital consists of common shareholders' equity less goodwill, intangible assets, and other CET1 capital deductions. Additional Tier 1 (AT1) capital consists of eligible non-cumulative preferred shares, limited recourse capital notes (LRCN), and other AT1 capital adjustments. The sum of CET1 and AT1 capital forms what is known as Tier 1 capital. Tier 2 capital consists of eligible subordinated debts and certain allowances for credit losses. Total regulatory capital is the sum of Tier 1 and Tier 2 capital.

OSFI is responsible for applying the Basel Accord in Canada. As required under the Basel Accord, OSFI requires that regulatory capital instruments other than common equity have a non-viability contingent capital (NVCC) clause to ensure that investors bear losses before taxpayers should the government determine that it is in the public interest to rescue a non-viable financial institution. Instruments issued before January 1, 2013 that would be Basel III compliant if it were not for the absence of the NVCC clause are grandfathered and will be phased out over a period of ten years. As at October 31, 2021, the Bank has one remaining non-NVCC Tier 2 subordinated debt capital instrument, which it expects to phase out without resorting to any regulatory event redemption clause. Furthermore, in the regulations of the *Canadian Deposit Insurance Corporation (CDIC) Act* and the *Bank Act* (Canada), the Government of Canada has provided detailed information on conversion, issuance, and compensation regimes for bail-in instruments issued by D-SIBs (collectively the Bail-In Regulations). Pursuant to the *CDIC Act,* in circumstances where OSFI has determined that the Bank has ceased, or is about to cease, to be viable, the Governor in Council may, upon a Minister of Finance recommendation indicating that he or she believes that it is in the public interest to do so, grant an order directing CDIC to convert all or a portion of certain shares and liabilities of the Bank into common shares (a "Bail-In Conversion").

The Bail-In Regulations governing the conversion and issuance of bail-in instruments came into force on September 23, 2018, and those governing compensation for holders of converted instruments came into force on March 27, 2018. Any shares and liabilities issued before the date that the Bail-In Regulations came into force are not subject to a Bail-In Conversion, unless, in the case of a liability, the terms of said liability are, on or after that day, amended to increase its principal amount or to extend its term to maturity, and the liability, as amended, meets the requirements to be subject to a Bail-In Conversion.

The Bail-In Regulations prescribe the types of shares and liabilities that are subject to a Bail-In Conversion. In general, any senior debt securities with an initial or amended term-to-maturity greater than 400 days that are unsecured or partially secured and have been assigned a Committee on Uniform Securities Identification Procedures (CUSIP), an International Securities Identification Number (ISIN), or similar identification number are subject to a Bail-In Conversion. Shares, other than common shares, and subordinated debt, that are not NVCC instruments, are also subject to a Bail-In Conversion. However, certain other debt obligations of the Bank such as structured notes (as defined in the Bail-In Regulations), covered bonds, deposits and certain derivative financial instruments are not subject to a bail-in conversion.

As at October 31, 2021, outstanding liabilities of $11.9 billion ($8.4 billion as at October 31, 2020) were subject to conversion under the Bail-In Regulations.

The Bank and all other major Canadian banks have to maintain minimum capital ratios established by OSFI: a CET1 capital ratio of at least 10.5%, a Tier 1 capital ratio of at least 12.0%, and a Total capital ratio of at least 14.0%. All of these ratios are to include a capital conservation buffer of 2.5% established by the BCBS and OSFI, a 1.0% surcharge applicable solely to D-SIBs, and a 2.5% domestic stability buffer established by OSFI. On June 17, 2021, OSFI raised the domestic stability buffer from 1.0% to 2.5% effective on October 31, 2021. The domestic stability buffer, which varies from 0% to 2.5% of risk-weighted assets, consists exclusively of CET1 capital. A D-SIB that fails to meet this buffer requirement is not subject to automatic constraints to reduce capital distributions but must provide a remediation plan to OSFI. The banks also have to meet the capital floor that sets the regulatory capital level according to the Basel II Standardized approach. If the capital requirement under Basel III is less than 70% of the capital requirement as calculated under Basel II, the difference is added to risk-weighted assets. OSFI requires Canadian banks to meet a Basel III leverage ratio of at least 3.0%. The leverage ratio is a measure independent of risk that is calculated by dividing the amount of Tier 1 capital by total exposure. Total exposure is defined as the sum of on-balance-sheet assets (including derivative financial instruments exposures and securities financing transaction exposures) and off-balance-sheet items. The assets deducted from Tier 1 capital are also deducted from total exposure.

OSFI's *Total Loss Absorbing Capacity* (TLAC) guideline, which applies to all D-SIBs under the federal government's Bail-In Regulations, came into effect on September 23, 2018. The purpose of the TLAC guideline is to ensure that a D-SIB has sufficient loss-absorbing capacity to support its recapitalization in the unlikely event it becomes non-viable. OSFI is requiring D-SIBs to maintain a minimum risk-based TLAC ratio of 24.0% (including the domestic stability buffer) of risk-weighted assets and a minimum TLAC leverage ratio of 6.75% as of November 1, 2021. During the year ended October 31, 2019, the Bank had started to issue qualifying bail-in debt such that its TLAC ratios could improve through the normal refinancing of its maturing unsecured term debt. The Bank was in compliance with the TLAC requirements as of November 1, 2021.

Requirements – Regulatory Ratios Under Basel III

							As at October 31, 2021
	Minimum	Capital conservation buffer	Minimum set by BCBS	D-SIB surcharge	Minimum set by OSFI(1)	Domestic stability buffer(2)	Minimum set by OSFI(1), including the domestic stability buffer
Capital ratios							
CET1	4.5 %	2.5 %	7.0 %	1.0 %	8.0 %	2.5 %	10.5 %
Tier 1	6.0 %	2.5 %	8.5 %	1.0 %	9.5 %	2.5 %	12.0 %
Total	8.0 %	2.5 %	10.5 %	1.0 %	11.5 %	2.5 %	14.0 %
Leverage ratio	3.0 %	n.a.	n.a.	n.a.	3.0 %	n.a.	3.0 %

n.a. Not applicable
(1) The capital ratios include the capital conservation buffer and the D-SIB surcharge.
(2) On June 17, 2021, OSFI raised the domestic stability buffer from 1.0% to 2.5%, effective October 31, 2021.

The Bank ensures that its capital levels are always above the minimum capital requirements set by OSFI, including the domestic stability buffer. By maintaining a strong capital structure, the Bank can cover the risks inherent to its business activities, support its business segments, and protect its clients.

Other disclosure requirements pursuant to Pillar 3 of the Basel Accord and a set of recommendations defined by the EDTF are presented in the *Supplementary Regulatory Capital and Pillar 3 Disclosure* report published quarterly and available on the Bank's website at nbc.ca. Furthermore, a complete list of capital instruments and their main features is also available on the Bank's website.

Regulatory Context

The Bank closely monitors regulatory developments and participates actively in various consultative processes. In response to the impact of the COVID-19 pandemic, on March 27, 2020 OSFI announced a series of regulatory adjustments to support the financial and operational resilience of banks. The measures announced by OSFI that have continued to have an impact on the Bank for the year ended October 31, 2021 are described in the section entitled COVID-19 Pandemic – Key Measures Introduced by the Regulatory Authorities, which is on page 17 of this MD&A. Presented below are brief descriptions of ongoing regulatory projects.

Basel III Reform

In December 2017, the Group of Central Bank Governors and Heads of Supervision (GHOS), which oversees the BCBS, endorsed the outstanding Basel III post-crisis regulatory reforms. The purpose of the approved reforms, set out in *Basel III: Finalising Post-Crisis Reforms,* is to reduce excessive variability in risk-weighted assets and improve comparability and transparency among bank capital ratios.

On March 27, 2020, in response to the impact of the COVID-19 pandemic, GHOS announced a postponement to the implementation of the Basel III international capital standard reform. OSFI therefore postponed, until the first quarter of 2023, the implementation of the Standardized Approach and Advanced IRB Approach to credit risk, the revision of the operational risk framework and of the leverage ratio framework, and the introduction of a more risk-sensitive capital floor. Implementation of the Pillar 3 financial disclosure requirements finalized by the BCBS in December 2018 was also postponed until at least the first quarter of 2023. On November 29, 2021, OSFI postponed the implementation of the above-mentioned Basel III reform items to the second quarter of 2023. Lastly, implementation of the final set of revisions to the new market risk framework, entitled *Fundamental Review of the Trading Book* and published in January 2019, and implementation of the revised CVA risk framework are being postponed to the first quarter of 2024.

On March 11, 2021, OSFI launched an industry consultation on regulatory changes that introduce the latest and final series of Basel III reforms into the capital, leverage, and disclosure guidelines applicable to Canadian banks. OSFI's proposals align with the international standards set by the BCBS while also reflecting the realities of the Canadian market. On May 4, 2021, OSFI launched an industry consultation on the corresponding changes to the regulatory returns, namely, the *Basel Capital Adequacy Reporting* (BCAR) return and the *Leverage Requirements* (LR) return. Finally, on June 18, 2021, OSFI launched an industry consultation on proposed regulatory changes to the treatment of credit valuation adjustments (CVA) and market risk hedges of other valuation adjustments of over-the-counter derivatives referred to as XVA. The Bank is actively participating in these consultations.

Unwinding of Regulatory Adjustments and Other Projects
On March 16, 2021, OSFI announced the unwinding of the temporary reduction to stressed Value-at-Risk (VaR) multipliers under the market risk capital requirements for banks, returning them to the pre-pandemic level, i.e., a two-notch increase to the stressed VaR multiplier. The implementation date for this adjustment to the VaR multiplier was May 1, 2021.

On March 31, 2021, the BCBS issued two final sets of principles addressing operational risk and operational resilience: *Principles for Operational Resilience* and *Revisions to the Principles for the Sound Management of Operational Risk*. These publications follow a consultation on both documents in August 2020. In the first document, the BCBS provides a series of principles on the topic of operational resilience. Although these principles aim to make banks better able to withstand, adapt to, and recover from severe adverse events, they are largely carried over from existing principles. In the second document, the BCBS updated its existing set of principles for the sound management of operational risk. The Bank does not expect this guidance to have a significant impact on its activities at this time. On June 18, 2021, OSFI released for consultation two documents on the proposed practices for managing operational risk capital data: *Data Maintenance Expectations for Institutions Using the Standardized Approach for Operational Risk Capital Data* and *Assessment Tool – Operational Risk Capital Data*. The consultation aims to ensure that financial institutions have an effective management framework for current and historical operational risk data. The Bank is participating in the consultations.

On June 10, 2021, the BCBS issued a consultative document entitled *Prudential Treatment of Crypto Asset Exposures*. This document presents preliminary proposals for the prudential treatment of the crypto asset exposures of banks. On July 5, 2021, OSFI started its own consultation on crypto asset exposures in order to ensure that Canadian perspectives are well represented in international discussions. In addition to the BCBS questions listed in its consultative document, OSFI is seeking feedback on some other questions. The Bank is participating in the consultations.

On August 12, 2021, OSFI confirmed that the exclusion of sovereign-issued securities that qualify as high-quality liquid assets (HQLA) from the leverage ratio exposure measure, a mechanism that was introduced at the start of the COVID-19 pandemic, would not be extended beyond December 31, 2021. Central bank reserves will, however, continue to be excluded from the leverage ratio exposure measure.

Capital Management in 2021

Management Activities
On March 13, 2020, OSFI indicated that it was expecting all banks to cease any dividend increases or share buybacks. Since that date, the Bank has not increased dividends or bought back any of its common shares. On November 4, 2021, OSFI amended its capital distribution expectations, namely, by permitting financial institutions to increase regular dividends and, subject to OSFI approval, buy back shares. On November 30, 2021, the Bank's Board of Directors approved a quarterly dividend increase on common shares of 16 cents for the first quarter of fiscal 2022 as well as a normal course issuer bid to repurchase for cancellation, beginning on December 10, 2021, up to 7,000,000 common shares (representing approximately 2% of its common shares outstanding) over a 12-month period ending December 9, 2022. This normal course issuer bid is subject to the approval of the OSFI and the Toronto Stock Exchange (TSX).

On April 21, 2021, the Bank issued $500 million of Series 2 Limited Recourse Capital Notes (LRCN – Series 2) for which noteholder recourse is limited to the assets held by an independent trustee in a consolidated limited recourse trust. The assets of this trust consist of $500 million of Series 45 First Preferred Shares issued by the Bank, in parallel with the LRCN – Series 2. The LRCN – Series 2 sell for $1,000 each and bear interest at a fixed rate of 4.05% per annum until August 15, 2026 exclusively and, thereafter, at an annual rate equal to the yield on five-year Government of Canada bonds plus 3.045% until August 15, 2076. Since the LRCN – Series 2 satisfy the non-viability contingent capital requirements, they qualify for the purposes of calculating regulatory capital under Basel III.

On May 17, 2021, i.e., the first business day after the May 15, 2021 redemption date, the Bank redeemed all the issued and outstanding Non-Cumulative 5-Year Rate-Reset Series 34 First Preferred Shares. Pursuant to the share conditions, the redemption price was $25.00 per share plus the periodic dividend declared and unpaid. The Bank redeemed 16,000,000 Series 34 preferred shares for $400 million.

On August 16, 2021, i.e., the first business day after the August 15, 2021 redemption date, the Bank redeemed all the issued and outstanding Non-Cumulative 5-Year Rate-Reset Series 36 First Preferred Shares. Pursuant to the share conditions, the redemption price was $25.00 per share plus the periodic dividend declared and unpaid. The Bank redeemed 16,000,000 Series 36 preferred shares for $400 million.

As at October 31, 2021, the Bank had 337,912,283 issued and outstanding common shares compared to 335,997,660 a year earlier as well as 66,000,000 issued and outstanding preferred shares compared to 98,000,000 as at October 31, 2020. Moreover, as at October 31, 2021, the Bank had 1,000,000 LRCN compared to 500,000 a year earlier. For additional information on capital instruments, see Notes 15 and 18 to the consolidated financial statements.

Dividends

The Bank's strategy for common share dividends is to aim for a dividend payout ratio of between 40% and 50% of net income attributable to common shareholders excluding specified items, taking into account such factors as financial position, cash needs, regulatory requirements and any other factor deemed relevant by the Board.

For fiscal 2021, the Bank declared $958 million in dividends to common shareholders, which represents 31% of net income attributable to common shareholders (2020: 50%).The declared dividends are below the target payout range given the interruption to dividend increases prescribed by OSFI since March 13, 2020. However, on November 4, 2021, OSFI amended its capital distribution expectations by permitting the boards of directors and the senior management of Canadian banks to make capital distribution decisions, i.e., dividend increases and share buybacks. The Bank has taken a prudent approach to managing regulatory capital and remains confident in its ability to increase earnings going forward.

Shares, Other Equity Instruments, and Stock Options

	As at October 31, 2021	
	Number of shares or LRCN	$ million
First preferred shares		
Series 30	14,000,000	350
Series 32	12,000,000	300
Series 38	16,000,000	400
Series 40	12,000,000	300
Series 42	12,000,000	300
	66,000,000	1,650
Other equity instruments		
LRCN – Series 1	500,000	500
LRCN – Series 2	500,000	500
	1,000,000	1,000
	67,000,000	2,650
Common shares	337,912,283	3,160
Stock options	11,348,680	

As at November 26, 2021, there were 337,918,444 common shares and 11,329,474 stock options outstanding. NVCC provisions require the conversion of capital instruments into a variable number of common shares should OSFI deem a bank to be non-viable or should the government publicly announce that a bank has accepted or agreed to accept an injection of capital. If an NVCC trigger event were to occur, all of the Bank's preferred shares and LRCNs and medium-term notes maturing on February 1, 2028, which are NVCC capital instruments, would be converted into common shares of the Bank according to an automatic conversion formula at a conversion price corresponding to the greater of the following amounts: (i) a $5.00 contractual floor price; or (ii) the market price of the Bank's common shares on the date of the trigger event (10-day weighted average price). Based on a $5.00 floor price and including an estimate for accrued dividends and interest, these NVCC capital instruments would be converted into a maximum of 763 million Bank common shares, which would have a 69.3% dilutive effect based on the number of Bank common shares outstanding as at October 31, 2021.

Regulatory Capital Ratios

As at October 31, 2021, the Bank's CET1, Tier 1, and Total capital ratios were, respectively, 12.4%, 15.0% and 15.9%, i.e., above the regulatory requirements, compared to ratios of, respectively, 11.8%, 14.9% and 16.0% as at October 31, 2020. The increase in the CET1 capital ratio since October 31, 2020 was essentially due to net income net of dividends, common share issuances under the Stock Option Plan, and remeasurements of pension plans and other post-employment benefit plans. These factors were partly offset by the organic growth in RWA, by the impact of the transitional measures applicable to ECL provisioning, of which the scaling factor decreased to 50% from 70%, by the impact of unwinding the temporary reduction of stressed VaR multipliers, and by the impact of the acquisition of Flinks. The stability seen in the Tier 1 capital ratio and in the Total capital ratio is explained essentially by redemptions of the Series 34 and Series 36 preferred shares, tempered by the above-mentioned factors and by the issuance of Limited Recourse Capital Notes (LRCN) – Series 2.
As at October 31, 2021, the leverage ratio was 4.4%, stable compared to October 31, 2020. The growth in Tier 1 capital, explained by the above-mentioned factors, and significant growth in total exposure were partly offset by temporary measures announced by OSFI with respect to the exclusion of exposures from central bank reserves and sovereign-issued securities that qualify as HQLA securities under the *Liquidity Adequacy Requirements* guideline.

Regulatory Capital and Ratios Under Basel III[(1)]

As at October 31	2021		2020	
	Adjusted[(2)]		Adjusted[(2)]	
Capital				
CET1	12,866	12,973	10,924	11,167
Tier 1	15,515	15,622	13,869	14,112
Total	16,643	16,643	15,167	15,167
Risk-weighted assets	104,358	104,358	94,808	94,808
Total exposure	351,160	351,160	321,038	321,038
Capital ratios				
CET1	12.3 %	12.4 %	11.5 %	11.8 %
Tier 1	14.9 %	15.0 %	14.6 %	14.9 %
Total	15.9 %	15.9 %	16.0 %	16.0 %
Leverage ratio	4.4 %	4.4 %	4.3 %	4.4 %

(1) For additional information on capital management measures, see the Financial Reporting Method section on pages 18 to 21.
(2) The adjusted capital and adjusted capital ratios do not take into account the transitional measure for provisioning of expected credit losses. For additional information, see the section entitled COVID-19 Pandemic – Key Measures Introduced by the Regulatory Authorities on page 17 of this MD&A.

Movement in Regulatory Capital[1]

Year ended October 31 (millions of Canadian dollars)	2021	2020
Common Equity Tier 1 (CET1) capital		
Balance at beginning	11,167	9,692
Issuance of common shares (including Stock Option Plan)	93	98
Impact of shares purchased or sold for trading	(1)	2
Repurchase of common shares	–	(30)
Other contributed surplus	11	9
Dividends on preferred and common shares and distributions on other equity instruments	(1,089)	(1,072)
Net income attributable to the Bank's shareholders and holders of other equity instruments	3,177	2,041
Common share capital issued by subsidiaries and held by third parties	–	–
Removal of own credit spread net of income taxes	(20)	35
Other	496	188
Movements in accumulated other comprehensive income		
Translation adjustments	(190)	53
Debt securities at fair value through other comprehensive income	(30)	87
Other	–	3
Change in goodwill and intangible assets (net of related tax liability)	(110)	(70)
Other, including regulatory adjustments and transitional arrangements		
Change in defined benefit pension plan asset (net of related tax liability)	(402)	(71)
Change in amount exceeding 15% threshold		
Deferred tax assets	–	–
Significant investment in common shares of financial institutions	–	–
Deferred tax assets, unless they result from temporary differences (net of related tax liability)	7	(41)
Other deductions of regulatory adjustments to CET1 implemented by OSFI[2]	(136)	243
Change in other regulatory adjustments	–	–
Balance at end	12,973	11,167
Additional Tier 1 capital		
Balance at beginning	2,945	2,800
New Tier 1 eligible capital issuances	500	500
Redeemed capital	(800)	(350)
Change in non-qualifying Additional Tier 1 capital subject to phase-out	–	–
Other, including regulatory adjustments and transitional arrangements	4	(5)
Balance at end	2,649	2,945
Total Tier 1 capital	15,622	14,112
Tier 2 capital		
Balance at beginning	1,055	874
New Tier 2 eligible capital issuances	–	–
Redeemed capital	–	–
Change in non-qualifying Tier 2 subject to phase-out	–	–
Tier 2 instruments issued by subsidiaries and held by third parties	–	–
Change in certain allowances for credit losses	20	128
Other, including regulatory adjustments and transitional arrangements	(54)	53
Balance at end	1,021	1,055
Total regulatory capital	16,643	15,167

(1) For additional information on capital management measures, see the Financial Reporting Method section on pages 18 to 21.
(2) This item includes the transitional measure applicable to expected credit loss provisioning implemented during the second quarter of 2020. For additional information, see the section entitled COVID-19 Pandemic – Key Measures Introduced by the Regulatory Authorities on page 17 of this MD&A.

RWA by Key Risk Drivers

Risk-weighted assets (RWA) amounted to $104.4 billion as at October 31, 2021 compared to $94.8 billion as at October 31, 2020, a $9.6 billion increase resulting mainly from organic growth in RWA and from an unwinding of the temporary reduction to stressed Value-at-Risk (VaR) multipliers for market risk, partly offset by improvement in the credit quality of the loan portfolio and by foreign exchange movements. Changes in the Bank's RWA by risk type are presented in the following table.

Risk-Weighted Assets Movement by Key Drivers[1]

Quarter ended (millions of Canadian dollars)	October 31, 2021	July 31, 2021	April 30, 2021	January 31, 2021	October 31, 2020
	Total	Total	Total	Total	Total
Credit risk – Risk-weighted assets at beginning	85,914	82,514	81,100	78,985	77,944
Book size	1,944	3,745	2,656	3,323	812
Book quality	(430)	(720)	(326)	(64)	801
Model updates	(7)	–	–	(212)	(447)
Methodology and policy	–	–	–	–	–
Acquisitions and disposals	–	–	–	–	–
Foreign exchange movements	(208)	375	(916)	(932)	(125)
Credit risk – Risk-weighted assets at end	87,213	85,914	82,514	81,100	78,985
Market risk – Risk-weighted assets at beginning	4,072	3,307	3,489	3,497	4,724
Movement in risk levels[2]	(302)	(193)	(182)	(8)	(1,227)
Model updates	–	–	–	–	–
Methodology and policy	–	958	–	–	–
Acquisitions and disposals	–	–	–	–	–
Market risk – Risk-weighted assets at end	3,770	4,072	3,307	3,489	3,497
Operational risk – Risk-weighted assets at beginning	13,153	12,884	12,594	12,326	12,146
Movement in risk levels	222	269	290	268	180
Acquisitions and disposals	–	–	–	–	–
Operational risk – Risk-weighted assets at end	13,375	13,153	12,884	12,594	12,326
Risk-weighted assets at end	104,358	103,139	98,705	97,183	94,808

(1) For additional information on capital management measures, see the Financial Reporting Method section on pages 18 to 21.
(2) Also includes foreign exchange rate movements that are not considered material.

The table above provides the risk-weighted assets movements by key drivers underlying the different risk categories.

The *Book size* item reflects organic changes in book size and composition (including new loans and maturing loans). RWA movements attributable to book size include increases or decreases in exposures, measured by exposure at default, assuming a stable risk profile.

The *Book quality* item is the Bank's best estimate of changes in book quality related to experience, such as underlying customer behaviour or demographics, including changes resulting from model recalibrations or realignments and also including risk mitigation factors.

The *Model updates* item is used to reflect implementations of new models, changes in model scope, and any other change applied to address model malfunctions.

The *Methodology and policy* item presents the impact of changes in calculation methods resulting from changes in regulatory policies as a result, for example, of new regulations. On March 16, 2021, OSFI announced the unwinding, effective May 1, 2021, of the temporary reduction to stressed Value-at-Risk (VaR) multipliers under the market risk capital requirements applicable to banks. The impact of this measure is reflected in the market risk-weighted assets calculation for the quarter ended July 31, 2021.

Allocation of Economic Capital and Regulatory RWA

Economic capital is an internal measure that the Bank uses to determine the capital it needs to remain solvent and to pursue its business operations. Economic capital takes into consideration the credit, market, operational, business and other risks to which the Bank is exposed as well as the risk diversification effect among them and among the business segments. Economic capital thus helps the Bank to determine the capital required to protect itself against such risks and ensure its long-term viability. The by-segment allocation of economic capital and regulatory RWA was carried out on a stand-alone basis before attribution of goodwill and intangible assets. The method used to assess economic capital is reviewed regularly in order to accurately quantify these risks.

The Risk Management section of this MD&A provides comprehensive information about the main types of risk. The "Other risks" presented below include risks such as business risk and structural interest rate risk in addition to the benefit of diversification among types of risk.

Allocation of Risks by Business Segment

As at October 31, 2021
(millions of Canadian dollars)

National Bank of Canada

Business segments	Personal and Commercial	Wealth Management	Financial Markets	U.S. Specialty Finance and International	Other
Major activities	Banking services Credit services Financing Investment solutions Insurance	Full-service brokerage Private banking Direct brokerage Investment solutions Administrative and trade execution services Transaction products for advisors Trust and estate services	Equities, fixed-income, commodities and foreign exchange Corporate banking Investment banking	U.S. Specialty Finance • Credigy International • ABA Bank (Cambodia) • Minority interests in emerging markets	Treasury activities Liquidity management Bank funding Asset and liability management Corporate units Fintech services • Flinks

Economic capital by type of risk

	Personal and Commercial	Wealth Management	Financial Markets	U.S. Specialty Finance and International	Other
Credit	2,462	153	2,470	942	201
Market	–	–	233	32	159
Operational	419	272	338	112	(61)
Other risks	195	442	545	39	(562)
Total	**3,076**	**867**	**3,586**	**1,125**	**(263)**

Risk-weighted assets[1]

	Personal and Commercial	Wealth Management	Financial Markets	U.S. Specialty Finance and International	Other
Credit	36,961	2,406	29,871	11,541	6,434
Market	–	–	3,691	–	79
Operational	5,173	3,370	4,186	1,404	(758)
Total	**42,134**	**5,776**	**37,748**	**12,945**	**5,755**

(1) For additional information on capital management measures, see the Financial Reporting Method section on pages 18 to 21.

Risk Management

In this section of the MD&A, grey-shaded text and tables marked with an asterisk (*) are integral parts of the consolidated financial statements. They represent the Bank's objectives, the risk management policies and procedures, and the methods applied to measure credit risk, market risk as well as liquidity and funding risk, as required by IFRS 7 – *Financial Instruments: Disclosures.*

Risk-taking is intrinsic to a financial institution's business. The Bank views risk as an integral part of its development and the diversification of its activities. It advocates a risk management approach consistent with its business strategy. The Bank voluntarily exposes itself to certain risk categories, particularly credit and market risk, in order to generate revenue. It assumes certain risks that are inherent to its activities—to which it does not choose to expose itself—and that do not generate revenue, i.e., mainly operational risks. The purpose of sound and effective risk management is to provide reasonable assurance that incurred risks do not exceed acceptable thresholds, to control the volatility in the Bank's results, and to ensure that risk-taking contributes to the creation of shareholder value.

Risk Management Framework

Risk is rigorously managed. Risks are identified, measured, and controlled to achieve an appropriate balance between the returns obtained and the risks assumed. The Bank continues to closely monitor the impacts and potential consequences of the COVID-19 pandemic. It is impossible to predict all of the impacts that the pandemic could have on the global economy, in the countries where the Bank operates, on the Bank's clients, or on the Bank itself, in particular on its business activities, operating results, financial position, regulatory capital and liquidity ratios, reputation, and ability to meet regulatory requirements. From its onset, the pandemic has had disruptive and adverse effects in the countries where the Bank does business and, more broadly, on the global economy. COVID-19 has also shed light, and could continue to shed light, on several top and emerging risks to which the Bank is exposed. Despite this exceptional situation, risks are being rigorously managed. Decision-making is being guided by risk assessments aligned with the Bank's risk appetite as well as with prudent levels of capital and liquidity. Despite the exercise of stringent risk management and the mitigation measures in place, risk cannot be suppressed entirely, and residual risks may occasionally cause significant losses.

The Bank has developed guidelines that support sound and effective risk management:

- risk is everyone's business: business units, risk management and oversight functions as well as Internal Audit play an important role in ensuring a risk management framework is in place;
- client-centric: having quality information is key to understanding clients, effectively managing risk, and delivering excellent client service;
- enterprise-wide: an integrated view of risk is the basis for sound and effective risk management and decision-making by management;
- human capital: the Bank's employees are engaged, experienced and have a high level of expertise; their curiosity supports continuous development and their rigour ensures that risk management is built into the corporate culture;
- fact-based: good risk management relies heavily on common sense and good judgment and on advanced systems and models.

Risk Appetite

Risk appetite represents how much risk an organization is willing to assume to achieve its business strategy. The Bank defines its risk appetite by setting tolerance thresholds, by aligning those thresholds with its business strategy, and by integrating risk management throughout its corporate culture. Risk appetite is built into decision-making processes as well as into strategic, financial and capital planning.

The Bank's risk appetite framework consists of principles, statements, metrics as well as targets and is reinforced by policies and limits. When setting its risk appetite targets, the Bank considers regulatory constraints and the expectations of stakeholders, in particular customers, employees, the community, shareholders, regulatory agencies, governments, and rating agencies. The risk appetite framework is defined by the following principles and statements:

The Bank's brand, reputation and long-term viability are at the centre of our decisions, which demand:

- a strong credit rating to be maintained;
- a strong capital and cash position;
- rigorous management of regulatory compliance risk, including sales practices;
- zero tolerance for negligence in information security.

The Bank understands the risks taken; they are aligned with our business strategy and translate into:

- a risk-reward balance;
- a stable risk profile;
- a strategic level of concentration aligned with approved targets.

The Bank's transformation and simplification plan is being carried out without compromising rigorous risk management, which is reflected in:

- a low tolerance to operational and reputation risk;
- operational and information systems stability, both under normal circumstances and in times of crisis.

The Bank's management and business units are involved in the process for setting the risk appetite and are responsible for adequately monitoring the chosen risk indicators. These needs are assessed by means of the enterprise strategic planning process. The risk indicators are reported on a regular basis to ensure an effective alignment of the Bank's risk profile to its risk appetite; otherwise, appropriate actions could be taken. Additional information on the key credit, market and liquidity risk indicators monitored by the Bank's management is presented on the following pages.

Enterprise-Wide Stress Testing

As part of a more extensive process aimed at ensuring that the Bank maintains adequate capital levels commensurate with its business strategy and risk appetite, an enterprise-wide stress testing program is in place at the Bank. Stress testing can be defined as a risk management method that assesses the potential effects—on the Bank's financial position, capital and liquidity—of a series of specified changes in risk factors, corresponding to exceptional but plausible events. The program supports management's decision-making process by identifying potential vulnerabilities for the Bank as a whole that are considered in setting limits as well as in longer term business planning. The scenarios and stress test results are approved by the Stress Testing Oversight Committee and are reviewed by the Global Risk Committee (GRC) and the Risk Management Committee (RMC). For additional information, see the Stress Testing and Crisis Scenarios sections of this MD&A applicable to credit risk, market risk, and liquidity risk.

Incorporation of Risk Management Into the Corporate Culture

Risk management is supported by the Bank's cultural evolution through, notably, the following pillars:

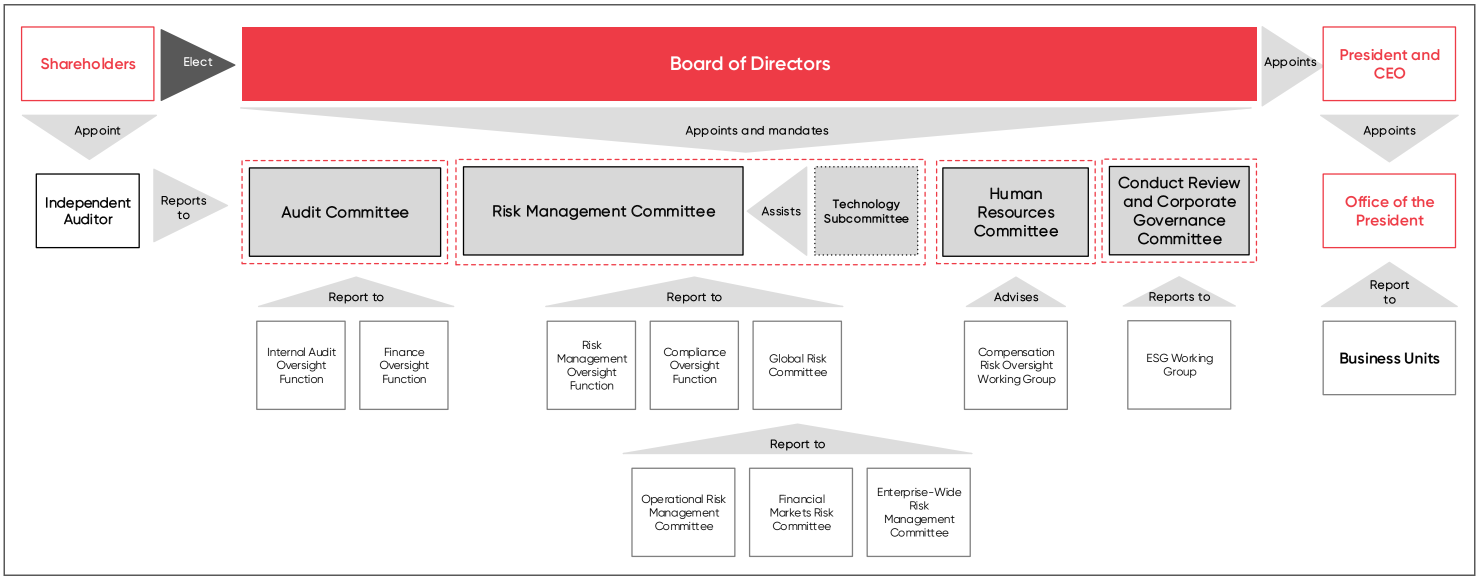
- Tone set by management: The Bank's management continually promotes risk management through internal communications. The Bank's risk management is therefore known to all.
- Shared accountability: A balanced approach is advocated, whereby business development initiatives are combined with a constant focus on sound and effective risk management. In particular, risk is taken into consideration when preparing the segments' business plans, when analyzing strategic initiatives, and when launching new products.
- Transparency: A foundation of the business's values, transparency lets us communicate our concerns quickly without fear of reprisal. We are a learning-focused organization where employees are allowed to make mistakes.
- Behaviour: The Bank's risk management is strengthened by incentive compensation programs that are structured to reflect the Bank's risk appetite.
- Continuous development: All employees must complete mandatory annual regulatory compliance training focused on the Bank's *Code of Conduct and Ethics* and on anti-money laundering and anti-terrorist financing (AML/ATF) efforts as well as cybersecurity training. Risk management training is also offered across all segments of the Bank.

In addition to these five pillars, Internal Audit carries out an evaluation of the culture as part of its mandate. Furthermore, to ensure the effectiveness of the existing risk management framework, the Bank has defined clear roles and responsibilities by reinforcing the concept of the three lines of defence. The Governance Structure section presented on the following pages defines this concept as well as the roles and responsibilities at all levels of the organization.

First Line of Defence Risk Owner	**Second Line of Defence** Independent Oversight	**Third Line of Defence** Independent Assurance
Business Units	Risk Management and Oversight Functions	Internal Audit
• Identify, manage, assess and mitigate risks in day-to-day activities. • Ensure activities are in alignment with the Bank's risk appetite and risk management policies.	• Oversee risk management by setting policies and standards. • Provide independent oversight of management practices and an independent challenge of the first line of defence. • Promote sound risk management at the Bank. • Monitor and report on risk.	• Provide the Board and management with independent assurance as to the effectiveness of the main governance, risk management, and internal control processes and systems. • Provide recommendations and advice to promote the Bank's long-term financial strength.

Governance Structure *

The following chart shows the Bank's overall governance architecture and the governance relationships established for risk management.



The Board of Directors (Board)[1]

The Board is responsible for approving and overseeing the management of the Bank's internal and commercial affairs and it establishes, together with management, strategic directions. It also approves and oversees the Bank's overall risk philosophy and risk appetite, acknowledges and understands the main risks faced by the Bank, and makes sure appropriate systems are in place to effectively manage and control those risks. In addition, the Board ensures that the Bank operates in accordance with environmental, social and governance (ESG) practices and strategies. It performs its mandate both directly and through its committees: the Audit Committee, the Risk Management Committee (including the Technology Subcommittee), the Human Resources Committee, and the Conduct Review and Corporate Governance Committee. In addition, the various oversight functions, the Global Risk Committee and the working groups report to the Board and advise it.

The Audit Committee[1]

The Audit Committee oversees the work of the Bank's internal auditor and independent auditor; ensures the Bank's financial strength; establishes the Bank's financial reporting framework, analysis processes and internal controls; and reviews any reports of irregularities in accounting, internal controls, and audit.

The Risk Management Committee (RMC)[1]

The Risk Management Committee examines the risk appetite framework and recommends it to the Board for approval. It approves the main risk management policies and risk tolerance limits. It ensures that appropriate resources, processes and procedures are in place to properly and effectively manage risk on an ongoing basis. Finally, it monitors the risk profile and risk trends of the Bank's activities and ensures alignment with the risk appetite.

The Technology Subcommittee[1]

The Technology Subcommittee assists the Risk Management Committee and supports it on, among other things, the Bank's technology strategy and the monitoring and management of technology risks, including cyberrisks, cybercrime, and protection of personal information.

The Human Resources Committee[1]

The Human Resources Committee examines and approves the Bank's total compensation policies and programs, taking into consideration the risk management framework, and recommends their approval to the Board. It sets annual objectives and key performance indicators for the President and Chief Executive Officer, recommends, that they be approved by the Board, and evaluates the performance and achievements against these objectives and indicators. It recommends, for Board approval, the compensation of the President and Chief Executive Officer, of the members of the Office of the President, and of the heads of the oversight functions. It makes sure that the Bank has effective human resources management programs and that the organizational culture is aligned with the Bank's ESG practices and strategies. This Committee oversees all human resource practices, in particular employee health and well-being, talent management, inclusion, and diversity. It also periodically reviews and examines the management succession plan.

The Conduct Review and Corporate Governance Committee[1]

The Conduct Review and Corporate Governance Committee ensures that the Bank maintains sound practices that comply with legislation and best practices, particularly in the area of ESG responsibilities, and that align with the Bank's One Mission. It ensures that the directors are qualified by evaluating the performance and effectiveness of the Board and its members and by planning director succession and the composition of the Board. The Committee ensures that mechanisms are in place to prevent prohibited financial transactions between the Bank and related parties.

(1) Additional information about the Bank's governance architecture can be found in the *Management Proxy Circular for the 2022 Annual Meeting of Holders of Common Shares*, which will soon be available on the Bank's website at nbc.ca and on SEDAR's website at sedar.com. The mandates of the Board and of its committees and subcommittee are available in their entirety at nbc.ca.

The Office of the President and the Bank's Management
Composed of the President and Chief Executive Officer and the officers responsible for the Bank's main functions and business units, the Office of the President ensures that risk management is effective and aligned with the Bank's pursuit of its objectives and strategies. The Bank's management promotes the integration of risk management into its corporate culture and manages the primary risks facing the Bank.

The Internal Audit Oversight Function
The Internal Audit Oversight Function is the third line of defence in the risk management framework. It is responsible for providing the Bank's Board and management with objective, independent assurance on the effectiveness of the main governance, risk management, and internal control processes and systems and for making recommendations and providing advice to promote the Bank's long-term strength.

The Finance Oversight Function
The Finance Oversight Function is responsible for optimizing management of financial resources and ensuring sound governance of financial information. It helps the business segments and support functions with their financial performance, ensures compliance with regulatory requirements, and carries out the Bank's reporting to shareholders and the external reporting of the various units, entities and subsidiaries of the Bank. It is responsible for capital management and actively participates in the activities of the Asset/Liability Management Committee.

The Risk Management Oversight Function
The Risk Management Oversight Function is responsible for identifying, assessing and monitoring—independently and using an integrated approach—the various risks to which the Bank and its subsidiaries are exposed and for promoting a risk management culture within the Bank. The Risk Management team helps the Board and management understand and monitor the main risks. The unit also develops, maintains and communicates the risk appetite framework while overseeing the integrity and reliability of risk measures.

The Compliance Oversight Function
The Compliance Oversight Function is responsible for implementing a Bank-wide regulatory compliance risk management framework by relying on an organizational structure that includes functional links to the main business segments. It also exercises independent oversight and evaluation of the compliance of the Bank and its subsidiaries with standards and policies on regulatory compliance risk.

The Global Risk Committee (GRC)
The Global Risk Committee defines the parameters of the policies that determine risk tolerance and the overall risk strategy, for the Bank and its subsidiaries as a whole, and sets limits as well as tolerance and intervention thresholds enabling the Bank to properly manage the main risks to which it is exposed. The committee approves and monitors all large credit facilities. It also recommends for Board approval the Bank's risk philosophy, risk appetite and risk profile management. The Operational Risk Management Committee, the Financial Markets Risk Committee, and the Enterprise-Wide Risk Management Committee presented in the governance structure chart are the primary committees reporting to the Global Risk Committee. The Global Risk Committee also carries out its mandate through the Senior Complex Valuation Committee, the Committee on Banks, the Models Oversight Committee, and the Product and Activity Review Committees.

The Compensation Risk Oversight Working Group
The working group that monitors compensation-related risks supports the Human Resources Committee in its compensation risk oversight role. It is a three-member group consisting of the Executive Vice-President, Risk Management; the Chief Financial Officer and Executive Vice-President, Finance; and the Executive Vice-President, Employee Experience. The working group helps to ensure that compensation policies and programs do not unduly encourage senior management members, officers, material risk takers or bank employees to take risks beyond the Bank's risk tolerance thresholds. As part of that role, it ensures that the Bank is adhering to the Corporate Governance Guidelines issued by OSFI and to the Principles for Sound Compensation Practices issued by the Financial Stability Board, for which the Canadian implementation and monitoring is conducted by OSFI. The Board's RMC also reviews the reports presented by this working group.

The ESG Working Group
Under the leadership of the Chief Financial Officer and Executive Vice-President, Finance, and made up of several officers from different areas of the Bank, the ESG Working Group's main role is to develop and support the Bank's ESG initiatives and strategies. Its members meet on a monthly basis. The ESG Working Group is responsible for implementing the recommendations made by the Task Force on Climate-related Financial Disclosures (TCFD) and by the UN Principles for Responsible Banking as well as for implementing the Bank's climate commitments, including the net-zero GHG emissions target. At least twice a year, the ESG Working Group reports to the Conduct Review and Governance Committee on the progress made and on ongoing and upcoming ESG projects. In addition, and in a timely fashion, the ESG Working Group makes presentations on topics of particular interest, such as the TCFD report, to the Audit Committee and the RMC.

The Business Units
As the first line of defence, the business units manage risks related to their operations within established limits and in accordance with risk management policies by identifying, analyzing, managing, and understanding the risks to which they are exposed and implementing risk mitigation mechanisms. The management of these units must ensure that employees are adhering to current policies and limits.

Risk Management Policies
The risk management policies and related standards and procedures set out responsibilities, define and describe the main activity-related risks, specify the requirements that the business units must meet in assessing and managing risk, stipulate the authorization process for risk-taking, and set the risk limits to be adhered to. These policies cover the Bank's main risks, are reviewed regularly to ensure they are still relevant given market changes, regulatory changes and changes in the business plans of the Bank's business units, and apply to the entire Bank and its subsidiaries, when applicable. Other policies, standards, and procedures complement the main policies and cover more specific aspects of risk management such as business continuity; the launch of new products, initiatives, or activities; or financial instrument measurement.

Governance of Model Risk Management
The Bank makes increasing use of models to guide enterprise-wide risk management, financial markets strategy, economic and regulatory capital allocation, global credit risk management, wealth management, and profitability measures. Models have in fact become a standard in risk management. This stresses the growing importance of model risk for banks, which explains the implementation of a rigorous model risk management process to ensure models can be used appropriately and efficiently to manage risks.

The key components of the Bank's model risk management governance framework are as follows: the model risk management policies and standards, the model vetting group, and the Models Oversight Committee. The policies and standards set the rules and principles applicable to the development and independent vetting of models. The scope of models covered is wide, ranging from market risk pricing models and automated credit decision-making models to the business risk capital model, including models used for regulatory capital and stressed capital purposes, expected credit losses models, and financial-crime models. The framework also includes more advanced artificial intelligence models.

One of the cornerstones of the Bank's policies is the general principle that all models deemed important for the Bank or used for regulatory capital purposes require heightened lifecycle monitoring and independent vetting. All models used by the Bank are therefore classified in terms of risk level (low, medium, or high). Based on this classification, the Bank applies strict guidelines regarding the requirements for model development and documentation, independent review thereof, performance monitoring thereof, and minimum review frequency. The Bank believes that the best defence against "model risk" is the implementation of a robust development and validation framework.

Independent Oversight by the Compliance Service
Compliance is an independent oversight function within the Bank. Its Senior Vice-President, Chief Compliance Officer and Chief Anti-Money Laundering Officer have direct access to the RMC and to the President and Chief Executive Officer and can communicate directly with officers and directors of the Bank and of its subsidiaries and foreign centres. The Senior Vice-President, Chief Compliance Officer and Chief Anti-Money Laundering Officer regularly meets with the Chair of the RMC (with whom she has a direct reporting relationship) in the absence of management, to review matters on the relationship between the Compliance Service and the Bank's management and on access to the information required.

Business unit managers must oversee the implementation of mechanisms for the daily control of regulatory compliance risks arising from the operations under their responsibility. Compliance exercises independent oversight in order to assist managers in effectively managing these risks and to obtain reasonable assurance that the Bank is compliant with the regulatory requirements in effect where it does business, both in Canada and internationally.

Independent Assessment by Internal Audit
Internal Audit is an independent, objective function within the Bank. Through the Audit Committee, it provides assurance to management and the Board as to the Bank's level of command over its activities, advises on how to improve those activities, and contributes to the creation of added value. It helps the Bank to achieve its objectives by assessing the effectiveness of its main governance, risk management, and internal control processes and systems and formulates recommendations and advice to promote the Bank's long-term financial strength.

The Senior Vice-President, Internal Audit, reports to the Chair of the Audit Committee. Her independence is ensured through an administrative relationship with the President and Chief Executive Officer, and she may, at any time, call an unscheduled Audit Committee meeting.

Top and Emerging Risks

Managing risk requires a solid understanding of every type of risk found across the Bank, as they could have a material adverse effect on the Bank's business, results of operations, financial position and reputation. As part of its approach to risk management, the Bank identifies, assesses, reviews and monitors the range of top and emerging risks to which it is exposed in order to proactively manage them and implement appropriate mitigation strategies. Identified top and emerging risks are presented to senior management and communicated to the RMC.

The Bank separately qualifies the risks to which it is exposed: a "top risk" is a risk that has been identified, is clearly defined, and could have a significant impact on the Bank's business, results of operations, financial position, and reputation, while an "emerging risk" is a risk that, while it may also have an impact on the Bank, is not well understood in terms of its likelihood, consequences, timing, or the extent of its potential impact.

In the normal course of business, the Bank is exposed to the following top risks.

Credit risk	Market risk	Funding and liquidity risk	Operational risk	Regulatory compliance risk	Reputation risk	Strategic risk	Environmental and social risk

Risks Related to the COVID-19 Pandemic
The COVID-19 pandemic has had and may continue to have disruptive and adverse effects in the countries where the Bank operates and, more broadly, on the global economy. It has also affected and may continue to affect the Bank and how it conducts business as well as its clients. This situation provides perspective on some of the top and emerging risks to which the Bank is exposed. Additional information is provided in the COVID-19 Pandemic section of this MD&A.

The Bank is also exposed to other so-called emerging or significant risks, which are defined as follows.

<table>
<tr><th>Risk and Trend</th><th>Description</th></tr>
<tr><td>Information security and cybersecurity
⇨</td><td>Technology, which is now omnipresent in our daily lives, is at the heart of banking services and has become the main driver of innovation in the financial sector. While this digital transformation meets the growing needs of customers by enhancing the operational efficiency of institutions, it nevertheless comes with information security and cybersecurity risks. The personal information and financial data of financial institution customers are prime targets for criminals. These criminals, who are increasingly well organized and employing ever more sophisticated schemes, try to use technology to steal information.

Faced with a resurgence of cyberthreats and the sophistication of cybercriminals, the Bank is exposed to the risks associated with data breaches, malicious software, unauthorized access, hacking, phishing, identity theft, intellectual property theft, asset theft, industrial espionage, and possible denial of service due to activities causing network failures and service interruptions.

Cyberattacks, as with system breaches or interruptions that support the Bank and its customers, could cause client attrition; financial loss; inability of clients to do their banking; non-compliance with privacy legislation or any other laws in effect; legal disputes; fines; penalties or regulatory action; reputational damage; compliance costs, corrective measures, investigative, or restoration costs; cost hikes to maintain and upgrade technological infrastructures and systems, all of which could affect the Bank's operating results or financial position, in addition to having an impact on its reputation.

It is also possible for the Bank to be unable to prevent or implement effective preventive measures against every potential cyberthreat, as the tactics used are multiplying, change frequently, come from a wide range of sources, and are increasingly sophisticated.

Within this context, the Bank works to ensure the integrity and protection of its systems and the information they contain. The Bank reaffirms its commitment to continuous improvement in the area of information security, the ultimate goal being to protect its customers and maintain their trust. Along with its partners in the financial sector and with the regulatory authorities, the Bank is committed to making a sustained effort to mitigate technology risks. Measures specifically directed at anticipating this type of threat include the formation of multidisciplinary teams comprising cybersecurity and fraud prevention specialists. The Bank is also pursuing initiatives under its own cybersecurity program aimed at adapting its protection, surveillance, detection, and response capabilities in response to changing threats, the aim being to continue to reduce delays in detecting any anomalies or cybersecurity incidents and limiting the impact thereof as much as possible. A governance and accountability structure has also been established to support decision-making based on sound risk management. The Technology Subcommittee is regularly informed of cybersecurity trends and developments and of lessons learned from operational incidents that have occurred in other large organizations in order to gain a better understanding of potential risks, particularly risks related to cybersecurity and the protection of personal information.

The risks related to protecting personal information exist throughout the lifecycle of the data and arise, in particular, from inadequate control measures and weak processes. Such risks can translate into financial risk, reputation risk, technology risk, and even legal risk, among others. Innovations and proliferation in technologies that collect, use, and share personal information have led to substantial legislative changes in recent years.

These changes have come about swiftly in several jurisdictions, including Canada and Quebec. In September 2021, the Quebec government passed An Act to modernize legislative provisions as regards the protection of personal information, which will gradually come into effect over the next three years. The tabling of a new federal bill is expected soon.

The Bank continues to monitor relevant legislative developments and has bolstered its governance structure by updating its policies and deploying a personal information privacy program that reflects its determination to maintain the trust of its clients.</td></tr>
</table>

Risk and Trend	Description
Geopolitical risk ↗	Government decisions and international relations can have a significant impact on the Bank's operating environment. Geopolitical events can lead to volatility, have a negative impact on at-risk assets, and cause financial conditions to deteriorate. They could also directly or indirectly affect banking activities by having an impact on clients. While new risks could arise at any time, we have some concerns compelling us to monitor certain current events. For one, the geopolitical power struggle between the United States and China has given cause for concern for a few years now, and these tensions could continue into the foreseeable future. Businesses, in particular those operating in sectors deemed strategic, run an increasing risk of finding themselves in a maze of contradictory regulations, where complying with U.S. regulations means violating Chinese law, and vice versa. These tensions could also partially undo some of the ties forged between these two superpowers in the financial markets, and Canada might get caught in the crosshairs of the two countries. The potential for confrontation is not limited to the China-U.S. relationship, as protectionism is gaining popularity and a growing number of countries are implementing measures to both financially support domestic businesses in key sectors (high tech, health care, and food) and to protect them against global competition through business restrictions. The combined effects of supply shortages and geopolitical tensions have shifted the focus from efficiency to supply security. We will continue to monitor all of these developments, analyze any new risks that arise, and assess the impacts that they may have on our organization.
Economic risk ↗	Although the economy recovered quickly during the pandemic, a number of risks still remain. Despite high vaccination rates in Canada, the evolution of the pandemic remains uncertain, and vaccines are not readily accessible in several emerging countries. Against this backdrop, another wave of the pandemic or the emergence of a more aggressive variant could result in a return to stricter health measures and slow the recovery of certain sectors of the economy. If this were to occur, consumer and business confidence could be rattled and weaken economic activity. Moreover, uncertainty persists regarding inflation forecasts. While central banks believe the current high level of inflation to be temporary, there is a risk that supply chain bottlenecks will not be resolved as swiftly as anticipated. Conversely, if inflation proves to be more persistent, it could erode consumer buying power and lead to a less dynamic economic recovery. However, workers seem to be in a good position to negotiate salaries in light of the current labour shortages, which presents another risk, i.e., the risk of spiralling inflation created by higher wages. If this scenario of unchecked inflation were to occur (above target), central banks could push for a tighter monetary policy by raising interest rates substantially. Due to extraordinary monetary measures, interest rates have remained quite low worldwide. This environment may have led to excessive risk-taking strategies on the part of market proponents seeking additional returns, which could create negative impacts if interest rates should suddenly spike. This would serve as a major headwind for the real estate sector and Canadian households, which have seen their debt levels rise sharply over the past few years. Lastly, climate issues are an added risk in the current context. If too few measures are adopted on the climate front, severe weather events will intensify and result in economic woes over the long term. Conversely, a too-swift transition could result in other risks, particularly short- and medium-term costs and rising pressure on production costs. In short, given the ongoing uncertainties in this environment, the Bank remains vigilant in the face of numerous factors and continues to rely on its strong risk management framework to identify, assess, and mitigate the negative impacts while also remaining within its risk appetite limits.
Reliance on technology and third-party providers ⇨	The Bank is reliant on technology, as clients are seeking greater access to products and services on a variety of platforms that must support substantial data volumes. The fast pace of technological change combined with both client and competitive pressures require significant and sustained technology investments. Inadequate implementation of technological improvements or new products or services could significantly affect the Bank's ability to serve and retain clients. Third parties provide essential components of the Bank's technological infrastructure such as Internet connections and access to network and other communications services. The Bank also relies on the services of third parties to support certain business processes and to handle certain IT activities. An interruption of these services or a breach of security could have an unfavourable impact on the Bank's ability to provide products and services to its customers and to conduct business, not to mention the impact that such events would have on the Bank's reputation. To mitigate this risk, the Bank has a third-party risk management framework wherein information security, financial health, and performance are validated before any agreements are reached and throughout the life of the agreements. It also includes business continuity plans, which are tested periodically to ensure their effectiveness in times of crisis. A governance and accountability structure has also been established to support decision-making based on sound risk management. Despite these preventive measures and the efforts deployed by the Bank to manage third parties, there remains a possibility that certain risks will materialize. In such cases, the Bank would rely on mitigation mechanisms developed in collaboration with the various agreement owners and third parties concerned. Aware of the significance of third-party risk, the Bank makes sure that its practices evolve in collaboration with its financial sector partners and with regulatory authorities.

Risk and Trend	Description
Climate change	In accordance with the TCFD's recommendations, the Bank has identified two types of relevant climate change-related risks (climate risk), i.e., physical risks and transition risks. Physical risks refer to the potential impacts of more frequent and more intense extreme weather events or of chronic changes in weather conditions on physical assets, infrastructures, the value chain, and other physical aspects. Transition risks refer to the potential impacts of moving toward a low-carbon economy (such as technological changes or political or public policy shifts designed to reduce GHG emissions through taxes or incentives) as well as to regulatory changes made to manage and support such an economy. Managing climate risk has become increasingly important, as evidenced by the interest level in this risk, aligned over a societal, political and regulatory landscape in constant flux, shown by the Bank's stakeholders, in particular clients, shareholders, governments, and regulators. It is possible that the Bank's or its clients' business models fail to align with a low-carbon economy or that their responses to government strategies and regulatory changes prove inadequate or fail to achieve the target objectives. As such, these risks could result in financial losses for the Bank, affect its operations and the way it conducts business, harm its reputation and increase its regulatory compliance risk, or even affect the activities and financial position of the clients to whom it offers financial services. The actual impact of climate risk will depend on future events that are beyond the Bank's control. The Bank must therefore devote special attention to reducing its exposure to these negative outside factors and, at the same time, to seizing new growth opportunities. While the Bank is committed to doing everything in its power to mitigate climate risk and to support the move to a low-carbon economy, it cannot predict the effectiveness of government-led climate strategies or of regulatory changes enacted, nor can it assume responsibility for achieving the objectives set out in these strategies and changes. The Bank continues to closely monitor developments on this topic and to deploy its climate change risk management framework. For additional information, see the Environmental and Social Risk section of this MD&A.
Technological innovation and competition	On one hand, the Bank's financial performance depends on its ability to develop and market new and innovative products and services, adopt and develop new technologies that help differentiate its products and services and generate cost savings, and market these new products and services at the right time and at competitive prices. On the other hand, failure to properly review critical changes within the business before and during the implementation and deployment of key technological systems or failure to align client expectations with the Bank's client commitments and operating capabilities could adversely affect the Bank's business, operating results, financial position, and reputation. The transition towards new digital channels and solutions has accelerated greatly following the COVID-19 pandemic, where demand for digital banking services grew to the detriment of traditional banking services. The arrival of new, non-conventional players in the market has intensified competitive pressure, as they offer new technologies that enhance the client experience due to the development of new data analysis tools and customized solutions while meeting user expectations for simplicity, and doing so at a lower cost. These new digital businesses, which are not necessarily subject to the same regulatory requirements, have the ability to react quickly to new consumer trends through the deployment of new technologies. As such, to mitigate disintermediation risk and help make innovative technologies accessible to its clients, the Bank continues to incorporate artificial intelligence into its business processes and it remains highly committed to innovation by making strategic investments in emerging technologies through its specialized venture capital arm NAventures.
Ability to recruit and retain key resources	The Bank's future performance depends greatly on its ability to recruit, develop, and retain key resources. There is strong competition in the financial services sector in terms of attracting and retaining the most qualified people, notably with the arrival of new players in certain sectors and the emergence of the global workforce concept. As a result, reports are periodically presented to the Board through the governance mechanisms of the Human Resources Committee, the aim being to deploy appropriate strategies to implement conditions favourable to the Bank's competitiveness as an employer. There is no assurance that the Bank or a business acquired by the Bank will be able to continue recruiting or retaining talented people.

Other Factors That Can Affect the Bank's Business, Operating Results, Financial Position, and Reputation

International Risks

Through the operations of some of its units (mainly its New York and London offices) and subsidiaries in Canada and abroad (in particular, Credigy Ltd., NBC Global Finance Limited, and Advanced Bank of Asia Limited), the Bank is exposed to risks arising from its presence in international markets and foreign jurisdictions. While these risks do not affect a significant proportion of the Bank's portfolios, their impact must not be overlooked, especially those that are of a legal or regulatory nature. Such risk can be particularly high when the exposure is in a territory where the enforceability of agreements signed by the Bank is uncertain, in countries and regions facing political or socio-economic disturbances, or in countries that may be subject to international sanctions. Generally speaking, there are many ways in which the Bank may be exposed to the risks posed by other countries, not the least of which being foreign laws and regulations. In all such situations, it is important to consider what is referred to as "country risk." Country risk affects not only the activities that the Bank carries out abroad but also the business that it conducts with non-resident clients as well as the services it provides to clients doing business abroad, such as electronic funds transfers, international products and transactions made from Canada in foreign currencies.

As part of its activities, the Bank must adhere to anti-money laundering and anti-terrorist financing (AML/ATF) regulatory requirements in effect in each jurisdiction where it conducts business. It must also comply with the requirements pertaining to current international sanctions in these various jurisdictions. Money laundering and terrorist financing is a financial, regulatory, and reputation risk. For additional information, see the Regulatory Compliance Risk Management section of this MD&A.

The Bank is exposed to financial risks outside Canada and the United States primarily through its interbank transactions on international financial markets or through international trade finance activities. This geographic exposure represents a moderate proportion of the Bank's total risk. The geographic exposure of loans is disclosed in the quarterly *Supplementary Financial Information* report available on the Bank's website at nbc.ca. To control country risk, the Bank sets credit concentration limits by country and reviews and submits them to the Board for approval upon renewal of the Credit Risk Management Policy. These limits are based on a percentage of the Bank's regulatory capital, in line with the level of risk represented by each country, particularly emerging countries. The risk is rated using a classification mechanism similar to the one used for credit default risk. In addition to the country limits, authorization caps and limits are established, as a percentage of capital, for the world's high-risk regions, i.e., essentially all regions except for North America, Western European countries and the developed countries of Asia.

Acquisitions

The Bank's ability to successfully complete an acquisition is often conditional on regulatory approval, and the Bank cannot be certain of the timing or conditions of regulatory decisions. Acquisitions could affect future results should the Bank experience difficulty integrating the acquired business. If the Bank does encounter difficulty integrating an acquired business, maintaining an appropriate governance level over the acquired business, or retaining key officers within the acquired business, these factors could prevent the Bank from realizing expected revenue growth, cost savings, market share gains, and other projected benefits of the acquisition.

Intellectual Property

The Bank protects the intellectual property developed by its employees in connection with their duties. However, in some cases, it may have a more limited ability to acquire intellectual property rights. Moreover, the intellectual property rights acquired by the Bank provide no guarantees that they will be effective in deterring or preventing a third party from misappropriating intellectual property or providing a defense against the misappropriation of intellectual property. Moreover, the goods and services developed by the Bank are provided in a competitive market where third parties could hold intellectual property rights prior to those held by the Bank. In such circumstances, there is no guarantee that the Bank will successfully provide a defense against an infringement claim, that it will be able to modify its goods and services to avoid infringing upon third party rights, or that it will obtain a licence with commercially acceptable conditions.

Judicial and Regulatory Proceedings

The Bank takes reasonable measures to comply with the laws and regulations in effect in the jurisdictions where it operates. Should these measures prove ineffective, the Bank could be subject to judicial or regulatory decisions resulting in fines, damages, or other costs or to restrictions likely to adversely affect its operating results or its reputation. The Bank may also be subject to litigation in the normal course of business. Although the Bank establishes provisions for the measures it is subject to under accounting requirements, actual losses resulting from such litigation could differ significantly from the recognized amounts, and unfavourable outcomes in such cases could have a significant adverse effect on the Bank's operating results. The resulting reputational damage could also affect the Bank's future business prospects. For additional information, see Note 26 to the consolidated financial statements.

Tax Risk

The tax laws applicable to the Bank are numerous, complex, and subject to amendment. This complexity can result in differing legal interpretations between the Bank and the respective tax authorities with which it deals. In addition, legislative changes and changes in tax policy, including their interpretation by tax authorities and courts, can affect the Bank's earnings. International and domestic initiatives may result in changes to tax laws and policies, including international efforts by the G20 and the Organisation for Economic Co-operation and Development to broaden the tax base and potential domestic proposals to increase the taxes payable by banks and insurance companies. For additional information on income taxes, see the Income Taxes section on page 56 of this MD&A, the Critical Accounting Policies and Estimates section on page 112 of this MD&A, and Note 24 to the consolidated financial statements.

Accounting Policies, Methods and Estimates Used by the Bank
The accounting policies and methods used by the Bank determine how the Bank reports its financial position and operating results and require management to make estimates or rely on assumptions about matters that are inherently uncertain. Any changes to these estimates and assumptions may have a significant impact on the Bank's operating results and financial position.

Additional Factors
Factors that could affect the Bank's business, operating results, and reputation include unexpected changes in consumer spending and saving habits, the timely development and launch of new products and services, the ability to successfully align its organizational structure, resources and processes, the ability to activate a business continuity plan within a reasonable time, the potential impact of international conflicts, natural catastrophes or public health emergencies such as COVID-19, and the Bank's ability to foresee and effectively manage the risks associated with these factors through rigorous risk management.

Credit Risk

Credit risk is the risk of incurring a financial loss if an obligor does not fully honour its contractual commitments to the Bank. Obligors may be debtors, issuers, counterparties, or guarantors. Credit risk is the most significant risk facing the Bank in the normal course of business. The Bank is exposed to credit risk not only through its direct lending activities and transactions but also through commitments to extend credit, letters of guarantee, letters of credit, over-the-counter derivatives trading, debt securities, securities purchased under reverse repurchase agreements, deposits with financial institutions, brokerage activities, and transactions carrying a settlement risk for the Bank such as irrevocable fund transfers to third parties via electronic payment systems.

The COVID-19 pandemic has had, and could continue to have, impacts on the Bank's clients. Since a large part of the Bank's activities consist of granting loans or providing various liquidity channels to clients, namely, to individuals, businesses in various sectors, and governments, the impacts of the pandemic on these parties could have significant impacts on the provisions for credit losses recorded by the Bank.

Governance
A policy framework centralizes the governance of activities that generate credit risk for the Bank and its subsidiaries and is supplemented by a series of subordinate internal policies and standards. These policies and standards address specific management issues such as concentration limits by borrower group and sector, credit limits, collateral requirements and risk quantification or issues that provide more thorough guidance for given business segments.

For example, the institutional activities of the Bank and its subsidiaries on financial markets and international commercial transactions are governed by business unit directives that set out standards adapted to the specific environment of these activities. This also applies to retail brokerage subsidiaries. In isolated cases, a business unit or subsidiary may have its own credit policy, and that policy must always fall within the spirit of the Bank's policy framework. Risk Management's leadership team defines the scope of the universe of subsidiaries carrying significant credit risks and the magnitude of the risks incurred.

Credit risk is controlled through a rigorous process that comprises the following elements:

- credit risk rating and assessment;
- economic capital assessment;
- stress testing and crisis scenarios;
- credit granting process;
- revision and renewal process;
- risk mitigation;
- follow-up of monitored accounts and recovery;
- counterparty risk assessment;
- settlement risk assessment;
- environmental risk assessment.

Concentration Limit
The Bank sets credit concentration and settlement limits by obligor group (businesses, oil and gas producers, government sectors, banks), by industry sector, by country and by region. These limits are subject to the approval of the RMC. Certain types of financing or financing programs are also subject to specific limits. Breaches of concentration limits by obligor group or by region are reported to the RMC each quarter. Furthermore, every industry sector, country, and region whose exposure equals a predetermined percentage of the corresponding authorized limit are reported to the Bank's Risk Management leadership team. At least once a year, the Bank revises these exposures by industry sector, by country, and by region in order to determine the appropriateness of the corresponding concentration limits.

Reporting

Every quarter, an integrated risk management report is presented to senior management and the RMC. It presents changes in the credit portfolio and highlights on the following matters:

- credit portfolio volume growth by business segment;
- a breakdown of the credit portfolio according to various criteria for which concentration limits have been set;
- changes in provisions and allowances for credit losses;
- changes in impaired loans;
- follow-up of monitored accounts.

Credit Risk Rating and Assessment

Before a sound and prudent credit decision can be made, the obligor's or counterparty's credit risk must be accurately assessed. This is the first step in processing credit applications. Each application is analyzed and assigned one of 19 grades on a scale of 1 to 10 using a credit rating system developed by the Bank for all portfolios exposed to credit risk. As each grade corresponds to a debtor's, counterparty's or third party's probability of default, the Bank can estimate the credit risk. The credit risk assessment method varies according to portfolio type. There are two main methods for assessing credit risk, i.e., the Advanced Internal Rating-Based (AIRB) Approach and the Standardized Approach, as defined by the Basel Accord to determine minimum regulatory capital requirements for most of its portfolios.

The main parameters used to measure the credit risk of loans outstanding and undrawn amounts under the AIRB Approach are as follows:

- probability of default (PD), which is the probability of through-the-cycle 12-month default by the obligor, calibrated on a long-run average PD throughout a full economic cycle;
- loss given default (LGD), which represents the magnitude of the loss from the obligor's default that would be expected in an economic downturn and subject to certain regulatory floors, expressed as a percentage of exposure at default;
- exposure at default (EAD), which is an estimate of the amount drawn and of the expected use of any undrawn portion prior to default, and cannot be lower than the current balance.

The methodology as well as the data and the downturn periods used to estimate LGD are described below.

AIRB APPROACH	DATA[1]	DOWNTURN PERIOD[1]	METHODOLOGY FOR CALCULATING LGD
Retail	The Bank's internal historical data from 1996 to 2019	1996-1998 and 2008-2009	LGD based on the Bank's historical internal data on recoveries and losses
Corporate	The Bank's internal historical data from 2000 to 2018 Benchmarking results using: • Moody's observed default price of bonds, from 1983 to 2017 • Global Credit Data Consortium historical loss and recovery database from 1998 to 2018	2000-2003, 2008-2009 and 2015-2016	LGD based on the Bank's historical internal data on recoveries and losses
Sovereign	Moody's observed default price of bonds, from 1983 to 2015 S&P rating history from 1975 to 2016	1999-2001 and 2008-2012	Based on implied market LGD using observed bond price decreases following the issuer's default
Financial institutions	Global Credit Data Consortium historical loss and recovery database from 1991 to 2013	1991-1992, 1994, 1997-1998, 2001-2002 and 2008-2009	Model for predicting LGD based on different issue- and issuer-related risk drivers

(1) The performance of the models resulting from the AIRB Approach is measured quarterly, and the methodologies are validated by an independent third party annually. A report on model performance under the AIRB Approach is presented annually to the RMC. According to the most recent performance report, the models continue to perform well and do not require the addition of new data.

Personal Credit Portfolios

This category comprises portfolios of residential mortgage loans, consumer loans and loans to certain small businesses. To assess credit risk, AIRB models are in place for the main portfolios, particularly mortgage loans, home equity lines of credit, credit cards, budget loans, lines of credit, and SME retail. A risk analysis based on loan grouping in pools of homogeneous obligor and product profiles is used for overall management of personal credit portfolios. This personal credit assessment approach, which has proven particularly effective for estimating credit defaults and losses, takes a number of factors into account, namely:

- behaviour scoring;
- loan product characteristics;
- collateral provided;
- the length of time on the Bank's balance sheet;
- loan status (active, delinquent or defaulted).

This mechanism provides adequate risk measurement inasmuch as it effectively differentiates risk levels by pool. Therefore, the results are periodically reviewed and, if necessary, adjustments are made to the models. Obligor migrations between pools are among the factors considered in the credit risk assessment.

Loan pools are also established based on PD, LGD, and EAD, which are measured based on the characteristics of the obligor and the transaction itself. The credit risk of these portfolios is estimated using credit scoring models that determine the obligor's PD. LGD is estimated based on transaction-specific factors such as loan product characteristics (for example, a line of credit versus a term loan), loan-to-value ratio, and types of collateral.

Credit scoring models are also used to grant credit. These models use proven statistical methods that measure debtors' demand characteristics and history based on internal and external historical information to estimate the debtors' future credit behaviour and assign a probability of default. The underlying data include debtor information such as current and past employment, historical loan data in the Bank's management systems and information from external sources such as credit rating agencies.

The Bank also uses behaviour scoring models to manage and monitor current commitments. The risk assessment is based on statistical analyses of the past behaviour of obligors with which the Bank has a long-term relationship in an effort to predict their future behaviour. The underlying information includes the obligor's cash flows and borrowing trends. Information on characteristics that determine behaviour in these models also comes from both internal sources on current commitments and external sources. The table on the following page presents the PD categories and the credit quality of the associated personal credit portfolio.

Mortgage Loan Underwriting

In order to mitigate the impact of an economic slowdown and ensure the long-term quality of its portfolio, the Bank uses sound risk management when granting residential mortgages to confirm: (i) the obligor's intention to meet its financial obligations, (ii) the obligor's ability to repay its debts, and (iii) the quality of the collateral. In addition, in accordance with the applicable rules, the Bank takes a prudent approach to client qualification by using, for example, a higher interest rate to mitigate the risk of short- or medium-term rate increases.

Nonetheless, the risk of economic slowdown could adversely affect the profitability of the mortgage portfolio. In stress test analyses, the Bank considers a variety of scenarios to measure the impact of adverse market conditions. In such circumstances, our analyses show significantly higher credit losses, which would decrease profitability and reduce the Bank's capital ratios.

New Regulatory Developments

On April 8, 2021, OSFI announced a resumption of its consultation on the minimum qualifying interest rate for uninsured mortgages and re-emphasized the importance of sound mortgage underwriting. On May 20, 2021, OSFI announced that, effective June 1, 2021, the minimum qualifying interest rate for uninsured mortgages (i.e., residential mortgages with a downpayment of at least 20%) will be the greater of the mortgage contractual rate plus 2% or a floor of 5.25%. In addition, OSFI is requiring that the qualifying interest rate be reviewed at least once a year, in December, to ensure it remains appropriate to market risks.

OSFI is aware that Canada's post-pandemic economic recovery hinges on a strong financial system that can support Canadians in today's environment and that conditions in the current Canadian real estate market could put lenders at increased financial risk. As such, at this time, OSFI is taking proactive action to ensure the sustained resilience of banks. The minimum qualifying interest rate adds a margin of safety that ensures borrowers will have the ability to make mortgage payments in the event of a change in circumstances, such as a reduction in income or a rise in mortgage interest rates.

Business and Government Credit Portfolios
This category comprises business (other than some small businesses that are classified in personal credit portfolios), government and financial institution credit portfolios.

These credit portfolios are assigned a risk rating based on a detailed individual analysis of the financial and non-financial aspects of the obligor, including the obligor's financial strength, sector of economic activity, competitive ability, access to capital management quality and number of years in business. The Bank has risk-rating tools and models enabling it to specifically assess the risk represented by an obligor in relation to its industry and peers. The models used are adapted to the obligor's broad sector of activity. Models are in place for ten sectors: business/commercial, large business, financial institutions, sovereigns, investment funds, energy, real estate, agriculture, insurance, and public-private partnership project financing.

This risk assessment method assigns a default risk rating to an obligor that reflects its credit quality. To each default credit risk rating corresponds a PD (see the table below). Using this classification of obligor credit risk, the Bank can differentiate appropriately between the various assessments of an obligor's capacity to meet its contractual obligations. Default risk ratings are assigned according to an assessment of an obligor's commercial and financial risks based on a solvency review. Various risk quantification models, described below, are used to perform this assessment.

The business and government default risk rating scale used by the Bank is similar to the systems used by major external rating agencies. The following table presents a grouping of the ratings by major risk category and compares them with the ratings of two major rating agencies.

Internal Default Risk Ratings*

Description[(1)]	Personal credit portfolios					Business and government credit portfolios
	PD (%) – Retail	Ratings	PD (%) – Corporate and financial institutions	PD (%) – Sovereign	Standard & Poor's	Moody's
Excellent	0.000–0.144	1–2.5	0.000–0.125	0.000–0.094	AAA to A-	Aaa to A3
Good	0.145–0.506	3–4	0.125–0.451	0.094–0.464	BBB+ to BBB-	Baa1 to Baa3
Satisfactory	0.507–2.681	4.5–6.5	0.451–4.743	0.464–6.607	BB+ to B	Ba1 to B2
Special mention	2.682–9.348	7–7.5	4.743–11.161	6.607–19.120	B- to CCC+	B3 to Caa1
Substandard	9.349–9.999	8–8.5	11.161–99.999	19.120–99.999	CCC & CCC-	Caa2 & Caa3
Default	1	9–10	100	100	CC, C & D	Ca, C & D

(1) Additional information is provided in Note 7 – *Loans and Allowances for Credit Losses* to the consolidated financial statements.

The Bank also uses individual assessment models by industry to assign a risk rating to the credit facility based on the collateral and guarantees the obligor is able to provide and, in some cases, based on other factors. The Bank consequently has a bi-dimensional risk-rating system that, using models and based on internal and external historical data, establishes a default risk rating for each obligor. In addition, the models assign, to each credit facility, an LGD risk rating that is independent of the default risk rating assigned to the obligor.

The Bank's default risk ratings and LGD risk ratings as well as the related risk parameters contribute directly to informed credit-granting, renewal and monitoring decisions. They are also used to determine and analyze risk-based pricing. In addition, from a credit portfolio management perspective, they are used to establish counterparty credit concentration limits and segment concentration limits as well as limits to decision-making power and to determine the credit risk appetite of these portfolios. Moreover, they represent an important component in estimating expected and unexpected losses, measuring minimum required economic capital, and measuring the minimum level of capital required, as prescribed by the regulatory authorities.

The credit risk of obligors and of their facilities is assessed with the PD and LGD parameters at least once a year or more often if significant changes (triggers) are observed when updating financial information or if another qualitative indicator of a deterioration in the obligor's solvency or in the collateral associated with the obligor's facilities is noted. A watchlist also exists that enables the Bank to more actively monitor the financial position of obligors whose default-risk rating is greater than or equal to 7.0. This process seeks to minimize an obligor's default risk and allows for proactive credit risk management.

Validation
The Risk Management Group monitors the effectiveness of the risk-rating systems and associated parameters, which are also reviewed regularly in accordance with the Bank's policies. Backtesting is performed at regular intervals to validate the effectiveness of the models used to estimate PD, LGD, and EAD. For PD in particular, this backtesting takes the form of sequentially applied measures designed to assess the following criteria:

- the model's discriminatory power;
- the proportion of overrides;
- model calibration;
- the stability of the model's inputs and outputs.

The credit risk quantification models are developed and tested by a team of specialists and their performance is monitored by the applicable business units and related credit risk management services. Models are validated by a unit that is independent of both the specialists who developed the model and the concerned business units. Approvals of new models or changes to existing models are subject to an escalation process established by the model risk management policy. Furthermore, new models or changes to existing models that markedly impact regulatory capital must be approved by the Board before being submitted to the regulatory agencies.

The facility and default risk-rating systems, methods and models are also subject to periodic independent validation as often as required given the model's risk level. Models that have a significant impact on regulatory capital must be reviewed regularly, thereby further raising the certainty that these quantification mechanisms are working as expected.

The key aspects to be validated are risk factors allowing for accurate classification of default risk by level, adequate quantification of exposure, use of assessment techniques that include external factors such as economic conditions and credit status and, lastly, compliance with internal policies and regulatory provisions.

The Bank's credit risk assessment and rating systems are overseen by the Models Oversight Committee, the GRC and the RMC, and are an integral part of a comprehensive Bank-wide credit risk oversight framework. Along with the above-mentioned elements, the Bank documents and periodically reviews the policies, definitions of responsibilities, resource allocation and existing processes.

Assessment of Economic Capital

The assessment of the Bank's minimum required economic capital is based on the credit risk assessments of debtors. These two activities are therefore interlinked. The different models used to assess the credit risk of a given portfolio type also enable the Bank to determine the default correlation among debtors. This information is a critical component in the evaluation of potential losses for all portfolios carrying credit risk. Estimates of potential losses, whether expected or not, are based on historical loss experience, portfolio monitoring, market data and statistical modelling. Expected and unexpected losses are factors used in assessing the minimum required economic capital for all of the Bank's credit portfolios. The assessment of economic capital also considers the anticipated potential migrations of obligors' default risk rating during the remaining term of their credit commitments. The main risk factors that have an impact on economic capital are as follows:

- the obligor's PD;
- the obligor's EAD;
- the obligor's LGD;
- the default correlation among various obligors;
- the residual term of credit commitments;
- the impact of economic and sector-based cycles on asset quality.

Stress Testing and Crisis Scenarios

The Bank carries out stress tests to evaluate its sensitivity to crisis situations in certain activity sectors and key portfolios. A global stress test methodology covers most business, government, and personal credit portfolios to provide the Bank with an overview of the situation. By simulating specific scenarios, these tests enable the Bank to measure allowance for credit losses according to IFRS 9 – *Financial Instruments* (IFRS 9) and the level of regulatory capital needed to absorb potential losses and also to determine the impact on its solvency. In addition, these tests contribute to portfolio management as they influence the determination of concentration limits by obligor, product, or business sector.

Credit-Granting Process

Credit-granting decisions are based first and foremost on the results of the risk assessment. Aside from an obligor's solvency, credit-granting decisions are also influenced by factors such as available collateral, transaction compliance with policies, standards and procedures, and the Bank's overall risk-adjusted return objective. Each credit-granting decision is made by authorities within the risk management teams and management who are independent of the business units and are at a reporting level commensurate with the size of the proposed credit transaction and the associated risk.

Decision-making authority is determined in compliance with the delegation of authority set out in the Credit Risk Management Policy. A person in a senior position in the organization approves credit facilities that are substantial or carry a higher risk for the Bank. The GRC approves and monitors all substantial credit facilities. Credit applications that exceed management's latitudes are submitted to the Board for approval. The credit-granting process demands a high level of accountability from managers, who must proactively manage the credit portfolio.

Review and Renewal Processes

The Bank periodically reviews credit files. The review process enables the Bank to update information on the quality of the facilities and covers, among other things, risk ratings, compliance with credit conditions, and obligor behaviour. In the specific case of business credit portfolios, the credit risk of all obligors is reviewed at least once per year. After this periodic review, for on-demand or unused credit, the Bank decides whether to pursue its business relationship with the obligor and, if so, revises the credit conditions. For personal credit portfolios, the credit risk of all obligors is reviewed on a continual basis.

Risk Mitigation
The Bank also controls credit risk using various risk mitigation techniques. In addition to the standard practice of requiring collateral to guarantee repayment of the credit it grants, the Bank also uses protection mechanisms such as credit derivative financial instruments, syndication and loan assignments as well as an orderly reduction in the amount of credit granted.

The most common method used to mitigate credit risk is to obtain quality collateral from obligors. Obtaining collateral cannot replace a rigorous assessment of an obligor's ability to meet its financial obligations, but, beyond a certain risk threshold, it is an essential complement. In certain circumstances, it is not necessary to take collateral. The need to take collateral depends on the level of risk presented by the obligor and the type of loan granted. However, if the level of risk to the Bank is considered high, collateral will likely be required. The legal validity and enforceability of any collateral obtained and the Bank's ability to correctly and regularly measure the collateral's value are critical for this mechanism to play its proper role in risk mitigation.

The Bank has established specific requirements in its internal policies with respect to the appropriate legal documentation and assessment for the kinds of collateral that business units may require to guarantee the loans granted. The categories of eligible collateral and the lending value of the collateralized assets have also been defined by the Bank. For the most part, they include the following asset categories as well as guarantees (whether secured by collateral or unsecured) and government and bank guarantees:

- accounts receivable;
- inventories;
- machinery and equipment and rolling stock;
- residential and commercial real estate, office buildings and industrial facilities;
- cash and marketable securities.

<u>Portfolio Diversification and Management</u>
The Bank is exposed to credit risk, not only through outstanding loans and undrawn amounts of commitments to a particular obligor but also through the sectoral distribution of the outstanding loans and undrawn amounts and through the exposure of its various credit portfolios to geographical, concentration, and settlement risks.

The Bank's approach to controlling these diverse risks begins with a diversification of exposures. Measures designed to maintain a healthy degree of diversification of credit risk in its portfolios are set out in the Bank's policies, standards, and procedures. These instructions are mainly reflected in the application of various exposure limits: credit concentration limits by counterparty and credit concentration limits by business sector, country, region, product, and type of financial instrument. These limits are determined based on the Bank's credit risk appetite framework and are reviewed periodically. Compliance with these limits, particularly exceptions, is monitored through periodic reports submitted by the Risk Management Group's officers to the Board.

Continuous analyses are performed in order to anticipate problems with a sector or obligor before they materialize as defaulted payments.

<u>Other Risk Mitigation Methods</u>
Credit risk mitigation measures for transactions in derivative financial instruments, which are regularly used by the Bank, are described in detail in the Counterparty Risk section.

Credit Derivative Financial Instruments and Financial Guarantee Contracts
The Bank also reduces credit risk by using the protection provided by credit derivative financial instruments such as credit default swaps. When the Bank acquires credit protection, it pays a premium on the swap to the counterparty in exchange for the counterparty's commitment to pay if the underlying entity defaults or another event involving the underlying entity and covered by the legal agreement occurs. Since, like obligors, providers of credit protection must receive a default risk rating, the Bank's standards set out all the criteria under which a counterparty may be judged eligible to mitigate the Bank's credit risk. The Bank may also reduce its credit risk by entering into financial guarantee contracts whereby a guarantor indemnifies the Bank for a loss resulting from an obligor failing to make a payment when due in accordance with the contractual terms of a debt instrument.

Loan Syndication
The Bank has developed specific instructions on the appropriate objectives, responsibilities and documentation requirements for loan syndication.

Follow-Up of Monitored Accounts and Recovery
Credit granted and obligors are monitored on an ongoing basis and in a manner commensurate with the related risk. Loan portfolio managers use an array of intervention methods to conduct a particularly rigorous follow-up on files that show a high risk of default. When loans continue to deteriorate and there is an increase in risk to the point where monitoring has to be increased, a group specialized in managing problem accounts (Work Out units) steps in to maximize collection of the disbursed amounts and tailor strategies to these accounts.

Each quarter, the Work Out units submit a monitoring report (called a watchlist) to a monitoring committee to track the status of at-risk obligors and the corrective measures undertaken. In addition, files in which the authorized amount is $4 million and up are presented to the Watchlist committee, which in turn reviews the action plans and watchlist reports. The authority to approve allowances for credit losses is attributed using limits delegated on the basis of hierarchical level presented in the Credit Risk Management Policy.

Information on the recognition of impaired loans and allowances for credit losses is presented in Notes 1 and 7 to the consolidated financial statements.

Forbearance and Restructuring

Situations where a business or retail obligor begins showing clear signs of potential insolvency are managed on a case-by-case basis and require the use of judgment. The Loan Work Out Policy sets out the principles applicable in such situations to guide loan restructuring decisions and identify situations where distressed restructuring applies. A distressed restructuring situation occurs when the Bank, for economic or legal reasons related to the obligor's financial difficulties, grants the obligor a special concession that is contrary to the Bank's policies. Such concessions could include a lower interest rate, waiver of principal, and extension of the maturity date.

The Bank has established a management framework for commercial and corporate obligors that represent higher-than-normal risk of default. It outlines the roles and responsibilities of loan portfolio managers with respect to managing high-risk accounts and the responsibilities of the Work Out units and other participants in the process. Lastly, the Credit Risk Management Policy and a management framework are used to determine the authorization limits for distressed restructuring situations. During fiscal years 2021 and 2020, the amount of distressed loan restructurings was not significant.

Counterparty Risk Assessment

Counterparty risk is a credit risk that the Bank incurs on various types of transactions involving financial instruments. The most significant risks are those it faces when it trades derivative financial instruments with counterparties on the over-the-counter market or when it purchases securities under reverse repurchase agreements or sells securities under repurchase agreements. Securities lending transactions and securities brokerage activities involving derivative financial instruments are also sources of counterparty risk. Note 16 to the consolidated financial statements provides a complete description of the credit risk for derivative financial instruments by type of traded product.

The Risk Management Group has developed models by type of counterparty through which it applies an advanced methodology for calculating the Bank's credit risk exposure and economic capital. The exposures are subject to limits. These limits are established based on the potential volatility of the underlying assets until expiration of the contract.

Counterparty obligations related to the trading of contracts on derivative financial instruments, securities lending transactions and reverse repurchase agreements are frequently subject to credit risk mitigation measures. The mitigation techniques are somewhat different from those used for loans and advances and depend on the nature of the instrument or the type of contract traded. The most widely used measure is the signing of master agreements: the International Swaps & Derivatives Association, Inc. (ISDA) master agreement, the Global Master Repurchase Agreement (GMRA) and the Global Master Securities Lending Agreement (GMSLA). These agreements make it possible, in the event of default, insolvency or bankruptcy of one of the contracting parties, to apply full netting of the gross amounts of the market values for each of the transactions covered by the agreement in force at the time of default. The amount of the final settlement is therefore the net balance of gains and losses on each transaction, which reduces exposure when a counterparty defaults. The Bank's policies require that an ISDA, GMRA, or GMSLA agreement be signed with its trading counterparties to derivatives, foreign exchange forward contracts, securities lending transactions and reverse repurchase agreements.

Another mechanism for reducing credit risk on derivatives and foreign exchange forward contracts complements the ISDA master agreement in many cases and provides the Bank and its counterparty (or either of the parties, if need be) with the right to request collateral from the counterparty when the net balance of gains and losses on each transaction exceeds a threshold defined in the agreement. These agreements, also known as Credit Support Annexes (CSAs), are mandatory when financial institutions trade between each other in international financial markets since they limit credit risk while providing traders with additional flexibility to continue trading with the counterparty. The Bank always, when required by regulation, uses this type of legal documentation in transactions with financial institutions and governments. For business transactions, the Bank prefers to use internal mechanisms set out in the credit agreements. The Bank's internal policies set the conditions governing the implementation of such mitigation methods.

Requiring collateral as part of a securities lending transaction or reverse repurchase agreement is not solely the result of an internal credit decision. In fact, it is a mandatory market practice imposed by self-regulating organizations in the financial services sector such as the Investment Industry Regulatory Organization of Canada.

The Bank has identified circumstances in which it is likely to be exposed to wrong-way risk. There are two types of wrong-way risk: general wrong-way risk and specific wrong-way risk. General wrong-way risk occurs when the probability of default of the counterparties is positively correlated to the general market risk factors. Specific wrong-way risk occurs when the exposure to a specific counterparty is positively correlated to the probability of default of the counterparty due to the nature of the transactions with this counterparty.

Assessment of Settlement Risk

Settlement risk potentially arises from transactions that feature reciprocal delivery of cash or securities between the Bank and a counterparty. Foreign exchange contracts are an example of transactions that can generate significant levels of settlement risk. However, the implementation of multilateral settlement systems that allow settlement netting among participating institutions has contributed greatly to reducing the risks associated with the settlement of foreign exchange transactions among banks. The Bank also uses financial intermediaries to gain access to established clearing houses in order to minimize settlement risk for certain financial derivative transactions. In some cases, the Bank may have direct access to established clearing houses for settling financial transactions such as repurchase agreements or reverse repurchase agreements. In addition, certain derivative financial instruments traded over the counter are settled directly or indirectly by central counterparties. For additional information, see the table that presents notional amounts in Note 16 to the consolidated financial statements.

There are several other types of transactions that may generate settlement risk, in particular the use of certain electronic fund transfer services. This risk refers to the possibility that the Bank may make a payment or settlement on a transaction without receiving the amount owed by the counterparty, and with no opportunity to recover the funds delivered (irrevocable settlement).

The ultimate means for completely eliminating such a risk is for the Bank to complete no payments or settlements before receiving the funds due from the counterparty. Such an approach cannot, however, be used systematically. For several electronic payment services, the Bank is able to implement mechanisms that allow it to make its transfers revocable or to debit the counterparty in the amount of the settlements before it makes its own transfer. On the other hand, the nature of transactions in financial instruments makes it impossible for such practices to be widely used. For example, on foreign exchange transactions involving a currency other than the U.S. dollar, time zone differentials impose strict payment schedules on the parties. The Bank cannot unduly postpone a settlement without facing penalties, due to the large size of amounts involved.

The most effective way for the Bank to control settlement risks, both for financial market transactions and irrevocable transfers, is to impose internal risk limits based on the counterparty's ability to pay.

Assessment of Environmental Risk

Environmental risk can affect credit risk in that the energy transition movement and extreme weather events could result in a decreased ability to make repayments or in a decrease in the value of assets pledged as collateral. Ultimately, environmental risk can lead to both a higher probability of default and higher loss given default among counterparties. In response, the risk management framework has been expanded to include new measures that identify, assess, control, and monitor environmental risk. In addition, the Bank has developed and is gradually deploying a process used to assess and quantify the impact of climate changes on its strategy and results. Furthermore, for clients in specific industries, the impacts of climate changes are discussed at least once a year as part of the credit granting or renewal process.

The Bank also assesses its exposure to environment-related credit risk using a variety of control and monitoring mechanisms. For example, analyses are performed on vulnerabilities to physical risks and on loan portfolio transition risks. These analyses are applied to all financing activities and provide greater visibility of the Bank's exposure to environmental risk. In addition, the Bank periodically assesses loan portfolio concentration risk to ensure that this risk is not being significantly affected by environmental risk. Furthermore, an industry sector matrix has been developed to provide the Risk Management group with a clearer vision of the loan portfolio sectors that are most affected by climate-related risks. Thanks to these initiatives, the Bank has been able to take concrete steps in the process used to review sectoral limits, as each business sector or industry now has an ESG section describing its environmental risk.

The Risk Management group closely monitors changes in trends and calculation methods and participates actively in various industry discussion groups.

The amounts shown in the following tables represent the Bank's maximum exposure to credit risk as at the financial reporting date without taking into account any collateral held or any other credit enhancements. These amounts do not take into account allowances for credit losses nor amounts pledged as collateral. The tables also exclude equity securities.

Maximum Credit Risk Exposure Under the Basel Asset Categories[(1)]*

(millions of Canadian dollars)								As at October 31, 2021
	Drawn[(2)]	Undrawn commitments	Repo-style transactions[(3)]	Derivative financial instruments	Other off-balance-sheet items[(4)]	Total	Standardized Approach[(5)]	AIRB Approach
Retail								
Residential mortgage	66,791	10,578	–	–	–	77,369	9 %	91 %
Qualifying revolving retail	2,270	6,282	–	–	–	8,552	– %	100 %
Other retail	15,519	2,481	–	–	31	18,031	29 %	71 %
	84,580	19,341	–	–	31	103,952		
Non-retail								
Corporate	70,589	27,783	26,190	161	5,415	130,138	11 %	89 %
Sovereign	55,323	6,217	58,452	294	83	120,369	2 %	98 %
Financial institutions	7,228	126	72,122	2,248	619	82,343	28 %	72 %
	133,140	34,126	156,764	2,703	6,117	332,850		
Trading portfolio	–	–	–	17,010	–	17,010	– %	100 %
Securitization	3,269	–	–	–	4,206	7,475	68 %	32 %
Total – Gross credit risk	220,989	53,467	156,764	19,713	10,354	461,287	13 %	87 %
Standardized Approach[(5)]	25,009	258	26,385	2,203	3,955	57,810		
AIRB Approach	195,980	53,209	130,379	17,510	6,399	403,477		
Total – Gross credit risk	220,989	53,467	156,764	19,713	10,354	461,287	13 %	87 %

(millions of Canadian dollars)								As at October 31, 2020[(6)]
	Drawn[(2)]	Undrawn commitments	Repo-style transactions[(3)]	Derivative financial instruments	Other off-balance-sheet items[(4)]	Total	Standardized Approach[(5)]	AIRB Approach
Retail								
Residential mortgage	57,062	9,751	–	–	–	66,813	10 %	90 %
Qualifying revolving retail	2,488	6,286	–	–	–	8,774	– %	100 %
Other retail	14,394	2,314	–	–	32	16,740	25 %	75 %
	73,944	18,351	–	–	32	92,327		
Non-retail								
Corporate	62,569	24,256	23,804	1	4,772	115,402	11 %	89 %
Sovereign	58,054	5,638	55,193	180	102	119,167	2 %	98 %
Financial institutions	3,534	399	66,120	2,350	514	72,917	15 %	85 %
	124,157	30,293	145,117	2,531	5,388	307,486		
Trading portfolio	–	–	–	14,011	–	14,011	2 %	98 %
Securitization	2,247	–	–	–	3,807	6,054	75 %	25 %
Total – Gross credit risk	200,348	48,644	145,117	16,542	9,227	419,878	10 %	90 %
Standardized Approach[(5)]	21,840	284	14,045	2,394	3,906	42,469		
AIRB Approach	178,508	48,360	131,072	14,148	5,321	377,409		
Total – Gross credit risk	200,348	48,644	145,117	16,542	9,227	419,878	10 %	90 %

(1) For additional information on capital management measures, see the Financial Reporting Method section on pages 18 to 21.
(2) Excludes equity securities and certain other assets such as investments in deconsolidated subsidiaries and joint ventures, right-of-use properties and assets, goodwill, deferred tax assets, and intangible assets.
(3) Securities purchased under reverse repurchase agreements and sold under repurchase agreements as well as securities loaned and borrowed.
(4) Letters of guarantee, documentary letters of credit and securitized assets that represent the Bank's commitment to make payments in the event that an obligor cannot meet its financial obligations to third parties.
(5) Includes exposures to qualifying central counterparties (QCCP).
(6) Certain amounts have been reclassified.

Market Risk

Market risk is the risk of losses arising from movements in market prices. Market risk comes from a number of factors, particularly changes to market variables such as interest rates, credit spreads, exchange rates, equity prices, commodity prices and implied volatilities. The Bank is exposed to market risk through its participation in trading, investment and asset/liability management activities. Trading activities involve taking positions, on various instruments such as bonds, shares, currencies, commodities or derivative financial instruments. The Bank is exposed to non-trading market risk through its asset/liability management and investment portfolios.

At its onset, the COVID-19 pandemic sent stock markets into sharp decline and rendered them more volatile, pushed interest rates downwards, triggered a rapid and sudden rise in unemployment, and prompted an economic slowdown. In spring 2020, governments, monetary authorities, and regulators intervened to support the economy and the financial system, notably by deploying fiscal and monetary measures designed to increase liquidity and support incomes. Although the global economy recovered during fiscal 2021, if the COVID-19 pandemic persists, in particular through subsequent waves, its impacts on the global economy could worsen, and the measures in place might not be sufficient over the long term to completely avoid recessionary conditions.

The trading portfolios include positions in financial instruments and commodities held either with trading intent or to hedge other elements of the trading book. Positions held with trading intent are those held for short-term resale and/or with the intent of taking advantage of actual or expected short-term price movements or to lock in arbitrage profits. These portfolios target one of the following objectives: market making, liquidating positions for clients or selling financial products to clients.

Non-trading portfolios include financial instruments intended to be held to maturity as well as those held for daily cash management or for the purpose of maintaining targeted returns or ensuring asset and liability management.

Governance

A market risk management policy governs global market risk management across the Bank's units and subsidiaries that are exposed to this type of risk. It is approved by the GRC. The policy sets out the principles for managing market risk and the framework that defines risk measures, control and monitoring activities; sets market risk limits; and reports on breaches.

The Financial Markets Risk Committee oversees all Financial Markets segment risks that could adversely affect the Bank's results, liquidity, or capital. This committee also oversees the Financial Markets segment's risk framework to ensure that controls are in place to contain risk in accordance with the Bank's risk appetite framework.

Market risk limits ensure the link and coherence between the Bank's market risk appetite targets and the day-to-day market risk management by all parties involved, notably senior management, business lines and market risk sector in its independent control function. The Bank's monitoring and reporting process consists of comparing market risk exposure to alert levels and market risk limits determined for all limit authorization and approval levels.

Assessment of Market Risk

The Risk Management Group uses a variety of risk measures to estimate the size of potential losses under more or less severe scenarios, and using both short-term and long-term time horizons. For short-term horizons, the Bank's risk measures include Value-at-Risk (VaR), Stressed VaR (SVaR), and sensitivity metrics. For long-term horizons or sudden significant market moves, including those due to a lack of market liquidity, the risk measures include stress testing across an extensive range of scenarios.

VaR and SVaR Models

VaR is a statistical measure of risk that is used to quantify market risks by activity and by risk type. VaR is defined as the maximum loss at a specific confidence level over a certain horizon under normal market conditions. The VaR method has the advantage of providing a uniform measurement of financial instrument-related market risks based on a single statistical confidence level and time horizon.

For VaR, the Bank uses a historical price distribution to compute the probable loss levels at the 99% confidence level, using a two-year history of daily time series of risk factor changes. VaR is the maximum daily loss the Bank could incur, in 99 cases out of 100, in a given portfolio. In other words, the loss could exceed that amount in only one out of 100 cases.

The trading VaR is measured by assuming a holding period of one day for ongoing market risk management and a 10-day holding period for regulatory capital purposes. VaR is calculated on a daily basis both for major classes of financial instruments (including derivative financial instruments) and all trading portfolios in the Financial Markets segment and the Bank's Global Funding and Treasury Group.

In addition to the one-day trading VaR, the Bank calculates a trading SVaR, which is a statistical measure of risk that replicates the VaR calculation method but uses, instead of a two-year history of risk factor changes, a 12-month data period corresponding to a continuous period of significant financial stress that is relevant in terms of the Bank's portfolios.

VaR methodology techniques are well suited to measure risks under normal market conditions. VaR metrics are most appropriate as a risk measure for trading positions in liquid financial markets. However, there are limitations in measuring risks with this method when extreme and sudden market risk events occur, since they are likely to underestimate the Bank's market risk. VaR methodology limitations include the following:

- past changes in market risk factors may not always produce accurate predictions of the distribution and correlations of future market movements;
- a VaR with a daily time horizon does not fully capture the market risk of positions that cannot be liquidated or hedged within one day;
- the market risk factor historical database used for VaR calculation may not reflect potential losses that could occur under unusual market conditions (e.g., periods of extreme illiquidity) relative to the historical period used for VaR estimates;
- the use of a 99% VaR confidence level does not reflect the extent of potential losses beyond that percentile.

Given the limitations of VaR, this measure represents only one component of the Bank's risk management oversight, which also incorporates, among other measures, stress testing, sensitivity analysis, concentration and liquidity limits and analysis.

The Bank also conducts backtesting of the VaR model. It consists of comparing the profits and losses to the statistical VaR measure. Backtesting is essential to verifying the VaR model's capacity to adequately forecast the maximum risk of market losses and thus validate, retroactively, the quality and accuracy of the results obtained using the model. If the backtesting results present material discrepancies, the VaR model could be revised in accordance with the Bank's model risk management framework. All market risk models and their performance are subject to periodic independent validation by the model vetting group.

Controlling Market Risk

A comprehensive set of limits is applied to measures of market risk, and these limits are monitored and reported on a regular basis. Instances when limits are exceeded are reported to the appropriate management level. The risk profiles of the Bank's operations remain consistent with its risk appetite and the resulting limits, and are monitored and reported to traders, management of the applicable business unit, senior executives, and Board committees.

The Bank also uses economic capital for market risk as an indicator for risk appetite and limits setting. This indicator measures the amount of capital that is required to absorb unexpected losses due to market risk events over a one-year horizon and with a determined confidence level. For additional information on economic capital, see the Capital Management section of this MD&A.

The following tables provide a breakdown of the Bank's Consolidated Balance Sheet into assets and liabilities by those that carry market risk and those that do not carry market risk, distinguishing between trading positions whose main risk measures are VaR and SVaR and non-trading positions that use other risk measures.

Reconciliation of Market Risk With Consolidated Balance Sheet Items

(millions of Canadian dollars)	As at October 31, 2021				
		Market risk measures			
	Balance sheet	Trading(1)	Non-Trading(2)	Not subject to market risk	Non-traded risk primary risk sensitivity
Assets					
Cash and deposits with financial institutions	33,879	401	16,518	16,960	Interest rate(3)
Securities					
At fair value through profit or loss	84,811	82,995	1,816	–	Interest rate(3) and equity(4)
At fair value through other comprehensive income	9,583	–	9,583	–	Interest rate(3) and equity(5)
At amortized cost	11,910	–	11,910	–	Interest rate(3)
Securities purchased under reverse repurchase agreements and securities borrowed	7,516	–	7,516	–	Interest rate(3)(6)
Loans and acceptances, net of allowances	182,689	7,827	174,862	–	Interest rate(3)
Derivative financial instruments	16,484	16,033	451	–	Interest rate(7) and exchange rate(7)
Defined benefit asset	691	–	691	–	Other(8)
Other	8,232	–	–	8,232	
	355,795	107,256	223,347	25,192	
Liabilities					
Deposits	240,938	14,215	226,723	–	Interest rate(3)
Acceptances	6,836	–	6,836	–	Interest rate(3)
Obligations related to securities sold short	20,266	20,266	–	–	
Obligations related to securities sold under repurchase agreements and securities loaned	17,293	–	17,293	–	Interest rate(3)(6)
Derivative financial instruments	19,367	18,999	368	–	Interest rate(7) and exchange rate(7)
Liabilities related to transferred receivables	25,170	9,058	16,112	–	Interest rate(3)
Defined benefit liability	143	–	143	–	Other(8)
Other	6,158	–	113	6,045	Interest rate(3)
Subordinated debt	768	–	768	–	Interest rate(3)
	336,939	62,538	268,356	6,045	

(1) Trading positions whose risk measures are VaR as well as total SVaR. For additional information, see the table on page 91 of this MD&A that shows the VaR distribution of the trading portfolios by risk category and their diversification effect as well as total SVaR.
(2) Non-trading positions that use other risk measures.
(3) For additional information, see the tables on pages 91 and 93 of this MD&A that show the VaR distribution of the trading portfolios by risk category and their diversification effect as well as total SVaR and the interest rate sensitivity table.
(4) For additional information, see Note 6 to the consolidated financial statements.
(5) The fair value of equity securities designated at fair value through other comprehensive income is presented in Notes 3 and 6 to the consolidated financial statements.
(6) These instruments are recorded at amortized cost and are subject to credit risk for capital management purposes. For trading-related transactions with maturities of more than one day, interest rate risk is included in the VaR and SVaR measures.
(7) For additional information, see Notes 16 and 17 to the consolidated financial statements.
(8) For additional information, see Note 23 to the consolidated financial statements.

(millions of Canadian dollars) As at October 31, 2020

	Balance sheet	Market risk measures		Not subject to market risk	Non-traded risk primary risk sensitivity
		Trading[1]	Non-trading[2]		
Assets					
Cash and deposits with financial institutions	29,142	617	12,799	15,726	Interest rate[3]
Securities					
At fair value through profit or loss	78,326	75,279	3,047	–	Interest rate[3] and equity[4]
At fair value through other comprehensive income	12,726	–	12,726	–	Interest rate[3] and equity[5]
At amortized cost	11,079	–	11,079	–	Interest rate[3]
Securities purchased under reverse repurchase agreements and securities borrowed	14,512	–	14,512	–	Interest rate[3][6]
Loans and acceptances, net of allowances	164,740	7,545	157,195	–	Interest rate[3]
Derivative financial instruments	13,422	13,207	215	–	Interest rate[7] and exchange rate[7]
Defined benefit asset	126	–	126	–	Other[8]
Other	7,552	–	–	7,552	
	331,625	96,648	211,699	23,278	
Liabilities					
Deposits	215,878	9,998	205,880	–	Interest rate[3]
Acceptances	6,866	–	6,866	–	Interest rate[3]
Obligations related to securities sold short	16,368	16,368	–	–	
Obligations related to securities sold under repurchase agreements and securities loaned	33,859	–	33,859	–	Interest rate[3][6]
Derivative financial instruments	12,923	12,300	623	–	Interest rate[7] and exchange rate[7]
Liabilities related to transferred receivables	22,855	6,135	16,720	–	Interest rate[3]
Defined benefit liability	156	–	156	–	Other[8]
Other	5,562	–	64	5,498	Interest rate[3]
Subordinated debt	775	–	775	–	Interest rate[3]
	315,242	44,801	264,943	5,498	

(1) Trading positions whose risk measures are VaR as well as total SVaR. For additional information, see the table on page 91 of this MD&A that shows the VaR distribution of the trading portfolios by risk category and their diversification effect as well as total SVaR.
(2) Non-trading positions that use other risk measures.
(3) For additional information, see the tables on pages 91 and 93 of this MD&A that show the VaR distribution of the trading portfolios by risk category and their diversification effect as well as total SVaR and the interest rate sensitivity table.
(4) For additional information, see Note 6 to the consolidated financial statements.
(5) The fair value of equity securities designated at fair value through other comprehensive income is presented in Notes 3 and 6 to the consolidated financial statements.
(6) These instruments are recorded at amortized cost and are subject to credit risk for capital management purposes. For trading-related transactions with maturities of more than one day, interest rate risk is included in the VaR and SVaR measures.
(7) For additional information, see Notes 16 and 17 to the consolidated financial statements.
(8) For additional information, see Note 23 to the consolidated financial statements.

Trading Activities

The table below shows the VaR distribution of trading portfolios by risk category and their diversification effect as well as the total SVaR, i.e., the VaR of the Bank's current portfolios obtained following the calibration of risk factors over a 12-month stress period.

VaR and SVaR of Trading Portfolios[(1)]*

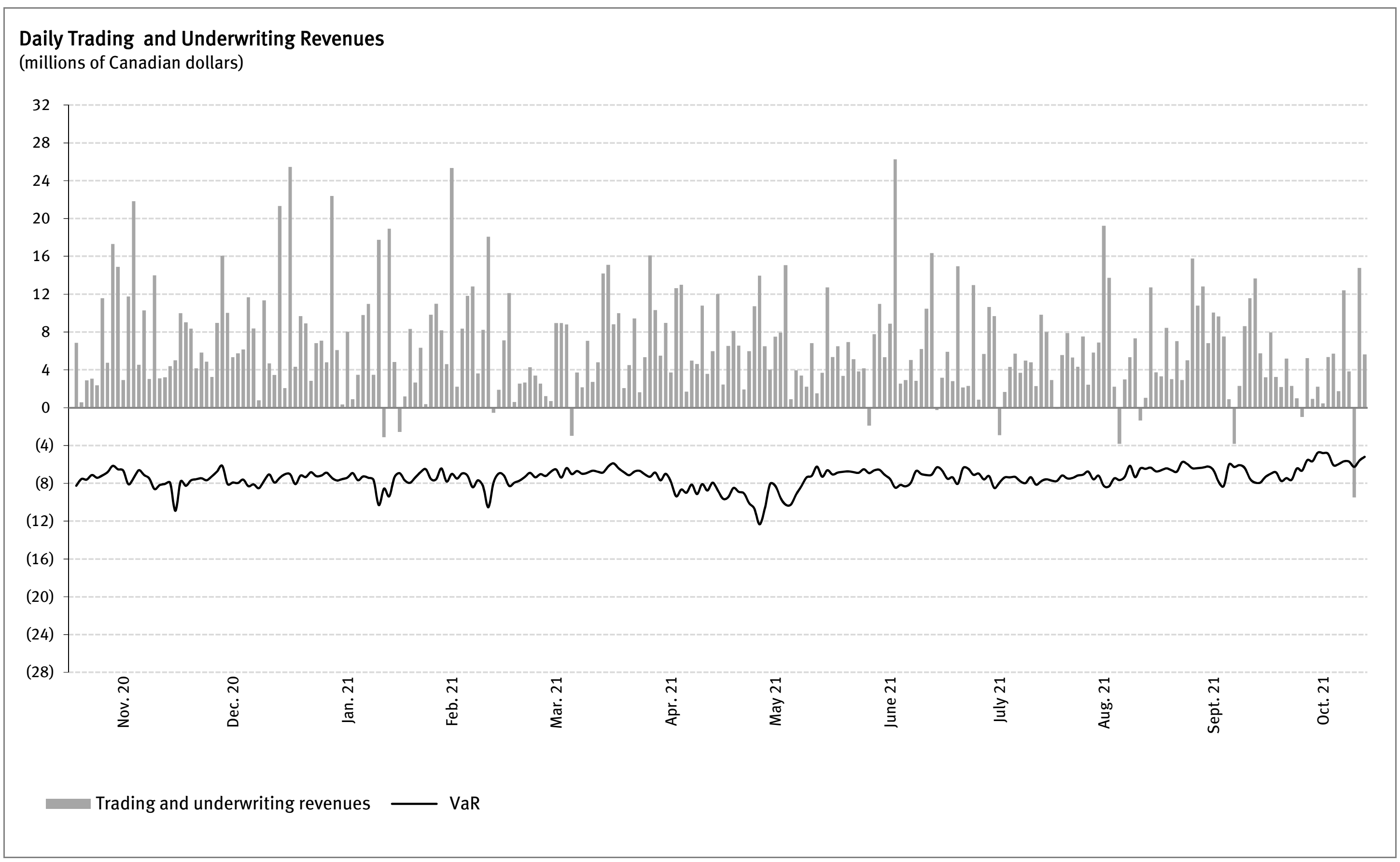
Year ended October 31 (millions of Canadian dollars)				2021				2020
	Low	High	Average	Period end	Low	High	Average	Period end
Interest rate	(4.5)	(11.0)	(7.2)	(8.2)	(4.0)	(15.6)	(7.4)	(8.0)
Foreign exchange	(0.3)	(2.3)	(0.9)	(0.9)	(0.3)	(2.7)	(0.9)	(1.5)
Equity	(4.4)	(10.2)	(6.2)	(6.0)	(2.7)	(17.5)	(8.3)	(8.0)
Commodity	(0.4)	(1.9)	(0.9)	(1.4)	(0.6)	(2.1)	(1.0)	(0.8)
Diversification effect[(2)]	n.m.	n.m.	7.8	11.3	n.m.	n.m.	8.0	9.1
Total trading VaR	(4.8)	(12.3)	(7.4)	(5.2)	(4.6)	(19.6)	(9.6)	(9.2)
Total trading SVaR	(6.5)	(23.1)	(13.8)	(9.5)	(6.9)	(39.9)	(17.1)	(17.9)

n.m. Computation of a diversification effect for the high and low is not meaningful, as highs and lows may occur on different days and be attributable to different types of risk.
(1) Amounts are presented on a pre-tax basis and represent one-day VaR and SVaR using a 99% confidence level.
(2) The total trading VaR is less than the sum of the individual risk factor VaR results due to the diversification effect.

The average total trading VaR stood at $7.4 million for fiscal 2021, down from $9.6 million in fiscal 2020. The average total trading SVaR was also down, decreasing from $17.1 million in fiscal 2020 to $13.8 million in fiscal 2021. These decreases were mainly due to a decrease in equity risk.

The revenues generated by trading activities are compared with VaR as a backtesting assessment of the appropriateness of this risk measure as well as the financial performance of trading activities relative to the risk undertaken.

The table below shows daily trading and underwriting revenues and VaR. Daily trading and underwriting revenues were positive on 95% of the days for the year ended October 31, 2021. Daily trading and underwriting losses in excess of $1 million were recorded on nine days, and on one of those days, the losses exceeded the VaR.



Stress Testing and Crisis Scenarios
Stress testing is a risk management technique that consists of estimating potential losses under abnormal market conditions and risk factor movements. This technique enhances transparency by exploring a range of severe but plausible events.

These crises scenarios simulate the results that the portfolios would generate if the extreme events in question were to occur. The Bank's stress testing framework, which is applied to all positions generating market risk, currently comprises the following categories of stress test scenarios:

- Historical scenarios based on past major disruption situations
- Hypothetical scenarios designed to be forward-looking in the face of potential market stresses
- Scenarios specific to asset classes, including:
  - sharp parallel increases/decreases in interest rates; non-parallel movements of interest rates (flattening and steepening) and increases/decreases in credit spreads;
  - sharp stock market crash coupled with a significant increase in volatility of the term structure; increase in stock prices combined with less volatility;
  - significant increases/decreases in commodity prices coupled with increases/decreases in volatility; short-term and long-term increases/decreases in commodity prices;
  - depreciation/appreciation of the U.S. dollar and of other currencies relative to the Canadian dollar.

Structural Interest Rate Risk
As part of its core banking activities, such as lending and deposit taking, the Bank is exposed to interest rate risk. Interest rate risk is the potential negative impact of interest rate fluctuations on the Bank's annual net interest income and economic value of equity. Activities related to hedging, investments and term funding are also exposed to structural interest rate risk. The Bank's main exposure to interest rate risk stems from a variety of sources:

- yield curve risk, which refers to changes in the level, slope, and shape of the yield curve;
- repricing risk, which arises from timing differences in the maturity and repricing of on- and off-balance-sheet items;
- options risk, either implicit (e.g., prepayment of mortgage loans) or explicit (e.g., capped mortgages and rate guarantees) in balance sheet products;
- basis risk that is caused by imperfect correlation between different yield curves.

The Bank's exposure to structural interest rate risk is assessed and controlled mostly through the impact of stress scenarios and market shocks on the economic value of the Bank's equity and on 12-month net interest income projections. These metrics are based on cash flow projections prepared using a number of assumptions. Specifically, the Bank has developed key assumptions on loan prepayment levels, deposit redemptions, and the behaviour of customers that were granted rate guarantees. These specific assumptions were developed based on historical analyses and are reviewed frequently.

Funds transfer pricing is a process by which the Bank's business units are charged or paid according to their use or supply of funding. Through this mechanism, all funding activities as well as the interest rate risk and liquidity risk associated with those activities are centralized in the Global Funding and Treasury Group.

Active management of structural interest rate risk can significantly enhance the Bank's profitability and add to shareholder value. The Bank's goal is to maximize its economic value of equity and annual net interest income considering its risk appetite. This has to be accomplished within prescribed risk limits and is done primarily by implementing a policy framework, approved by the GRC and submitted for information purposes to the RMC, which establishes a risk tolerance threshold, monitoring structures controlled by the various committees, risk indicators, reporting procedures, delegation of responsibilities, and segregation of duties. The Bank also prepares an annual funding plan that incorporates the expected growth of assets and liabilities.

Governance
Management of the Bank's structural interest rate risk is mandated to the Global Funding and Treasury Group. In this role, the executives and personnel of this group are responsible for the day-to-day management of the risks inherent to structural interest rate risk hedging decisions and operations. They act as the primary effective challenge function with respect to the execution of these activities. The GRC approves and endorses the structural interest rate exposure and strategies on the recommendation of the Global Funding and Treasury Group. The Risk Management Group is responsible for assessing structural interest rate risk, monitoring activities, and ensuring compliance with the interest rate risk in the banking book policy. The Risk Management Group ensures that an appropriate risk management framework is in place and ensures compliance with the risk appetite framework and policy. Structural interest rate risk supervision is mainly provided by the Financial Markets Risk Committee. This committee reviews exposure to structural interest rate risk, the use of limits, and changes made to assumptions.

Stress Testing and Crisis Scenarios

Stress tests are performed on a regular basis to assess the impact of various scenarios on annual net interest income and on the economic value of equity in order to guide the management of structural interest rate risk. Crisis scenarios are performed where the yield curve level, slope and shape are shocked. Yield curve basis and volatility scenarios are also performed. All risk factors mentioned above are covered by specific scenarios and have Board-approved or GRC-approved risk limits.

Dynamic simulation is also used to project the Bank's future net interest income, future economic value, and future structural interest rate risk exposure. These simulations project cash flows of assets, liabilities and off-balance-sheet products over a given investment horizon. Given their dynamic nature, they encompass assumptions pertaining to changes in volume, client term preference, prepayments of deposits and loans, and the yield curve.

The following table presents the potential before-tax impact of an immediate and sustained 100-basis-point increase or of an immediate and sustained 25 basis-point decrease in interest rates on the economic value of equity and on the net interest income of the Bank's non-trading portfolios for the next 12 months, assuming no further hedging is undertaken. In the current environment of very low interest rates, the Bank believes that a sensitivity analysis reflecting an immediate and sustained 25-basis-point decrease in interest rates provides more relevant information.

Interest Rate Sensitivity – Non-Trading Activities (Before Tax)*

As at October 31 (millions of Canadian dollars)			2021			2020[(1)]
	Canadian dollar	Other currencies	Total	Canadian dollar	Other currencies	Total
Impact on equity						
100-basis-point increase in the interest rate	(277)	39	(238)	(239)	15	(224)
25-basis-point decrease in the interest rate	67	(9)	58	49	(4)	45
Impact on net interest income						
100-basis-point increase in the interest rate	91	17	108	175	7	182
25-basis-point decrease in the interest rate	(32)	(4)	(36)	(56)	(2)	(58)

(1) After refining the method used to calculate interest rate movements, certain amounts have been modified from those previously reported as at October 31, 2020.

Investment Governance

The Bank has created securities portfolios in liquid and less liquid securities for strategic, long-term investment and liquidity management purposes. These investments carry market risk, credit risk, liquidity risk and concentration risk.

The investment governance sets out the guiding principles and general management standards that must be followed by all those who manage portfolios of these securities included in the portfolios of the Bank and its subsidiaries. Under this investment governance, business units that are active in managing these types of portfolios must adopt internal investment policies that set, among other things, targets and limits for the allocation of assets in the portfolios concerned and internal approval mechanisms. The primary objective is to reduce concentration risk by industry, issuer, country, type of financial instrument and credit quality.

Overall limits in value and in proportion to the Bank's equity are set on the outstanding amount of liquid preferred shares, liquid equity securities excluding preferred shares, and instruments classified as illiquid securities in the securities portfolios. The overall exposure to common shares with respect to an individual issuer and the total outstanding amount invested in private equity funds, for investment banking services, are also subject to limits. Restrictions are also set on investments defined as special. Lastly, the Bank has a specific policy, approved by the RMC, applicable to investments in debt and equity securities, including strategic investments. Strategic investments are defined as purchases of business assets or acquisitions of significant interests in an entity for purposes of acquiring control or creating a long-term relationship.

Structural Foreign Exchange Risk

The Bank's structural foreign exchange risk arises from investments in foreign operations denominated in currencies other than the Canadian dollar. This risk, predominantly in U.S. dollars, is measured by assessing the impact of currency fluctuations on retained earnings. The Bank uses financial instruments (derivative and non-derivative) to hedge this risk. An adverse change in foreign exchange rates can also impact the Bank's capital ratios due to the amount of RWA denominated in a foreign currency. When the Canadian dollar depreciates relative to other currencies, unrealized translation gains on the Bank's net investments in foreign operations, as well as the impact on hedging transactions, are reported in other comprehensive income in shareholders' equity. In addition, the Canadian-dollar equivalent of U.S.-dollar-denominated RWA and regulatory capital deductions increases. The reverse is true when the Canadian dollar appreciates relative to the U.S. dollar. The structural foreign exchange risk is managed to ensure that the potential impacts on the capital ratios and net income are within tolerable limits set by risk policies.

Liquidity and Funding Risk

Liquidity and funding risk is the risk that the Bank will be unable to honour daily cash and financial obligations without resorting to costly and untimely measures. Liquidity and funding risk arises when sources of funds become insufficient to meet scheduled payments under the Bank's commitments. Liquidity risk stems from mismatched cash flows related to assets and liabilities as well as the characteristics of certain products such as credit commitments and non-fixed-term deposits.

The Bank's primary objective as a financial institution is to manage liquidity such that it supports the Bank's business strategy and allows it to honour its commitments when they come due, even in extreme conditions. This is done primarily by implementing a policy framework approved by the RMC, which establishes a risk appetite, monitoring structures controlled by various committees, risk indicators, reporting procedures, delegation of responsibilities and segregation of duties. The Bank also prepares an annual funding plan that incorporates the expected growth of assets and liabilities.

Regulatory Environment

The Bank works closely with national and international regulators to implement regulatory liquidity standards. The Bank adapts its processes and policies to reflect its liquidity risk appetite towards these new requirements.

In response to the COVID-19 impact and to support the financial and operational resilience of financial institutions, the Bank of Canada and OSFI took exceptional measures in the second quarter of 2020. During fiscal 2021, given that the financial and economic risks caused by the pandemic were tempered somewhat, most of the relief measures were lifted. For additional information, see the section entitled COVID-19 Pandemic – Key Measures Introduced by the Regulatory Authorities on pages 17 and 18 of this MD&A.

The *Liquidity Adequacy Requirements* (LAR) are reviewed annually to reflect domestic and international regulatory changes. They constitute OSFI's proposed liquidity framework and include six chapters:

- overview;
- liquidity coverage ratio (LCR);
- net stable funding ratio (NSFR);
- net cumulative cash flow (NCCF);
- liquidity monitoring tools;
- intraday liquidity monitoring tools.

The LCR is used to ensure that banks can overcome severe short-term stress, while the NSFR is a structural ratio over a one-year horizon. The NCCF metric is defined as a monitoring tool that calculates a survival period. It is based on the assumptions of a stress scenario prescribed by OSFI that aims to represent a combined systemic and bank-specific crisis. The Bank publishes LCR on a quarterly basis. Since January 2021, the NSFR has also been published quarterly in accordance with OSFI's revised guideline, *Net Stable Funding Ratio Disclosure Requirements*, which took effect on January 1, 2021. This guideline sets out NSFR ratio disclosure requirements for D-SIBs.

On March 11, 2021, OSFI released, for public consultation, revisions to its LAR guideline, which was to take effect in the first quarter of 2023. OSFI is making changes that will improve the sensitivity to risk and that will ensure that financial institutions hold sufficient cash or other liquid investments to meet potential liquidity needs and to support the continued lending of credit, in particular during periods of financial stress. On November 29, 2021, OSFI postponed the implementation of the revisions to its LAR guideline to April 1, 2023.

The Bank continues to closely monitor regulatory developments and actively participates in various consultation processes.

Governance

The Global Funding and Treasury Group is responsible for managing liquidity and funding risk. Although the day-to-day and strategic management of risks associated with liquidity, funding and pledging activities is assumed by the Global Funding and Treasury Group, the Risk Management Group is responsible for assessing liquidity risk and overseeing compliance with the resulting policy. The Risk Management Group ensures that an appropriate risk management framework is in place and ensures compliance with the risk appetite framework. This structure provides an independent oversight and effective challenge for the liquidity, funding and pledging decisions, strategy, and exposure.

The Bank's *Liquidity, Funding and Pledging Governance Policy* requires review and approval by the RMC, based on recommendations from the GRC. The Bank has established three levels of limits. The first two levels of limits involve the Bank's overall cash position and are respectively approved by the Board and the GRC, whereas the third level of limits focuses more on specific aspects of liquidity risk and is approved by the Financial Markets Risk Committee. The Board not only approves the supervision of day-to-day risk management and governance but also backup plans in anticipation of emergency and liquidity crisis situations. If a limit has to be revised, the Risk Management Group with the support of the Global Funding and Treasury Group, submits the proposed revision to the approving committee.

Oversight of liquidity risk is entrusted mainly to the Financial Markets Risk Committee, whose members include representatives of the Financial Markets segment, the Global Funding and Treasury Group and the Risk Management Group.

The Bank also has policies and guidelines governing its own collateral pledged to counterparties, given the potential impact of such asset transfers on its liquidity. In accordance with its Liquidity, Funding & Pledging Policy, the Bank conducts simulations of potential counterparty collateral claims under the CSAs in effect in the event of a Bank downgrade or other unlikely occurrences. The simulations are based on various Bank downgrading scenarios or market value fluctuations of transactions covered by CSAs.

Through the Financial Markets Risk Committee, the Risk Management Group regularly reports changes in liquidity, funding and pledging indicators and compliance with regulatory, Board, and GRC approved limits. If control reports indicate non-compliance with the limits and, generally, deterioration of liquidity indicators, the Global Funding and Treasury Group takes remedial action. According to the escalation process, problematic situations are reported to management and to the GRC and the RMC. An executive report on the Bank's liquidity and funding risk management, which describes the Bank's liquidity position and informs the Board of non-compliance with the limits and other rules observed during the reference period as well as remedial action taken, is submitted quarterly to the RMC.

Liquidity Management

The Bank performs liquidity management, funding and pledging operations not only from its head office and regional offices in Canada, but also through certain foreign centres. Although the volume of such operations abroad represents a sizable portion of global liquidity management, the Bank's liquidity management is centralized. By organizing liquidity management, funding and pledging activities within the Global Funding and Treasury Group, the Bank can better coordinate enterprise-wide funding and risk monitoring activities. All internal funding transactions between Bank entities are controlled by the Global Funding and Treasury Group.

This centralized structure streamlines the allocation and control of liquidity management, funding and pledging limits. Nonetheless, the Liquidity, Funding and Pledging Governance policy contains special provisions for the financial centres that are most active in terms of institutional funding and sets limits and monitoring thresholds for secured and unsecured short-term funding, both in absolute value and materiality.

The Bank's funds transfer pricing system prices liquidity by allocating the cost or income to the various business segments. Liquidity costs are allocated to liquidity-intensive activities, mainly long-term loans, and commitments to extend credit and less liquid securities as well as strategic investments. The liquidity compensation is credited to the suppliers of funds, primarily funding in the form of stable deposits from the Bank's distribution network.

Short-term day-to-day funding decisions are based on a daily cumulative net cash position, which is controlled using liquidity ratio limits. Among these ratios and metrics, the Bank pays particular attention to the funds obtained on the wholesale market and to cumulative cash flows over various time horizons.

Moreover, the Bank's collateral pledging activities are monitored in relation to the different limits set by the Bank and are subject to monthly stress tests using simulations. In particular, the Bank uses various scenarios to estimate the potential amounts of additional collateral that would be required in the event of a downgrade to the Bank's credit rating.

Liquidity risk can be assessed in many different ways using different liquidity indicators. One of the key monitoring tools of liquidity risk is the Bank's survival period based on contractual maturity and behavioural assumptions applied to balance sheet items as well as off-balance-sheet commitments.

Stress Testing and Crisis Scenarios

Using various simulations, survival period measures the number of months it would take to completely utilize the Bank's liquid assets if the Bank were to lose deposits prematurely or if funds from wholesale markets were not renewed at maturity. It is measured monthly using three scenarios, which were developed to assess sensitivity to a Bank-specific and/or systemic crisis. Deposit loss simulations are carried out based on their degree of stability, while the value of certain assets is encumbered by an amount reflecting their readiness for liquidation in a crisis. Appropriate scenarios and limits are included in the Bank's liquidity, funding, and pledging governance policy.

The Bank maintains an up-to-date, comprehensive financial contingency and crisis recovery plan that describes the measures to be taken in the event of a critical liquidity situation. This plan is reviewed and approved annually by the Board as part of business continuity and recovery planning. For additional information, see the Regulatory Compliance Risk section of this MD&A.

Liquidity Risk Appetite

The Bank monitors and manages its risk appetite through liquidity limits, ratios and stress tests. The Bank's liquidity risk appetite is based on the following three principles:

- ensure the Bank has a sufficient amount of unencumbered liquid assets to cover its financial requirements, in both normal and stressed conditions;
- ensure the Bank keeps a liquidity buffer above the minimum regulatory requirement;
- ensure the Bank maintains diversified and stable sources of funding.

Liquid Assets

To protect depositors and creditors from unexpected crisis situations, the Bank holds a portfolio of unencumbered liquid assets that can be readily liquidated to meet financial obligations. The majority of unencumbered liquid assets are held in Canadian or U.S. dollars. Moreover, all assets that can be quickly monetized are considered liquid assets. The Bank's liquidity reserves do not factor in the availability of the central bank's emergency liquidity facilities. The following tables provide information on the Bank's encumbered and unencumbered assets.

Liquid Asset Portfolio[1]

As at October 31
(millions of Canadian dollars)

	2021					2020
	Bank-owned liquid assets[2]	Liquid assets received[3]	Total liquid assets	Encumbered liquid assets[4]	Unencumbered liquid assets	Unencumbered liquid assets
Cash and deposits with financial institutions	33,879	–	33,879	6,781	27,098	23,271
Securities						
Issued or guaranteed by the Canadian government, U.S. Treasury, other U.S. agencies and other foreign governments	25,482	30,515	55,997	26,995	29,002	21,103
Issued or guaranteed by Canadian provincial and municipal governments	13,536	4,058	17,594	12,916	4,678	7,371
Other debt securities	7,189	2,203	9,392	2,191	7,201	5,332
Equity securities	60,097	37,294	97,391	70,567	26,824	33,346
Loans						
Securities backed by insured residential mortgages	9,248	–	9,248	5,703	3,545	3,950
As at October 31, 2021	149,431	74,070	223,501	125,153	98,348	
As at October 31, 2020	140,783	60,560	201,343	106,970		94,373

As at October 31
(millions of Canadian dollars)

	2021	2020
Unencumbered liquid assets by entity		
National Bank (parent)	62,438	47,135
Domestic subsidiaries	12,471	21,928
Foreign subsidiaries and branches	23,439	25,310
	98,348	94,373

As at October 31
(millions of Canadian dollars)

	2021	2020
Unencumbered liquid assets by currency		
Canadian dollar	47,293	50,568
U.S. dollar	40,999	26,099
Other currencies	10,056	17,706
	98,348	94,373

Liquid Asset Portfolio[1] – Average[5]

Year ended October 31
(millions of Canadian dollars)

	2021					2020
	Bank-owned liquid assets[2]	Liquid assets received[3]	Total liquid assets	Encumbered liquid assets[4]	Unencumbered liquid assets	Unencumbered liquid assets
Cash and deposits with financial institutions	38,267	–	38,267	6,029	32,238	19,784
Securities						
Issued or guaranteed by the Canadian government, U.S. Treasury, other U.S. agencies and other foreign governments	28,734	27,349	56,083	35,734	20,349	19,590
Issued or guaranteed by Canadian provincial and municipal governments	14,012	5,719	19,731	13,836	5,895	5,962
Other debt securities	6,739	1,734	8,473	2,060	6,413	5,970
Equity securities	64,120	40,824	104,944	70,593	34,351	31,155
Loans						
Securities backed by insured residential mortgages	9,778	–	9,778	6,085	3,693	3,581
As at October 31, 2021	161,650	75,626	237,276	134,337	102,939	
As at October 31, 2020	128,850	64,855	193,705	107,663		86,042

(1) For additional information on capital management measures, see the Financial Reporting Method section on pages 18 to 21.
(2) Bank-owned liquid assets include assets for which there are no legal or geographic restrictions.
(3) Securities received as collateral with respect to securities financing and derivative transactions and securities purchased under reverse repurchase agreements and securities borrowed.
(4) In the normal course of its funding activities, the Bank pledges assets as collateral in accordance with standard terms. Encumbered liquid assets include assets used to cover short sales, obligations related to securities sold under repurchase agreements and securities loaned, guarantees related to security-backed loans and borrowings, collateral related to derivative financial instrument transactions, asset-backed securities and liquid assets legally restricted from transfers.
(5) The average is based on the sum of the end-of-period balances of the 12 months of the year divided by 12.

Summary of Encumbered and Unencumbered Assets[1]

(millions of Canadian dollars)						As at October 31, 2021
	Encumbered assets[2]		Unencumbered assets		Total	Encumbered assets as % of total assets
	Pledged as collateral	Other[3]	Available as collateral	Other[4]		
Cash and deposits with financial institutions	275	6,506	27,098	–	33,879	1.9
Securities	38,599	–	67,705	–	106,304	10.9
Securities purchased under reverse repurchase agreements and securities borrowed	–	7,516	–	–	7,516	2.1
Loans and acceptances, net of allowances	37,307	–	3,545	141,837	182,689	10.5
Derivative financial instruments	–	–	–	16,484	16,484	–
Investments in associates and joint ventures	–	–	–	225	225	–
Premises and equipment	–	–	–	1,216	1,216	–
Goodwill	–	–	–	1,504	1,504	–
Intangible assets	–	–	–	1,510	1,510	–
Other assets	–	–	–	4,468	4,468	–
	76,181	14,022	98,348	167,244	355,795	25.4

(millions of Canadian dollars)						As at October 31, 2020
	Encumbered assets[2]		Unencumbered assets		Total	Encumbered assets as % of total assets
	Pledged as collateral	Other[3]	Available as collateral	Other[4]		
Cash and deposits with financial institutions	344	5,527	23,271	–	29,142	1.8
Securities	34,979	–	67,152	–	102,131	10.5
Securities purchased under reverse repurchase agreements and securities borrowed	–	14,512	–	–	14,512	4.4
Loans and acceptances, net of allowances	37,556	–	3,950	123,234	164,740	11.3
Derivative financial instruments	–	–	–	13,422	13,422	–
Investments in associates and joint ventures	–	–	–	409	409	–
Premises and equipment	–	–	–	1,155	1,155	–
Goodwill	–	–	–	1,414	1,414	–
Intangible assets	–	–	–	1,434	1,434	–
Other assets	–	–	–	3,266	3,266	–
	72,879	20,039	94,373	144,334	331,625	28.0

(1) For additional information on capital management measures, see the Financial Reporting Method section on pages 18 to 21.
(2) In the normal course of its funding activities, the Bank pledges assets as collateral in accordance with standard terms. Encumbered assets include assets used to cover short sales, obligations related to securities sold under repurchase agreements and securities loaned, guarantees related to security-backed loans and borrowings, collateral related to derivative financial instrument transactions, asset-backed securities, residential mortgage loans securitized and transferred under the Canada Mortgage Bond program, assets held in consolidated trusts supporting the Bank's funding activities, and mortgage loans transferred under the covered bond program.
(3) Other encumbered assets include assets for which there are restrictions and that cannot therefore be used for collateral or funding purposes as well as assets used to cover short sales.
(4) Other unencumbered assets are assets that cannot be used for collateral or funding purposes in their current form. This category includes assets that are potentially eligible as funding program collateral (e.g., mortgages insured by the Canada Mortgage and Housing Corporation that can be securitized into mortgage-backed securities under the *National Housing Act* (Canada)).

Liquidity Coverage Ratio

The liquidity coverage ratio (LCR) was introduced primarily to ensure that banks could withstand periods of severe short-term stress. LCR is calculated by dividing the total amount of high-quality liquid assets (HQLA) by the total amount of net cash outflows. OSFI has been requiring Canadian banks to maintain a minimum LCR of 100%. An LCR above 100% ensures that banks are holding sufficient high-quality liquid assets to cover net cash outflows given a severe, 30-day liquidity crisis. The assumptions underlying the LCR scenario were established by the BCBS and OSFI's *Liquidity Adequacy Requirements* guideline.

The following table provides average LCR data calculated using the daily figures in the quarter. For the quarter ended October 31, 2021, the Bank's average LCR was 154%, well above the 100% regulatory requirement and demonstrating the Bank's solid liquidity position.

LCR Disclosure Requirements[1][2]

(millions of Canadian dollars)			For the quarter ended
		October 31, 2021	July 31, 2021
	Total unweighted value[3] (average)	Total weighted value[4] (average)	Total weighted value[4] (average)
High-quality liquid assets (HQLA)			
Total HQLA	n.a.	71,262	68,127
Cash outflows			
Retail deposits and deposits from small business customers, of which:	60,140	4,955	4,847
Stable deposits	27,179	815	808
Less stable deposits	32,961	4,140	4,039
Unsecured wholesale funding, of which:	103,309	53,903	52,125
Operational deposits (all counterparties) and deposits in networks of cooperative banks	25,024	6,097	5,581
Non-operational deposits (all counterparties)	69,344	38,865	37,208
Unsecured debt	8,941	8,941	9,336
Secured wholesale funding	n.a.	18,864	22,184
Additional requirements, of which:	47,205	11,468	11,276
Outflows related to derivative exposures and other collateral requirements	11,357	5,082	4,869
Outflows related to loss of funding on secured debt securities	1,278	1,278	1,318
Backstop liquidity and credit enhancement facilities and commitments to extend credit	34,570	5,108	5,089
Other contractual commitments to extend credit	1,774	775	807
Other contingent commitments to extend credit	111,723	1,691	1,659
Total cash outflows	n.a.	91,656	92,898
Cash inflows			
Secured lending (e.g., reverse repos)	95,497	17,585	19,901
Inflows from fully performing exposures	10,647	6,978	7,160
Other cash inflows	19,846	19,846	20,842
Total cash inflows	125,990	44,409	47,903
		Total adjusted value[5]	Total adjusted value[5]
Total HQLA		71,262	68,127
Total net cash outflows		47,247	44,995
Liquidity coverage ratio (%)[6]		154 %	154 %

n.a. Not applicable
(1) For additional information on capital management measures, see the Financial Reporting Method section on pages 18 to 21.
(2) OSFI prescribed a table format in order to standardize disclosure throughout the banking industry.
(3) Unweighted values are calculated as outstanding balances maturing or callable within 30 days (for inflows and outflows).
(4) Weighted values are calculated after the application of respective haircuts (for HQLA) or inflow and outflow rates.
(5) Total adjusted values are calculated after the application of both haircuts and inflow and outflow rates and any applicable caps.
(6) The data in this table has been calculated using averages of the daily figures in the quarter.

As at October 31, 2021, Level 1 liquid assets represented 85% of the Bank's HQLA, which includes cash, central bank deposits, and bonds issued or guaranteed by the Canadian government and Canadian provincial governments. Cash outflows arise from the application of OSFI-prescribed assumptions on deposits, debt, secured funding, commitments and additional collateral requirements. The cash outflows are partly offset by cash inflows, which come mainly from secured loans and performing loans. The Bank expects some quarter-over-quarter variation between reported LCRs, and such variation may not be indicative of a trend. The variation between the quarter ended October 31, 2021 and the preceding quarter are a result of normal business operations. The Bank's liquid asset buffer is well in excess of its total net cash outflows.

The LCR assumptions differ from the assumptions used for the liquidity disclosures presented in the tables on the previous pages or those used for internal liquidity management rules. While the liquidity disclosure framework is prescribed by the EDTF, the Bank's internal liquidity metrics use assumptions that are calibrated according to its business model and experience.

Intraday Liquidity

The Bank manages its intraday liquidity in such a way that the amount of available liquidity exceeds its maximum intraday liquidity requirements. The Bank monitors its intraday liquidity on an hourly basis, and the evolution thereof is presented monthly to the Financial Markets Risk Committee.

Net Stable Funding Ratio

The BCBS has developed the Net Stable Funding Ratio (NSFR) to promote a more resilient banking sector. The NSFR requires institutions to maintain a stable funding profile in relation to the composition of their assets and off-balance-sheet activities. A viable funding structure is intended to reduce the likelihood that disruptions to an institution's regular sources of funding will erode its liquidity position in a way that would increase the risk of its failure and potentially lead to broader systemic stress. NSFR is calculated by dividing available stable funding by required stable funding. OSFI has been requiring Canadian banks to maintain a minimum NSFR of 100%.

The following table provides the available stable funding and the required stable funding in accordance with OSFI's *Liquidity Adequacy Requirements* guideline. As at October 31, 2021, the Bank's NSFR was 117%, well above the 100% regulatory requirement and demonstrating the Bank's solid liquidity in a long-term position.

NSFR Disclosure Requirements[(1)(2)]

(millions of Canadian dollars)					As at October 31, 2021	As at July 31, 2021
	Unweighted value by residual maturity					
	No maturity	6 months or less	Over 6 months to 1 year	Over 1 year	Weighted value[(3)]	Weighted value[(3)]
Available Stable Funding (ASF) Items						
Capital:	18,856	–	–	768	19,624	19,349
Regulatory capital	18,856	–	–	768	19,624	19,349
Other capital instruments	–	–	–	–	–	–
Retail deposits and deposits from small business customers:	55,231	12,559	3,218	14,651	79,362	79,326
Stable deposits	25,335	6,227	1,332	4,832	36,081	36,289
Less stable deposits	29,896	6,332	1,886	9,819	43,281	43,037
Wholesale funding:	69,516	67,318	8,445	31,456	82,896	81,862
Operational deposits	24,005	–	–	–	12,003	12,148
Other wholesale funding	45,511	67,318	8,445	31,456	70,893	69,714
Liabilities with matching interdependent assets[(4)]	–	3,193	1,469	20,507	–	–
Other liabilities[(5)]:	23,288		14,051		793	805
NSFR derivative liabilities[(5)]	n.a.		10,248		n.a.	n.a.
All other liabilities and equity not included in the above categories	23,288	2,233	287	1,283	793	805
Total ASF	n.a.	n.a.	n.a.	n.a.	182,675	181,342
Required Stable Funding (RSF) Items						
Total NSFR high-quality liquid assets (HQLA)	n.a.	n.a.	n.a.	n.a.	7,198	6,836
Deposits held at other financial institutions for operational purposes	–	–	–	–	–	–
Performing loans and securities:	42,606	58,864	21,204	93,746	128,378	122,289
Performing loans to financial institutions secured by Level 1 HQLA	288	86	–	14	33	25
Performing loans to financial institutions secured by non-Level 1 HQLA and unsecured performing loans to financial institutions	3,872	35,150	1,817	818	5,725	5,739
Performing loans to non-financial corporate clients, loans to retail and small business customers, and loans to sovereigns, central banks and PSEs, of which:	17,527	19,623	13,813	33,958	60,191	58,958
With a risk weight of less than or equal to 35% under the Basel II Standardized Approach for credit risk	157	2,291	7	141	1,343	1,619
Performing residential mortgages, of which:	9,172	3,929	5,525	53,696	47,911	45,122
With a risk weight of less than or equal to 35% under the Basel II Standardized Approach for credit risk	9,172	3,929	5,525	53,696	47,911	45,122
Securities that are not in default and do not qualify as HQLA, including exchange-traded equities	11,747	76	49	5,260	14,518	12,445
Assets with matching interdependent liabilities[(4)]	–	3,193	1,469	20,507	–	–
Other assets[(5)]:	3,022		41,875		16,784	15,154
Physical traded commodities, including gold	275	n.a.	n.a.	n.a.	275	285
Assets posted as initial margin for derivative contracts and contributions to default funds of CCPs[(5)]	n.a.		8,013		6,811	5,992
NSFR derivative assets[(5)]	n.a.		11,005		757	261
NSFR derivative liabilities before deduction of the variation margin posted[(5)]	n.a.		16,498		825	734
All other assets not included in the above categories	2,747	5,457	178	724	8,116	7,882
Off-balance-sheet items[(5)]	n.a.		95,992		3,613	3,579
Total RSF	n.a.	n.a.	n.a.	n.a.	155,973	147,858
Net Stable Funding Ratio (%)	n.a.	n.a.	n.a.	n.a.	117 %	123 %

n.a. Not applicable
(1) For additional information on capital management measures, see the Financial Reporting Method section on pages 18 to 21.
(2) OSFI prescribed a table format in order to standardize disclosure throughout the banking industry.
(3) Weighted values are calculated after application of the weightings set out in OSFI's *Liquidity Adequacy Requirements* guideline.
(4) As per OSFI's specifications, liabilities arising from transactions involving the Canada Mortgage Bond program and their corresponding encumbered mortgages are given ASF and RSF weights of 0%, respectively.
(5) As per OSFI's specifications, there is no need to differentiate by maturities.

The NSFR represents the amount of ASF relative to the amount of RSF. ASF is defined as the portion of capital and liabilities expected to be reliable over the time horizon considered by the NSFR, which extends to one year. The amount of RSF of a specific institution is a function of the liquidity characteristics and residual maturities of the various assets held by that institution as well as those of its off-balance-sheet exposures. The amounts of available and required stable funding are calibrated to reflect the degree of stability of liabilities and liquidity of assets. The Bank expects some quarter-over-quarter variation between reported NSFRs, and such variation may not be indicative of a trend.

The NSFR assumptions differ from the assumptions used for the liquidity disclosures provided in the tables on the preceding pages or those used for internal liquidity management rules. While the liquidity disclosure framework is prescribed by the EDTF, the Bank's internal liquidity metrics use assumptions that are calibrated according to its business model and experience.

Funding Risk

Funding risk is defined as the risk to the Bank's ongoing ability to raise sufficient funds to finance actual or proposed business activities on an unsecured or secured basis at an acceptable price. The Bank maintains a good balance of its funding through appropriate diversification of its unsecured funding vehicles, securitization programs and secured funding. The Bank also diversifies its funding by currency, geography, and maturity. The funding management priority is to achieve an optimal balance between deposits, securitization, secured funding and unsecured funding. This brings optimal stability to the funding and reduces vulnerability to unpredictable events.

Funding and liquidity levels remained sound and robust over the year and the Bank does not foresee any event, commitment or demand that might have a significant impact on its funding and liquidity risk position. For additional information, see the table entitled Residual Contractual Maturities of Balance Sheet Items and Off-Balance-Sheet Commitments in Note 29 to the consolidated financial statements.

Credit Ratings

The credit ratings assigned by ratings agencies represent their assessment of the Bank's credit quality based on qualitative and quantitative information provided to them. Credit ratings may be revised at any time based on various factors, including macroeconomic factors, methodologies used by ratings agencies, or the current and projected financial condition of the Bank. Credit ratings are one of the main factors that influence the Bank's ability to access financial markets at a reasonable cost. A downgrade in the Bank's credit ratings could adversely affect the cost, size and term of future funding and could also result in increased requirement to pledge collateral or decreased capacity to engage in certain collateralized business activities at a reasonable cost, including hedging and derivatives transactions.

Funding and liquidity levels remain sound and robust, and the Bank continues to enjoy excellent access to the market for its funding needs. The Bank received favourable credit ratings from all the agencies, reflecting the high quality of its debt instruments, and the Bank's objective is to maintain these strong credit ratings. On January 13, 2021, Fitch Ratings changed the trend on all the Bank's ratings and its related entities from "Negative" to "Stable." Fitch estimates that the Bank is in a good position to withstand the disruptions caused by the COVID-19 pandemic, and on April 30, 2021, DBRS Limited (DBRS) also changed the trend from "Stable" to "Positive." DBRS has recognized the Bank's solid performance of recent years. For Moody's and S&P, the outlook remains unchanged at "Stable." The following table presents the Bank's credit ratings according to four rating agencies as at October 31, 2021.

The Bank's Credit Ratings

				As at October 31, 2021
	Moody's	**S&P**	**DBRS**	**Fitch**
Short-term senior debt	P-1	A-1	R-1 (mid)	F1+
Canadian commercial paper		A-1 (mid)		
Long-term deposits	Aa3		AA (low)	AA-
Long-term non-bail-inable senior debt(1)	Aa3	A	AA (low)	AA-
Long term senior debt(2)	A3	BBB+	A (high)	A+
NVCC subordinated debt	Baa2 (hyb)	BBB	BBB (high)	
NVCC limited recourse capital notes	Ba1 (hyb)	BB+	BBB	
NVCC preferred shares	Ba1 (hyb)	P-3 (high)	Pfd-2 (low)	
Counterparty risk(3)	Aa3/P-1			AA-
Covered bonds program	Aaa		AAA	AAA
Rating outlook	Stable	Stable	Positive	Stable

(1) Includes senior debt issued prior to September 23, 2018 and senior debt issued on or after September 23, 2018 which is excluded from the Bank Recapitalization (Bail-In) Regime.
(2) Subject to conversion under the Bank Recapitalization (Bail-In) Regime.
(3) Moody's uses the term Counterparty Risk Rating while Fitch uses the term Derivative Counterparty Rating.

Guarantees
As part of a comprehensive liquidity management framework, the Bank regularly reviews its contracts that stipulate that additional collateral could be required in the event of a downgrade of the Bank's credit rating. The Bank's liquidity position management approach already incorporates additional collateral requirements in the event of a one-notch to three-notch downgrade. The table below presents the additional collateral requirements in the event of a one-notch or three-notch credit rating downgrade.

(millions of Canadian dollars)		As at October 31, 2021
	One-notch downgrade	Three-notch downgrade
Derivatives(1)	25	30

(1) Contractual requirements related to agreements known as Credit Support Annexes.

Funding Strategy
The main objective of the funding strategy is to support the Bank's organic growth while also enabling it to survive potentially severe and prolonged crises and to meet its regulatory obligations and financial targets.

The Bank's funding framework is summarized as follows:

- pursue a diversified deposit strategy to fund core banking activities through stable deposits coming from the networks of each of the Bank's major business segments;
- maintain a sound liquidity risk management through centralized expertise and management of liquidity metrics within predefined risk appetite;
- maintain active access to various markets to ensure a diversification of institutional funding in terms of source, geographic location, currency, instrument and maturity, whether or not funding is secured.

The funding strategy is implemented in accordance with the overall objectives of strengthening the Bank's franchise among market participants and reinforcing its excellent reputation. The Bank continuously monitors and analyzes market trends and the possibilities for accessing less expensive and more flexible funding, considering both the risks and opportunities observed. The deposit strategy remains a priority for the Bank, which continues to prefer deposits to institutional funding.

The Bank actively monitors and controls liquidity risk exposures and funding needs within and across entities, business segments, and currencies. The process involves evaluating the liquidity position of individual business segments in addition to that of the Bank as a whole as well as the liquidity risk from raising unsecured and secured funding in foreign currencies. The funding strategy is implemented through the funding plan and deposit strategy, which are monitored, updated to reflect actual results, and regularly evaluated.

Diversified Funding Sources
The primary purpose of diversification by source, geographic location, currency, instrument, maturity and depositor is to mitigate liquidity and funding risk by ensuring that the Bank maintains alternative sources of funds that strengthen its capacity to withstand a variety of severe yet plausible institution-specific and market-wide shocks. To meet this objective, the Bank:

- takes funding diversification into account in the business planning process;
- maintains a variety of funding programs to access different markets;
- sets limits on funding concentration;
- maintains strong relationships with fund providers;
- is active in various funding markets of all tenors and for various instruments;
- identifies and monitors the main factors that affect the ability to raise funds.

The Bank is active in the following funding and securitization platforms:

- Canadian dollar Senior Unsecured Debt;
- U.S. dollar Senior Unsecured Debt programs;
- Canadian Medium-Term Note Shelf;
- U.S. dollar Commercial Paper programs;
- U.S. dollar Certificates of Deposit;
- Euro Medium-Term Note program;
- Canada Mortgage and Housing Corporation securitization programs;
- Canadian Credit Card Trust II;
- Legislative Covered Bond program.

The table below presents the residual contractual maturities of the Bank's wholesale funding. The information has been presented in accordance with the categories recommended by the EDTF for comparison purposes with other banks.

Residual Contractual Maturities of Wholesale Funding[1]

(millions of Canadian dollars)								As at October 31, 2021
	1 month or less	Over 1 month to 3 months	Over 3 months to 6 months	Over 6 months to 12 months	Subtotal 1 year or less	Over 1 year to 2 years	Over 2 years	Total
Deposits from banks[2]	470	–	–	6	476	14	41	531
Certificates of deposit and commercial paper[3]	1,696	5,753	7,523	2,001	16,973	–	–	16,973
Senior unsecured medium-term notes[4][5]	441	–	756	2,682	3,879	2,354	6,909	13,142
Senior unsecured structured notes	–	–	–	–	–	362	2,628	2,990
Covered bonds and asset-backed securities								
Mortgage securitization	–	1,688	1,523	1,465	4,676	5,501	14,993	25,170
Covered bonds	–	1,431	–	1,236	2,667	2,141	3,944	8,752
Securitization of credit card receivables	36	–	–	–	36	28	48	112
Subordinated liabilities[6]	–	–	–	–	–	–	768	768
	2,643	8,872	9,802	7,390	28,707	10,400	29,331	68,438
Secured funding	36	3,119	1,523	2,701	7,379	7,670	18,985	34,034
Unsecured funding	2,607	5,753	8,279	4,689	21,328	2,730	10,346	34,404
	2,643	8,872	9,802	7,390	28,707	10,400	29,331	68,438
As at October 31, 2020	2,192	5,359	8,080	5,770	21,401	9,312	28,389	59,102

(1) Bankers' acceptances are not included in this table.
(2) Deposits from banks include all non-negotiable term deposits from banks.
(3) Includes bearer deposit notes.
(4) Certificates of deposit denominated in euros are included in senior unsecured medium-term notes.
(5) Includes deposits subject to bank recapitalization (Bail-In) conversion regulations.
(6) Subordinated debt is presented in this table, but the Bank does not consider it as part of its wholesale funding.

Operational Risk

Operational risk is the risk of loss resulting from an inadequacy or a failure ascribable to human resources, equipment, processes, technology or external events. Operational risk exists for every Bank activity. Theft, fraud, cyberattacks, unauthorized transactions, system errors, human error, amendments to or misinterpretation of laws and regulations, litigation or disputes with clients, inappropriate sales practice behaviour or property damage are just a few examples of events likely to cause financial loss, harm the Bank's reputation, or lead to regulatory penalties or sanctions.

Although operational risk cannot be eliminated entirely, it can be managed in a thorough and transparent manner to keep it at an acceptable level. The Bank's operational risk management framework is built on the concept of three lines of defence and provides a clear allocation of responsibilities to all levels of the organization, as mentioned below.

Operational Risk Management Framework
The operational risk management framework is described in the Operational Risk Management Policy, which is derived from the Risk Management Policy. The operational risk management framework is aligned with the Bank's risk appetite and is made up of policies, standards, and procedures specific to each operational risk, which fall under the responsibility of specialized groups.

The segments use several operational risk management tools and methods to identify, assess, and manage their operational risks and control measures. With these tools and methods, the segments can:

- recognize and understand the inherent and residual risks to which their activities and operations are exposed;
- identify how to manage and monitor the identified risks to keep them at an acceptable level;
- proactively and continuously manage risks.

Operational Risk Management Tools and Methods
Collection and Analysis of Data on Operational Events
The Operational Risk Unit applies a process, across the Bank and its subsidiaries, for identifying, collecting and analyzing data on internal operational events. This process includes determining the Bank's exposure to the operational risks and operational losses incurred and assessing the effectiveness of internal controls. It also helps limit operational events, keep losses at an acceptable level and, as a result, reduce potential capital charges and lower the likelihood of damage to the Bank's reputation. These data are processed and saved in a centralized database and are periodically the subject of a quality assurance exercise.

Analysis and Lessons Learned From Operational Events Observed in Other Large Businesses
By collecting and analyzing media-reported information about significant operational events, in particular events related to fraud, information security and theft of personal information experienced by other organizations, the Bank can assess the effectiveness of its own operational risk management practices and reinforce them, if necessary.

Operational Risk Self-Assessment Program
The operational risk self-assessment program gives each business unit and corporate unit the means to proactively identify and assess new or major operational risks to which they are exposed, evaluate the effectiveness of mitigating controls, and develop action plans to keep such risks at acceptable levels. As such, the program makes it possible to anticipate certain factors that could hinder performance or the achievement of objectives.

Key Risk Indicators
Key risk indicators are used to monitor the drivers of exposure to major operational risks and track changes in risks to proactively manage them. The business units and corporate units define key indicators associated with their main operational risks and assign tolerance thresholds to them. These indicators are monitored periodically, and when they show a significant increase in risk or when a tolerance threshold is exceeded, they are sent to the appropriate level in the hierarchy and action plans are implemented as required.

Scenario Analysis
Scenario analysis, which is part of a Bank-wide stress testing program, is an important and useful tool for assessing the impacts related to potentially serious events. It is used to define the risk appetite, set risk exposure limits, and engage in business planning. More specifically, scenario analysis provides management with a better understanding of the risks faced by the Bank, and helps it make appropriate management decisions to mitigate potential operational risks that are inconsistent with the Bank's risk appetite.

Insurance Program
In order to protect itself against any material losses related to its exposure to unforeseeable operational risks, the Bank also has adequate insurance, the nature and amount of which meet its coverage requirements.

Operational Risk Reports and Disclosures
Operational events for which the financial impact exceeds the tolerance thresholds or that have a significant regulatory or reputation impact are submitted to the decision-making levels concerned. Management is obligated to report on its management process and to remain alert to current and future issues. Reports on the Bank's risk profile, highlights, and emerging risks are periodically submitted, on a timely basis, to the Operational Risk Management Committee, the GRC and the RMC. This reporting enhances the transparency and proactive management of the main operational risk factors.

Regulatory Compliance Risk

Regulatory compliance risk is the risk of the Bank or of one of its employees or business partners failing to comply with the regulatory requirements in effect where it does business, both in Canada and internationally. Regulatory compliance risk is present in all of the daily operations of each Bank segment. A situation of regulatory non-compliance can adversely affect the Bank's reputation and result in penalties and sanctions or increased oversight by regulators.

Organizational Structure of Compliance
Compliance is an independent oversight function within the Bank. The Senior Vice-President, Chief Compliance Officer and Chief Anti-Money Laundering Officer serves as both chief compliance officer (CCO) and chief anti-money laundering officer (CAMLO) for the Bank and its subsidiaries and foreign centres. She is responsible for implementing and updating the Bank's programs for regulatory compliance management, regulatory requirements related to AML/ATF, international sanctions, and the fight against corruption. The CCO and CAMLO has a direct reporting relationship with the Chair of the RMC and meets with him at least once every quarter. She can also communicate directly with senior management, officers and directors of the Bank and of its subsidiaries and foreign centres.

Regulatory Compliance Framework

The Bank operates in a highly regulated industry. To ensure sound management of regulatory compliance, the Bank favours proactive approaches and incorporates regulatory requirements into its day-to-day operations.

Such proactive management also provides reasonable assurance that the Bank is in compliance, in all material respects, with the regulatory requirements in effect where it does business, both in Canada and internationally.

The implementation of a regulatory compliance risk management framework across the Bank is entrusted to the Compliance Service, which has the following mandate:

- make sure that policies and standards that ensure compliance with the regulatory requirements are in effect, including those related to AML/ATF, to international sanctions, and to the fight against corruption;
- develop compliance and AML/ATF training programs for Bank employees, officers, and directors;
- exercise independent oversight and monitor the programs, policies, and procedures implemented by the management of the Bank, its subsidiaries, and its foreign centres to ensure that the control mechanisms are sufficient, respected, and effective;
- report relevant compliance and AML/ATF matters to the Bank's Board and inform it of any significant changes in the effectiveness of the Bank's risk management framework.

The Bank holds itself to high regulatory compliance risk management standards in order to earn the trust of its clients, its shareholders, the market and the general public.

Described below are the main regulatory developments that have been monitored over the past year.

Reform of the *Official Languages Act*

Bill C-32, which amends the *Official Languages Act*, was tabled on June 15, 2021 and is designed to further protect the French language and foster substantive equality between the two official languages of Canada (French and English). Federally regulated businesses, such as the Bank, will be required to comply with this Act. The reform includes the right of Francophone employees to work in French as well as consumers to be served in French. The Act will apply in Quebec and in regions with a strong Francophone presence (pending a definition). It will also protect the rights of English-speaking minorities.

Bill 96 (Quebec) *(An Act respecting French, the official and common language of Quebec)*

On May 13, 2021, the Quebec government tabled Bill 96 and published amendments to the *Charter of the French Language*, making it more exacting and empowering it to apply stricter penalties. The objectives of the *Act* are, in particular, to strengthen the presence and use of the French language in Quebec, to establish a new *Charter of the French Language*, and to affirm that the only official language of Quebec is French. The major themes addressed by the *Act* are the Francization committee, labour and employment law, contracts and consumer rights, signs and posters, remedial measures, and penalties.

Bill 18 – Protection of Vulnerable Persons

The main purpose of Bill 18, *An Act to Amend the Civil Code, Code of Civil Procedure, the Public Curator Act and various provisions as regards the protection of persons,* is to amend the legislative provisions in place to protect incapable persons and to put an end to curatorships and advisor mandates to persons of full age. Tutorships to persons of full age shall remain in place, but it will be possible to modulate them based on the incapacity level of the person of full age. Bill 18 has also introduced the concepts of temporary representation and of assistant to persons of full age.

Consumer Protection

Several regulatory changes came into effect this past year, such as the *Code of Conduct for the Delivery of Banking Services to Seniors*. Other changes will soon come into force, including Bill C-86 and its regulations, which amend the *Bank Act* (Canada). The purpose of these regulatory changes is to ensure that consumers are protected by way of enhanced disclosures, assessments of the appropriateness of products and services, employee training, and procedures related to the processing of complaints.

Anti-Money Laundering and Anti-Terrorist Financing (AML/ATF) Activities

Amendments made to the regulations under the *Proceeds of Crime (Money Laundering) and Terrorist Financing Act* announced in the *Canada Gazette* in July 2019 and June 2020 came into force on June 1, 2021, with the exception of certain requirements related to representations that are expected to take effect in 2023-2024.

Protection of Personal Information

Given changing technologies and societal behaviours, privacy and the protection of personal information is a topical issue in Canada. Recent regulatory measures (such as the *General Data Protection Regulation* (GDPR) in Europe in 2018 and the *California Consumer Privacy Act* in the United States in 2020) reflect a desire to implement a stronger legislative framework in the areas of confidentiality and use of personal information. In Quebec, in September 2021, the government adopted Bill 64, *An Act to Modernize Legislative Provisions as Regards the Protection of Personal Information*, which has introduced substantial changes when it comes to the protection of personal information. Essentially, the *Act* promotes transparency, raises the level of confidentiality of data, and provides a framework for the collection, use, and sharing of personal information. A new federal bill that will modernize the protection of personal information is expected soon.

Canada Deposit Insurance Corporation (CDIC)
On April 30, 2022, separate coverage for registered education savings plans and registered disability savings plans will take effect as part of changes to the *Canada Deposit Insurance Corporation Act*. New requirements will also be established for the coverage of deposits in trust, particularly nominee-brokered deposits and those of professional trustees.

Recovery and Resolution Planning
As part of the regulatory measures used to manage systemic risks, D-SIBs are required to have recovery and resolution plans. A recovery plan is essentially a roadmap that guides the recovery of a bank in the event of severe financial stress; conversely, a resolution plan guides its orderly wind-down in the event of failure when recovery is no longer an option. The Bank improves and periodically updates its recovery and resolution plans to prepare for these high-risk, but low-probability events. In addition, the Bank and other D-SIBs continue to work with the CDIC to develop a comprehensive settlement plan that would ensure orderly winding down of the Bank's operations. These plans are approved by the Board and submitted to the national regulatory agencies.

Section 871(m) – Dividend Equivalent Payments
Section 871(m) of the U.S. *Internal Revenue Code* (or IRC) aims to ensure that non-U.S. persons pay tax on payments that can be considered dividends on U.S. shares, when these payments are made on certain derivative instruments. The derivative instruments for which the underlyings are U.S. shares (including U.S. exchange-traded funds) or "non-qualified indices" concluded as of January 1, 2017 are subject to the withholding and reporting requirements. The effective date for certain components of this regulation has been deferred to January 1, 2023. Some of the obligations of a qualified derivatives dealer, established under section 871(m) of the IRC and the qualified intermediary agreement have also been deferred to January 1, 2023.

Common Reporting Standard – *Foreign Account Tax Compliance Act*
The *Foreign Account Tax Compliance Act* (FATCA), a U.S. law, and the *Common Reporting Standard* (CRS), an international standard, the principles of which have been incorporated into the *Income Tax Act* (Canada), are intended to counter tax evasion by taxpayers through the international exchange of tax information through financial institutions. The application of new penalties came into force on January 1, 2021.

Client-Centered Reforms – Amendments to *Regulation 31-103*
Pursuant to *Regulation 31-103 respecting Registration Requirements, Exemptions and Ongoing Registrant obligations*, a new process for declaring conflicts of interest and external activities has been in effect since June 30, 2021. Work is still ongoing with regards to the delivery, on December 31, 2021, of items relating to KYC (know-your-client) and KYP (know-your-product), misleading communications, relationship disclosure, and training.

Reform of Interest Rate Benchmarks
The reform of interest rate benchmarks is a global initiative that is being coordinated and led by central banks and governments around the world, including Canada. The objective is to improve benchmarks by ensuring that they meet robust international standards. LIBOR (London Interbank Offered Rates) in particular is in the process of being discontinued, and risk-free rates, such as SOFR (Secured Overnight Financing Rate), ESTR (Euro Short-Term Rate), SONIA (Sterling Over Night Index Average), SARON (Swiss Average Rate Overnight), and TONAR (Tokyo Overnight Average Rate), are recommended as replacements for LIBOR. For additional information, see the Accounting Policy Changes section in Note 1 to the consolidated financial statements.

Reputation Risk

Reputation risk is the risk that the Bank's operations or practices will be judged negatively by the public, whether that judgment is with or without basis, thereby adversely affecting the perception, image or trademarks of the Bank, potentially resulting in costly litigation or loss of income. Reputation risk generally arises from a deficiency in managing another risk. The Bank's reputation may, for example, be adversely affected by non-compliance with laws and regulations or by process failures. All risks must therefore be managed effectively in order to protect the Bank's reputation.

The Bank seeks to ensure that its employees are constantly aware of the potential repercussions of their actions on the Bank's reputation and image. In addition to its operational risk management initiatives mentioned above, the Bank has a variety of mechanisms to support sound reputation risk management, including codes of professional conduct applicable to all employees, policies regarding ethics and corporate governance and appropriate training programs. The Bank also has a crisis management framework including effective intervention, communication and behavioural parameters in order to minimize the impact on its activities, clients and employees.

The Bank also has a reputation risk policy, approved by the RMC, that covers all of the Bank's practices and activities. The policy sets the reputation risk management principles and rules for clients, employees and communities, all of which are stakeholders of the Bank. The policy is complemented by the special provisions of the new products and activities policy, which determines the approvals required by the various committees that assess risk whenever new products or activities are introduced within the business units. These provisions are intended, among other things, to provide oversight for the management of reputation risk, which may be material for such products or activities. The new products and activities policy requires that any new product or activity for which reputation risk is determined to be high be submitted to the GRC for approval. The activities of the Compliance Service, Legal Affairs Department, Communications and Corporate Social Responsibility Department and Investor Relations Department complete the reputation risk management framework.

Strategic Risk

Strategic risk is the risk of a financial loss or of reputational harm arising from inappropriate strategic orientations, improper execution or ineffective response to economic, financial, or regulatory changes. The corporate strategic plan is developed by the Office of the President, in alignment with the Bank's overall risk appetite, and approved by the Board. Once approved, the initiatives of the strategic plan are monitored regularly to ensure that they are progressing. If not, strategies could be reviewed or adjusted if deemed appropriate.

In addition, the Bank has a specific Board-approved policy for strategic investments, which are defined as purchases of business assets or acquisitions of significant interests in an entity for the purposes of acquiring control or creating a long-term relationship. As such, acquisition projects and other strategic investments are analyzed through a due diligence process to ensure that these investments are aligned with the corporate strategic plan and the Bank's risk appetite.

Environmental and Social Risk

Environmental and social risk is the possibility that environmental and social matters would result in a financial loss for the Bank or affect its business activities. This risk encompasses many topics, in particular pollution and waste; the use of energy, water, and other resources; climate change; biodiversity; human rights; inclusion and diversity; labour standards; community health; occupational health and safety; the rights of Indigenous Peoples and consultation thereof; as well as cultural heritage. The impact of environmental and social risk could also increase exposure to strategic, reputation, and regulatory compliance risks if the Bank's response is deemed inadequate or non-compliant with commitments. The Bank is directly exposed to such risk through its own activities and indirectly exposed through the activities of its clients.

Assessing and mitigating environmental and social risk are integral parts of the Bank's risk management framework. Environmental and social issues are now central to the Bank's decision-making process and are becoming increasingly strategic matters for the Bank. Taking these risks into consideration could even be viewed as a considerable asset in certain financing or investment transactions, and doing so also contributes to promoting exemplary practices to the Bank's stakeholders.

The Bank has adopted environmental, social and governance (ESG) principles that show the importance it attaches to sustainable development and to balancing the interests of societal stakeholders. These ESG principles have already been incorporated into the organization's priorities. ESG indicators have also been added to various monitoring dashboards and are gradually being integrated into the risk appetite framework. Reports on these indicators and on the Bank's ESG commitments are periodically presented to several Board committees.

The Bank has also implemented an environmental policy that applies to all activities and decisions made across the Bank. This policy clearly sets out the principles used to identify and limit environmental risk and climate risk as well as the impacts therefrom on the community and on the Bank's business segments. To proactively ensure the strategic positioning of its entire portfolio, the Bank continues to express its commitment to support the transition towards a low-carbon economy while continuing to closely monitor related developments and implications.

Accordingly, the Bank supports a wide range of sustainable development initiatives and further demonstrates its commitment by deploying many initiatives that incorporate environmental and social topics into its business and operational decisions. These efforts also entail a continuous and stronger adaptation, as well as additional mitigation measures, in the event of an interruption or disruption of its activities due to major crises such as natural disasters or health crises.

ESG factors continue to be integrated into the Bank's processes as part of the implementation of its strategy and guiding principles approved by the Board. This integration is being conducted with due diligence, specifically in the area of the credit-granting process, starting with the corporate credit portfolio. For this clientele, the ESG risk analysis framework calls for the collection of information on carbon emissions and includes a climate risk classification (transition and physical risks) based on industry as well as scores assigned by ESG rating agencies. Several other criteria are also taken into consideration, in particular the management of waste, labour standards, corporate governance, product liability as well as human rights policies.

The Bank also works with various industry partners to identify and implement sound management practices that promote a transition to a low-carbon economy. Aware that it has a mobilizing role to play, the Bank supports the recommendations of the Task Force on Climate-Related Financial Disclosures (TCFD). Moreover, it has continued to demonstrate its commitment to mitigating climate risk by becoming a signatory to the Partnership for Carbon Accounting Financials (PCAF) as well as by joining the United Nations' Net-Zero Banking Alliance (NZBA) in addition to setting GHG emission reduction targets for its own business activities. The Bank is working on a plan, for the upcoming year, to define the actions to be undertaken to meet the above-mentioned commitments; at present time, it is impossible to determine the related amounts. The Bank is also committed to communicating, in full transparency, the information recommended by these groups as well as to periodically publishing its own performance reports.

Critical Accounting Policies and Estimates

A summary of the significant accounting policies used by the Bank is presented in Note 1 to the consolidated financial statements of this *Annual Report*. The accounting policies discussed below are considered critical given their importance to the presentation of the Bank's financial position and operating results and require subjective and complex judgments and estimates on matters that are inherently uncertain. Any change in these judgments and estimates could have a significant impact on the Bank's consolidated financial statements.

COVID-19 Pandemic Considerations

The COVID-19 pandemic continues to evolve, and, given the heightened uncertainty associated with the unprecedented nature of the pandemic, developing reliable estimates and applying judgment has become even more challenging. Some of the Bank's accounting policies, such as measurement of expected credit losses (ECLs), require particularly complex judgments and estimates. See Note 1 to the consolidated financial statements for a summary of the most significant estimation processes used to prepare the consolidated financial statements in accordance with IFRS and the valuation techniques used to determine carrying values and fair values of assets and liabilities. The uncertainty regarding certain key inputs used in measuring ECLs is described in Note 7 to the consolidated financial statements.

Classification of Financial Instruments

At initial recognition, all financial instruments are recorded at fair value on the Consolidated Balance Sheet. At initial recognition, financial assets must be classified as subsequently measured at fair value through other comprehensive income, at amortized cost, or at fair value through profit or loss. The Bank determines the classification based on the contractual cash flow characteristics of the financial assets and on the business model it uses to manage these financial assets. At initial recognition, financial liabilities are classified as subsequently measured at amortized cost or as at fair value through profit or loss.

For the purpose of classifying a financial asset, the Bank must determine whether the contractual cash flows associated with the financial asset are solely payments of principal and interest on the principal amount outstanding. The principal is generally the fair value of the financial asset at initial recognition. The interest consists of consideration for the time value of money, for the credit risk associated with the principal amount outstanding during a particular period, and for other basic lending risks and costs as well as of a profit margin. If the Bank determines that the contractual cash flows associated with a financial asset are not solely payments of principal and interest, the financial assets must be classified as measured at fair value through profit or loss.

When classifying financial assets, the Bank determines the business model used for each portfolio of financial assets that are managed together to achieve a same business objective. The business model reflects how the Bank manages its financial assets and the extent to which the financial asset cash flows are generated by the collection of the contractual cash flows, the sale of the financial assets, or both. The Bank determines the business model using scenarios that it reasonably expects to occur. Consequently, the business model determination is a matter of fact and requires the use of judgment and consideration of all the relevant evidence available to the Bank at the date of determination.

A financial asset portfolio falls within a "hold to collect" business model when the Bank's primary objective is to hold these financial assets in order to collect contractual cash flows from them and not to sell them. When the Bank's objective is achieved both by collecting contractual cash flows and by selling the financial assets, the financial asset portfolio falls within a "hold to collect and sell" business model. In this type of business model, collecting contractual cash flows and selling financial assets are both integral components to achieving the Bank's objective for this financial asset portfolio. Financial assets are mandatorily measured at fair value through profit or loss if they do not fall within either a "hold to collect" business model or a "hold to collect and sell" business model.

Fair Value of Financial Instruments

The fair value of a financial instrument is the price that would be received to sell a financial asset or paid to transfer a financial liability in an orderly transaction in the principal market at the measurement date under current market conditions (i.e., an exit price).

Unadjusted quoted prices in active markets, based on bid prices for financial assets and offered prices for financial liabilities, provide the best evidence of fair value. A financial instrument is considered quoted in an active market when prices in exchange, dealer, broker or principal-to-principal markets are accessible at the measurement date. An active market is one where transactions occur with sufficient frequency and volume to provide quoted prices on an ongoing basis.

When there is no quoted price in an active market, the Bank uses another valuation technique that maximizes the use of relevant observable inputs and minimizes the use of unobservable inputs. The chosen valuation technique incorporates all the factors that market participants would consider when pricing a transaction. Judgment is required when applying a large number of acceptable valuation techniques and estimates to determine fair value. The estimated fair value reflects market conditions on the measurement date and, consequently, may not be indicative of future fair value.

The best evidence of the fair value of a financial instrument at initial recognition is the transaction price, i.e., the fair value of the consideration received or paid. If there is a difference between the fair value at initial recognition and the transaction price, and the fair value is determined using a valuation technique based on observable market inputs or, in the case of a derivative, if the risks are fully offset by other contracts entered into with third parties, this difference is recognized in the Consolidated Statement of Income. In other cases, the difference between the fair value at initial recognition and the transaction price is deferred on the Consolidated Balance Sheet. The amount of the deferred gain or loss is recognized over the term of the financial instrument. The unamortized balance is immediately recognized in net income when (i) observable market inputs can be obtained and support the fair value of the transaction, (ii) the risks associated with the initial contract are substantially offset by other contracts entered into with third parties, (iii) the gain or loss is realized through a cash receipt or payment, or (iv) the transaction matures or is cancelled before maturity.

In certain cases, measurement adjustments are recognized to address factors that market participants would use at the measurement date to determine fair value but that are not included in the valuation technique due to system limitations or uncertainty surrounding the measure. These factors include, but are not limited to, the unobservable nature of inputs used in the valuation model, assumptions about risk such as market risk, credit risk, or valuation model risk and future administration costs. The Bank may also consider market liquidity risk when determining the fair value of financial instruments when it believes these instruments could be disposed of for a consideration below the fair value otherwise determined due to a lack of market liquidity or an insufficient volume of transactions in a given market. The measurement adjustments also include the funding valuation adjustment applied to derivative financial instruments to reflect the market implied cost or benefits of funding collateral for uncollateralized or partly collateralized transactions.

IFRS establishes a fair value measurement hierarchy that classifies the inputs used in financial instrument fair value measurement techniques according to three levels. The fair value measurement hierarchy has the following levels:

<u>Level 1</u>
Inputs corresponding to unadjusted quoted prices in active markets for identical assets and liabilities and accessible to the Bank at the measurement date. These instruments consist primarily of equity securities, derivative financial instruments traded in active markets, and certain highly liquid debt securities actively traded in over-the-counter markets.

<u>Level 2</u>
Valuation techniques based on inputs, other than the quoted prices included in Level 1 inputs, that are directly or indirectly observable in the market for the asset or liability. These inputs are quoted prices of similar instruments in active markets; quoted prices for identical or similar instruments in markets that are not active; inputs other than quoted prices used in a valuation model that are observable for that instrument; and inputs that are derived principally from or corroborated by observable market inputs by correlation or other means. These instruments consist primarily of certain loans, certain deposits, derivative financial instruments traded in over-the-counter markets, certain debt securities, certain equity securities whose value is not directly observable in an active market, liabilities related to transferred receivables, and certain other liabilities.

<u>Level 3</u>
Valuation techniques based on one or more significant inputs that are not observable in the market for the asset or liability. The Bank classifies financial instruments in Level 3 when the valuation technique is based on at least one significant input that is not observable in the markets. The valuation technique may also be partly based on observable market inputs. Financial instruments whose fair values are classified in Level 3 consist of investments in hedge funds, certain derivative financial instruments, equity and debt securities of private companies, certain loans, and certain deposits (structured deposit notes).

Establishing fair value is an accounting estimate and has an impact on the following items: *Securities at fair value through profit or loss*, certain *Loans*, *Securities at fair value through other comprehensive income*, *Obligations related to securities sold short*, *Derivative financial instruments*, financial instruments designated at fair value through profit or loss, and financial instruments designated at fair value through other comprehensive income on the Consolidated Balance Sheet. This estimate also has an impact on *Non-interest income* in the Consolidated Statement of Income of the Financial Markets segment and of the *Other* heading. Lastly, this estimate has an impact on *Other comprehensive income* in the Consolidated Statement of Comprehensive Income. For additional information on the fair value determination of financial instruments, see Notes 3 and 6 to the consolidated financial statements.

Impairment of Financial Assets

At the end of each reporting period, the Bank applies a three-stage impairment approach to measure the expected credit losses (ECL) on all debt instruments measured at amortized cost or at fair value through other comprehensive income and on loan commitments and financial guarantees that are not measured at fair value. ECLs are a probability-weighted estimate of credit losses over the remaining expected life of the financial instrument. The ECL model is forward looking. Measurement of ECLs at each reporting period reflects reasonable and supportable information about past events, current conditions, and forecasts of future events and economic conditions. Judgment is required in making assumptions and estimates, determining movements between the three stages, and applying forward-looking information. Any changes in assumptions and estimates, as well as the use of different, but equally reasonable, estimates and assumptions, could have an impact on the allowances for credit losses and the provisions for credit losses for the year. All business segments are affected by this accounting estimate. For additional information, see Note 7 to the consolidated financial statements.

Determining the Stage
The ECL three-stage impairment approach is based on the change in the credit quality of financial assets since initial recognition. If, at the reporting date, the credit risk of non-impaired financial instruments has not increased significantly since initial recognition, these financial instruments are classified in Stage 1, and an allowance for credit losses that is measured, at each reporting date, in an amount equal to 12-month expected credit losses is recorded. When there is a significant increase in credit risk since initial recognition, these non-impaired financial instruments are migrated to Stage 2, and an allowance for credit losses that is measured, at each reporting date, in an amount equal to lifetime expected credit losses is recorded. In subsequent reporting periods, if the credit risk of a financial instrument improves such that there is no longer a significant increase in credit risk since initial recognition, the ECL model requires reverting to Stage 1, i.e., recognition of 12-month expected credit losses. When one or more events that have a detrimental impact on the estimated future cash flows of a financial asset occurs, the financial asset is considered credit-impaired and is migrated to Stage 3, and an allowance for credit losses equal to lifetime expected credit losses continues to be recorded or the financial asset is written off. Interest income is calculated on the gross carrying amount for financial assets in Stages 1 and 2 and on the net carrying amount for financial assets in Stage 3.

Assessment of Significant Increase in Credit Risk
In determining whether credit risk has increased significantly, the Bank uses an internal credit risk grading system, external risk ratings, and forward-looking information to assess deterioration in the credit quality of a financial instrument. To assess whether or not the credit risk of a financial instrument has increased significantly, the Bank compares the probability of default (PD) occurring over its expected life as at the reporting date with the PD occurring over its expected life on the date of initial recognition and considers reasonable and supportable information indicative of a significant increase in credit risk since initial recognition. The Bank includes relative and absolute thresholds in the definition of significant increase in credit risk and a backstop of 30 days past due. All financial instruments that are 30 days past due are migrated to Stage 2 even if other metrics do not indicate that a significant increase in credit risk has occurred. The assessment of a significant increase in credit risk requires significant judgment.

Measurement of Expected Credit Losses
ECLs are measured as the probability-weighted present value of all expected cash shortfalls over the remaining expected life of the financial instrument, and reasonable and supportable information about past events, current conditions and forecasts of future events and economic conditions is considered. The estimation and application of forward-looking information requires significant judgment. Cash shortfalls represent the difference between all contractual cash flows owed to the Bank and all cash flows that the Bank expects to receive.

The measurement of ECLs is primarily based on the product of the financial instrument's PD, loss given default (LGD) and exposure at default (EAD). Forward-looking macroeconomic factors such as unemployment rates, housing price indices, interest rates, and gross domestic product (GDP) are incorporated into the risk parameters. The estimate of expected credit losses reflects an unbiased and probability-weighted amount that is determined by evaluating a range of possible outcomes. The Bank incorporates three forward-looking macroeconomic scenarios in its ECL calculation process: a base scenario, an upside scenario, and a downside scenario. Probability weights are assigned to each scenario. The scenarios and probability weights are reassessed quarterly and are subject to management review. The Bank applies experienced credit judgment to adjust the modelled ECL results when it becomes evident that known or expected risk factors and information were not considered in the credit risk rating and modelling process.

ECLs for all financial instruments are recognized in *Provisions for credit losses* in the Consolidated Statement of Income. In the case of debt instruments measured at fair value through other comprehensive income, ECLs are recognized in *Provisions for credit losses* in the Consolidated Statement of Income, and a corresponding amount is recognized in *Other comprehensive income* with no reduction in the carrying amount of the asset on the Consolidated Balance Sheet. As for debt instruments measured at amortized cost, they are presented net of the related allowances for credit losses on the Consolidated Balance Sheet. Allowances for credit losses for off-balance-sheet credit exposures that are not measured at fair value are included in *Other liabilities* on the Consolidated Balance Sheet.

Purchased or Originated Credit-Impaired Financial Assets
On initial recognition of a financial asset, the Bank determines whether the asset is credit-impaired. For financial assets that are credit-impaired upon purchase or origination, the lifetime expected credit losses are reflected in the initial fair value. In subsequent reporting periods, the Bank recognizes only the cumulative changes in these lifetime ECLs since initial recognition as an allowance for credit losses. The Bank recognizes changes in ECLs in *Provisions for credit losses* in the Consolidated Statement of Income, even if the lifetime ECLs are less than the ECLs that were included in the estimated cash flows on initial recognition.

Definition of Default
The definition of default used by the Bank to measure ECLs and transfer financial instruments between stages is consistent with the definition of default used for internal credit risk management purposes. The Bank considers a financial asset, other than a credit card receivable, to be credit-impaired when one or more events that have a detrimental impact on the estimated future cash flows of the financial asset have occurred or when contractual payments are 90 days past due. Credit card receivables are considered credit-impaired and are fully written off at the earlier of the following dates: when a notice of bankruptcy is received, a settlement proposal is made, or contractual payments are 180 days past due.

Write-Offs
A financial asset and its related allowance for credit losses are normally written off in whole or in part when the Bank considers the probability of recovery to be non-existent and when all guarantees and other remedies available to the Bank have been exhausted or if the borrower is bankrupt or winding up and balances owing are not likely to be recovered.

Impairment of Non-Financial Assets

Premises and equipment and intangible assets with finite useful lives are tested for impairment when events or changes in circumstances indicate that their carrying value may not be recoverable. At the end of each reporting period, the Bank determines whether there is an indication that premises and equipment or intangible assets with finite useful lives may be impaired. Goodwill and intangible assets that are not available for use or that have indefinite useful lives are tested for impairment annually or more frequently if there is an indication that the asset might be impaired.

An impairment test compares the carrying amount of an asset with its recoverable amount. The recoverable amount must be estimated for the individual asset. Where it is not possible to estimate the recoverable amount of an individual asset, the recoverable amount of the cash-generating unit (CGU) to which the asset belongs will be determined. Goodwill is always tested for impairment at the level of a CGU or a group of CGUs. A CGU is the smallest identifiable group of assets that generates cash inflows that are largely independent of the cash inflows from other assets or groups of assets. The Bank uses judgment to identify CGUs.

An asset's recoverable amount is the higher of fair value less costs to sell and the value in use of the asset or CGU. Value in use is the present value of expected future cash flows from the asset or CGU. The recoverable amount of the CGU is determined using valuation models that consider various factors such as projected future cash flows, discount rates, and growth rates. The use of different estimates and assumptions in applying the impairment tests could have a significant impact on income. If the recoverable amount of an asset or a CGU is less than its carrying amount, the carrying amount is reduced to its recoverable amount and an impairment loss is recognized in *Non-interest expenses* in the Consolidated Statement of Income.

Management exercises judgment when determining whether there is objective evidence that premises and equipment or intangible assets with finite useful lives may be impaired. It also uses judgment in determining to which CGU or group of CGUs an asset or goodwill is to be allocated. Moreover, for impairment assessment purposes, management must make estimates and assumptions regarding the recoverable amount of non-financial assets, CGUs, or a group of CGUs. For additional information on the estimates and assumptions used to calculate the recoverable amount of an asset or CGU, see Note 11 to the consolidated financial statements.

Any changes to these estimates and assumptions may have an impact on the recoverable amount of a non-financial asset and, consequently, on impairment testing results. These accounting estimates have an impact on *Premises and equipment*, *Intangible assets* and *Goodwill* reported on the Consolidated Balance Sheet. The aggregate impairment loss, if any, is recognized as a non-interest expense for the corresponding segment and presented in the *Other* item.

Employee Benefits – Pension Plans and Other Post-Employment Benefits

Pension plan and other post-employment benefit plan expenses and obligations are actuarially determined using the projected benefit method prorated on service. The calculations incorporate management's best estimates of various actuarial assumptions such as discount rates, rates of compensation increase, health care cost trend rates, mortality rates, and retirement age.

Remeasurements of these plans result in actuarial gains and losses related to the defined benefit obligation and the actual return on plan assets, excluding the net interest determined by applying a discount rate to the net asset or liability of the plans. Remeasurements are immediately recognized in *Other comprehensive income* and are not subsequently reclassified to net income; these cumulative gains and losses are reclassified to *Retained earnings*.

The use of different assumptions could have a significant impact on the defined benefit asset (liability) presented in *Other assets (Other liabilities)* on the Consolidated Balance Sheet, on the pension plan and other post-employment benefit plan expenses presented in *Compensation and employee benefits* in the Consolidated Statement of Income, as well as on *Remeasurements of pension plans and other post-employment benefit plans* presented in *Other comprehensive income*. All business segments are affected by this accounting estimate. For additional information, including the significant assumptions used to determine the Bank's pension plan and other post-employment benefit plan expenses and the sensitivity analysis for significant plan assumptions, see Note 23 to the consolidated financial statements.

Income Taxes

The Bank makes assumptions to estimate income taxes as well as deferred tax assets and liabilities. This process includes estimating the actual amount of current taxes and evaluating tax loss carryforwards and temporary differences arising from differences between the values of the items reported for accounting and for income tax purposes. Deferred tax assets and liabilities, presented in *Other assets* and *Other liabilities* on the Consolidated Balance Sheet, are calculated according to the tax rates to be applied in future periods. Previously recorded deferred tax assets and liabilities must be adjusted when the date of the future event is revised based on current information. The Bank periodically evaluates deferred tax assets to assess recoverability. In the Bank's opinion, based on the information at its disposal, it is probable that all deferred tax assets will be realized before they expire.

This accounting estimate affects *Income taxes* in the Consolidated Statement of Income for all business segments. For additional information on income taxes, see Notes 1 and 24 to the consolidated financial statements.

Litigation

In the normal course of business, the Bank and its subsidiaries are involved in various claims relating, among other matters, to loan portfolios, investment portfolios, and supplier agreements, including court proceedings, investigations or claims of a regulatory nature, class actions or other legal remedies of varied natures.

More specifically, the Bank is involved as a defendant in class actions instituted by consumers contesting, *inter alia*, certain transaction fees or who wish to avail themselves of certain legislative provisions relating to consumer protection. The recent developments in the main legal proceedings involving the Bank are as follows:

<u>Watson</u>
In 2011, a class action was filed in the Supreme Court of British Columbia against Visa Corporation Canada (Visa) and Mastercard International Incorporated (Mastercard) (the Networks) as well as National Bank and a number of other Canadian financial institutions. A similar action was also initiated in Quebec, Ontario, Alberta and Saskatchewan. In each of the actions, the Networks and financial institutions are alleged to have been involved in a price-fixing system to maintain and increase the fees paid by merchants on transactions executed using the credit cards of the Networks. In so doing, they would notably be in breach of the *Competition Act*. An unspecified amount of compensatory and punitive damages is being claimed. In 2017, a settlement was reached with the plaintiffs; in 2018 it was approved by the trial courts in each of the five jurisdictions where the action was initiated. The rulings approving the settlement were the subject of appeal proceedings in all jurisdictions. These appeal proceedings were all rejected during the year ended October 31, 2021, thereby confirming approval of the settlement reached in 2017 and ending the Bank's involvement in the class action.

Defrance

On January 21, 2019, the Quebec Superior Court authorized a class action against the National Bank and several other Canadian financial institutions. The originating application was served to the Bank on April 23, 2019. The class action was initiated on behalf of consumers residing in Quebec. The plaintiffs allege that non-sufficient funds charges, billed by all of the defendants when a payment order is refused due to non-sufficient funds, are illegal and prohibited by the *Consumer Protection Act*. The plaintiffs are claiming, in the form of damages, the repayment of these charges as well as punitive damages.

It is impossible to determine the outcome of the claims instituted or which may be instituted against the Bank and its subsidiaries. The Bank estimates, based on the information at its disposal, that while the amount of contingent liabilities pertaining to these claims, taken individually or in the aggregate, could have a material impact on the Bank's consolidated results of operations for a particular period, it would not have a material adverse impact on the Bank's consolidated financial position.

Provisions are liabilities of uncertain timing and amount. A provision is recognized when the Bank has a present obligation (legal or constructive) arising from a past event, when it is probable that an outflow of economic resources will be required to settle the obligation and when the amount of the obligation can be reliably estimated. Provisions are based on the Bank's best estimates of the economic resources required to settle the present obligation, given all relevant risks and uncertainties, and, when it is significant, the effect of the time value of money.

The recognition of a litigation provision requires the Bank's management to assess the probability of loss and estimate any potential monetary impact. The Bank examines each litigation provision individually by considering the development of each case, its past experience in similar transactions and the opinion of its legal counsel. Each new piece of information can alter the Bank's assessment as to the probability and estimated amount of the loss and the extent to which it adjusts the recorded provision. Moreover, the actual settlement cost of these litigations can be significantly higher or lower than the amounts recognized.

Structured Entities

In the normal course of business, the Bank enters into arrangements and transactions with structured entities. Structured entities are entities designed so that voting or similar rights are not the dominant factor in deciding who controls the entity, such as when voting rights relate solely to administrative tasks and the relevant activities are directed by means of contractual arrangements. A structured entity is consolidated when the Bank concludes, after evaluating the substance of the relationship and its right or exposure to variable returns, that it controls that entity. Management must exercise judgment in determining whether the Bank controls an entity. Additional information is provided in the Securitization and Off-Balance-Sheet Arrangements section of this MD&A and in Note 27 to the consolidated financial statements.

Future Accounting Policy Changes

The Bank closely monitors both new accounting standards and amendments to existing accounting standards issued by the IASB. The following standards have been issued but are not yet in effect. The Bank is currently assessing the impact of the application of these standards on the consolidated financial statements.

Effective Date – November 1, 2023

IFRS 17 – *Insurance Contracts*

In May 2017, the IASB issued IFRS 17 – *Insurance Contracts* (IFRS 17), a new standard that replaces IFRS 4, the current insurance contract accounting standard. IFRS 17 introduces a new accounting framework that will improve the comparability and quality of financial information. IFRS 17 provides guidance on the recognition, measurement, presentation and disclosure of insurance contracts. In June 2020, the IASB issued amendments to IFRS 17 that included a two-year deferral of the effective date along with other changes aimed at addressing concerns and implementation challenges identified after IFRS 17 was published in 2017. IFRS 17, as amended, is to be applied retrospectively for annual periods beginning on or after January 1, 2023, with earlier application permitted. If full retrospective application to a group of insurance contracts is impractical, the modified retrospective approach or the fair value approach may be used.

Additional Financial Information

Table 1 – Quarterly Results

(millions of Canadian dollars, except per share amounts)					2021
	Total	Q4	Q3	Q2	Q1
Statement of income data					
Net interest income	4,783	1,190	1,230	1,156	1,207
Non-interest income[1]	4,144	1,021	1,024	1,082	1,017
Total revenues	8,927	2,211	2,254	2,238	2,224
Non-interest expenses[2]	4,853	1,258	1,216	1,199	1,180
Income before provisions for credit losses and income taxes	4,074	953	1,038	1,039	1,044
Provisions for credit losses	2	(41)	(43)	5	81
Income taxes	895	218	242	233	202
Net income	3,177	776	839	801	761
Non-controlling interests	–	–	–	–	–
Net income attributable to the Bank's shareholders and holders of other equity instruments	3,177	776	839	801	761
Earnings per common share					
Basic	$ 9.06	$ 2.22	$ 2.39	$ 2.28	$ 2.16
Diluted	8.96	2.19	2.36	2.25	2.15
Dividends (per share)					
Common	$ 2.84	$ 0.71	$ 0.71	$ 0.71	$ 0.71
Preferred					
Series 30	1.0063	0.2516	0.2516	0.2515	0.2516
Series 32	0.9598	0.2400	0.2399	0.2400	0.2399
Series 34	0.7000	–	–	0.3500	0.3500
Series 36	1.0125	–	0.3375	0.3375	0.3375
Series 38	1.1125	0.2781	0.2781	0.2782	0.2781
Series 40	1.1500	0.2875	0.2875	0.2875	0.2875
Series 42	1.2375	0.3094	0.3093	0.3094	0.3094
Return on common shareholders' equity[3]	20.7 %	18.7 %	21.3 %	22.0 %	21.2 %
Total assets		355,795	354,040	350,742	343,637
Long-term financial liabilities[4]		768	769	771	773
Net impaired loans[5]		283	312	349	400
Number of common shares outstanding *(thousands)*					
Average – Basic	337,212	337,779	337,517	337,142	336,408
Average – Diluted	340,861	342,400	341,818	340,614	338,617
End of period		337,912	337,587	337,372	336,770
Per common share					
Book value[3]		$ 47.95	$ 46.00	$ 43.59	$ 41.48
Share price					
High	$ 104.32	104.32	96.97	89.42	73.81
Low	65.54	95.00	89.47	72.30	65.54
Number of employees – Worldwide		26,920	26,428	26,211	26,231
Number of branches in Canada		384	389	401	402

(1) For fiscal 2020, the *Non-interest income* item had included a foreign currency translation loss on a disposal of subsidiaries of $24 million (2019: $79 million gain on disposal of Fiera Capital Corporation shares, $50 million gain on a disposal of premises and equipment, and $33 million loss resulting from the fair value measurement of an investment).

(2) For fiscal 2021, the *Non-interest expenses* item included $9 million in impairment losses on intangible assets (2020: $71 million impairment loss on premises and equipment and intangible assets; 2019: $57 million). For fiscal 2020, the *Non-interest expenses* item had included $48 million in severance pay (2019: $10 million) and a $13 million charge related to Maple (2019: $11 million). An amount of $45 million in provisions for onerous contracts had been recorded in 2019.

(3) For additional information on supplementary financial measures composition, see the Glossary section on pages 123 to 126.

(4) Subordinated debt.

(5) All loans classified in Stage 3 of the expected credit loss model are impaired loans; the net impaired loans presented in this table exclude POCI loans.

				2020					2019
Total	Q4	Q3	Q2	Q1	Total	Q4	Q3	Q2	Q1
4,255	1,124	1,096	1,105	930	3,596	936	855	942	863
3,672	876	872	931	993	3,836	979	1,093	828	936
7,927	2,000	1,968	2,036	1,923	7,432	1,915	1,948	1,770	1,799
4,545	1,259	1,074	1,121	1,091	4,301	1,095	1,154	1,026	1,026
3,382	741	894	915	832	3,131	820	794	744	773
846	110	143	504	89	347	89	86	84	88
453	139	149	32	133	462	127	100	102	133
2,083	492	602	379	610	2,322	604	608	558	552
42	2	13	11	16	66	14	17	19	16
2,041	490	589	368	594	2,256	590	591	539	536
$ 5.73	$ 1.37	$ 1.67	$ 1.01	$ 1.69	$ 6.39	$ 1.68	$ 1.68	$ 1.52	$ 1.51
5.70	1.36	1.66	1.01	1.67	6.34	1.67	1.66	1.51	1.50
$ 2.84	$ 0.71	$ 0.71	$ 0.71	$ 0.71	$ 2.66	$ 0.68	$ 0.68	$ 0.65	$ 0.65
1.0063	0.2516	0.2516	0.2515	0.2516	1.0156	0.2515	0.2516	0.2562	0.2563
0.9636	0.2400	0.2399	0.2399	0.2438	0.9750	0.2437	0.2438	0.2437	0.2438
1.4000	0.3500	0.3500	0.3500	0.3500	1.4000	0.3500	0.3500	0.3500	0.3500
1.3500	0.3375	0.3375	0.3375	0.3375	1.3500	0.3375	0.3375	0.3375	0.3375
1.1125	0.2781	0.2781	0.2782	0.2781	1.1125	0.2781	0.2781	0.2782	0.2781
1.1500	0.2875	0.2875	0.2875	0.2875	1.1500	0.2875	0.2875	0.2875	0.2875
1.2375	0.3094	0.3093	0.3094	0.3094	1.2375	0.3094	0.3093	0.3094	0.3094
14.9 %	13.7 %	17.0 %	10.7 %	18.0 %	18.0 %	18.2 %	18.7 %	17.8 %	17.2 %
	331,625	322,453	316,950	289,191		281,458	276,312	269,106	263,355
	775	777	779	774		773	773	772	764
	465	453	479	436		450	420	379	373
335,508	335,859	335,552	335,603	335,020	335,104	334,393	334,843	335,478	335,716
337,580	338,264	337,231	337,317	338,111	337,630	336,900	337,768	338,515	338,585
	335,998	335,666	335,400	335,818		334,172	334,210	335,116	335,500
	$ 39.97	$ 38.91	$ 38.74	$ 37.58		$ 36.89	$ 36.12	$ 35.49	$ 34.85
$ 74.79	72.85	65.54	74.79	74.22	$ 68.02	68.02	64.16	63.82	61.80
38.73	62.99	51.38	38.73	68.25	54.97	60.38	60.71	60.31	54.97
	26,517	26,544	26,589	26,314		25,487	24,881	24,137	23,960
	403	409	413	416		422	429	428	428

Table 2 – Overview of Results

Year ended October 31 (taxable equivalent basis)(1) (millions of Canadian dollars)	2021	2020	2019	2018	2017
Net interest income on a taxable equivalent basis(2)	4,964	4,463	3,791	3,526	3,645
Non-interest income on a taxable equivalent basis(2)(3)	4,152	3,729	3,971	3,885	3,208
Total revenues on a taxable equivalent basis	9,116	8,192	7,762	7,411	6,853
Non-interest expenses(4)	4,853	4,545	4,301	4,063	3,857
Income before provisions for credit losses and income taxes on a taxable equivalent basis	4,263	3,647	3,461	3,348	2,996
Provisions for credit losses	2	846	347	327	244
Income before income taxes on a taxable equivalent basis	4,261	2,801	3,114	3,021	2,752
Income taxes on a taxable equivalent basis(2)	1,084	718	792	789	728
Net income	3,177	2,083	2,322	2,232	2,024
Non-controlling interests	–	42	66	87	84
Net income attributable to the Bank's shareholders and holders of other equity instruments	3,177	2,041	2,256	2,145	1,940
Average assets(5)	363,662	318,199	286,162	265,940	248,351

(1) For additional information on non-GAAP financial measures, see the Financial Reporting Method section on pages 18 to 21.
(2) For fiscal 2021, *Net interest income* was grossed up by $181 million (2020: $208 million; 2019: $195 million; 2018: $144 million; 2017: $209 million), *Non-interest income* was grossed up by $8 million (2020: $57 million; 2019: $135 million; 2018: $101 million; 2017: $35 million), and an equivalent amount was recognized in *Income taxes*.
(3) For fiscal 2021, *Non-interest income* included a $33 million gain following a remeasurement of the previously held equity interest in Flinks and a $30 million loss related to the fair value measurement of the Bank's equity interest in AfrAsia (2020: $24 million foreign currency translation loss on a disposal of subsidiaries; 2019: $79 million gain on disposal of Fiera Capital Corporation shares, $50 million gain on disposal of premises and equipment, and $33 million loss resulting from the fair value measurement of an investment).
(4) For fiscal 2021, *Non-interest expenses* included $9 million in impairment losses on intangible assets (2020: $71 million in impairment losses on premises and equipment and intangible assets; 2019: $57 million). For fiscal 2020, *Non-interest expenses* had included $48 million in severance pay (2019: $10 million) and a $13 million charge related to Maple (2019: $11 million). An amount of $45 million in provisions for onerous contracts had been recorded in 2019.
(5) For additional information on supplementary financial measures composition, see the Glossary section on pages 123 to 126.

Table 3 – Changes in Net Interest Income

Year ended October 31 (taxable equivalent basis)(1) (millions of Canadian dollars)	2021	2020	2019	2018	2017
Personal and Commercial					
Net interest income	2,583	2,445	2,384	2,276	2,127
Average assets(2)	127,716	117,338	112,798	106,857	102,139
Average interest-bearing assets(2)	121,593	111,488	106,995	101,446	97,339
Net interest margin(2)	2.12 %	2.19 %	2.23 %	2.24 %	2.19 %
Wealth Management					
Net interest income on a taxable equivalent basis(3)	448	442	455	426	351
Average assets(2)	7,146	5,917	6,219	6,167	5,947
Financial Markets					
Net interest income on a taxable equivalent basis(3)	1,226	946	474	409	772
Average assets(2)	150,147	123,943	112,493	100,721	94,991
USSF&I					
Net interest income	907	807	656	584	466
Average assets(2)	16,150	14,336	10,985	9,270	7,519
Other					
Net interest income on a taxable equivalent basis(3)	(200)	(177)	(178)	(169)	(71)
Average assets(2)	62,503	56,665	43,667	42,925	37,755
Total					
Net interest income on a taxable equivalent basis(3)	4,964	4,463	3,791	3,526	3,645
Average assets(2)	363,662	318,199	286,162	265,940	248,351

(1) For additional information on non-GAAP financial measures, see the Financial Reporting Method section on pages 18 to 21.
(2) For additional information on supplementary financial measures composition, see the Glossary section on pages 123 to 126.
(3) For fiscal 2021, the *Net interest income* of the Financial Markets segment was grossed up by $175 million (2020: $202 million; 2019: $191 million; 2018: $141 million; 2017: $207 million, the *Net interest income* of the *Other* heading was grossed up by $6 million (2020: $6 million; 2019: $3 million; 2018: $3 million; 2017: $2 million), the *Net interest income* of the Wealth Management segment was grossed up by $1 million in 2019, and the total *Net interest income* of the Bank was grossed up by $181 million (2020: $208 million; 2019: $195 million; 2018: $144 million; 2017: $209 million).

Table 4 – Non-Interest Income

Year ended October 31[1] (taxable equivalent basis)[2] (millions of Canadian dollars)	2021	2020	2019	2018	2017
Underwriting and advisory fees	**415**	314	246	322	291
Securities brokerage commissions	**238**	204	166	169	174
Mutual fund revenues	**563**	477	449	438	412
Investment management and trust service fees	**900**	735	677	665	604
Credit fees	**164**	147	134	126	130
Revenues from acceptances, letters of credit and guarantee	**342**	320	283	277	231
Card revenues	**148**	138	175	159	132
Deposit and payment service charges	**274**	262	271	280	279
Trading revenues (losses) on a taxable equivalent basis[2][3]	**276**	601	923	902	375
Gains (losses) on available-for-sale securities, net					140
Gains (losses) on non-trading securities, net	**151**	93	77	77	
Insurance revenues, net	**131**	128	136	121	117
Foreign exchange revenues, other than trading	**202**	164	137	134	115
Share in the net income of associates and joint ventures	**23**	28	34	28	35
Other[4]	**325**	118	263	187	173
	4,152	3,729	3,971	3,885	3,208
Canada	**4,000**	3,631	3,780	3,589	3,027
United States	**106**	5	85	108	136
Other countries	**46**	93	106	188	45
Non-interest income on a taxable equivalent basis as a % of total revenues on a taxable equivalent basis[2]	**45.5 %**	45.5 %	51.2 %	52.4 %	46.8 %

(1) Data from fiscal years prior to 2021 has been adjusted to reflect a reclassification of certain amounts between the *Non-interest income* items to better reflect the nature of the income reported in the Wealth Management segment.
(2) For additional information on non-GAAP financial measures, see the Financial Reporting Method section on pages 18 to 21.
(3) For fiscal 2021, *Trading revenues (losses)* was grossed up by $8 million (2020: $57 million; 2019: $135 million; 2018: $101 million; 2017: $35 million).
(4) For fiscal 2021, *Other* revenues included a $33 million gain following a remeasurement of the previously held equity interest in Flinks and a $30 million loss related to the fair value measurement of the Bank's equity interest in AfrAsia (2020: $24 million foreign currency translation loss on a disposal of subsidiaries; 2019: $79 million gain on disposal of Fiera Capital Corporation shares, $50 million gain on disposal of premises and equipment, and $33 million loss resulting from the fair value measurement of an investment).

Table 5 – Trading Activity Revenues

Year ended October 31[1] (millions of Canadian dollars)	2021	2020	2019	2018	2017
Trading activity revenues	**1,059**	1,147	828	866	726
Taxable equivalent basis[2]	**179**	259	323	239	240
Trading activity revenues on a taxable equivalent basis[2]	**1,238**	1,406	1,151	1,105	966
Financial Markets					
Equities	**685**	706	621	575	506
Fixed-income	**357**	430	285	263	290
Commodities and foreign exchange	**128**	132	126	130	107
	1,170	1,268	1,032	968	903
Other segments	**68**	138	119	137	63
	1,238	1,406	1,151	1,105	966

(1) For fiscal years prior to 2021, certain amounts have been reclassified.
(2) For additional information on non-GAAP financial measures, see the Financial Reporting Method section on pages 18 to 21. The taxable equivalent basis presented in this table is related to trading portfolios. The Bank also uses taxable equivalent basis for certain investment portfolios, and the amounts stood at $10 million for fiscal 2021 (2020: $6 million; 2019: $7 million; 2018: $6 million; 2017: $4 million).

Table 6 – Non-Interest Expenses

Year ended October 31 (millions of Canadian dollars)	2021	2020	2019	2018	2017
Compensation and employee benefits[1]	**3,027**	2,713	2,532	2,466	2,358
Occupancy[2]	**147**	151	254	193	195
Technology	**482**	433	372	375	364
Amortization – Premises and equipment	**152**	140	44	43	41
Amortization – Technology[3]	**339**	372	332	245	204
Communications	**53**	58	62	63	61
Professional fees	**246**	244	249	244	254
Travel and business development	**109**	103	128	128	122
Capital and payroll taxes	**52**	73	70	79	73
Other[4]	**246**	258	258	227	185
Total	**4,853**	4,545	4,301	4,063	3,857
Canada	**4,428**	4,124	3,931	3,750	3,571
United States	**203**	209	210	205	209
Other countries	**222**	212	160	108	77
Non-interest expenses as a % of total revenues on a taxable equivalent basis[5]	**53.2 %**	55.5 %	55.4 %	54.8 %	56.3 %
Non-interest expenses excluding specified items as a % of total revenues on a taxable equivalent basis and excluding specified items[5]	**53.1 %**	53.7 %	54.5 %	54.8 %	56.3 %

(1) For fiscal 2020, compensation and employee benefits had included $48 million in severance pay (2019: $10 million).
(2) For fiscal 2019, occupancy expense had included $45 million in provisions for onerous contracts.
(3) For fiscal 2021, the *Amortization – Technology* expense included $9 million in impairment losses on intangible assets (2020: $71 million in impairment losses on premises and equipment and intangible assets; 2019: $57 million).
(4) For fiscal 2020, other expenses had included a $13 million charge related to Maple (2019: $11 million).
(5) For additional information on non-GAAP financial measures, see the Financial Reporting Method section on pages 18 to 21.

Table 7 – Provisions for Credit Losses[1]

Year ended October 31 (millions of Canadian dollars)	2021	2020	2019	2018	2017[2]
Personal Banking[3]					
Stage 3	65	147	166	158	153
Stages 1 and 2	(77)	121	8	9	–
	(12)	268	174	167	153
Commercial Banking					
Stage 3	32	110	35	40	43
Stages 1 and 2[4]	(14)	139	28	21	(40)
	18	249	63	61	3
Wealth Management					
Stage 3	1	4	–	–	–
Stages 1 and 2	–	3	–	1	–
	1	7	–	1	–
Financial Markets					
Stage 3	72	65	18	–	–
Stages 1 and 2	(62)	174	12	4	–
	10	239	30	4	–
USSF&I					
Stage 3	13	46	94	126	48
Stages 1 and 2	(2)	41	(24)	(3)	–
POCI loans	(26)	(7)	10	(29)	–
	(15)	80	80	94	48
Other					
Stage 3	–	–	–	–	–
Stages 1 and 2[5]	–	3	–	–	40
	–	3	–	–	40
Total provisions for credit losses					
Stage 3	183	372	313	324	244
Stages 1 and 2	(155)	481	24	32	–
POCI loans	(26)	(7)	10	(29)	–
	2	846	347	327	244
Average loans and acceptances	172,323	159,275	148,765	139,603	130,882
Provisions for credit losses on impaired loans[1] as a % of average loans and acceptances[6]	0.11 %	0.23 %	0.21 %	0.23 %	0.19 %
Provisions for credit losses as a % of average loans and acceptances[6]	– %	0.53 %	0.23 %	0.23 %	0.19 %

(1) Given the adoption of IFRS 9, all loans classified in Stage 3 of the expected credit loss model are impaired loans. Under IAS 39, loans were considered impaired according to different criteria. Provisions for credit losses on impaired loans presented in this table exclude provisions for credit losses on POCI loans.
(2) These figures are presented in accordance with IAS 39.
(3) Includes credit card receivables.
(4) During fiscal 2017, the Bank recorded a $40 million reversal of the sectoral provision on non-impaired loans that had been taken collectively for the oil and gas producer and service company loan portfolio.
(5) During fiscal 2017, the provisions for credit losses had included a $40 million increase in the collective allowance for credit risk on non-impaired loans, which was established taking into account the Bank's overall credit portfolio, except for loans covered by the sectoral allowance and POCI loans.
(6) For additional information on supplementary financial measures composition, see the Glossary section on pages 123 to 126.

Table 8 – Change in Average Volumes[1]

Year ended October 31 (taxable equivalent basis)[2] (millions of Canadian dollars)	2021		2020		2019		2018		2017	
	Average volume $	Rate %	Average volume $	Rate %	Average volume $	Rate %	Average volume $	Rate %	Average volume $	Rate %
Assets										
Deposits with financial institutions	**21,349**	**0.36**	16,083	0.55	13,149	1.64	16,282	1.27	15,802	0.72
Securities	**116,023**	**1.41**	97,025	1.84	85,772	1.97	75,923	1.64	66,591	1.75
Securities purchased under reverse repurchase agreements and securities borrowed	**11,559**	**0.90**	16,408	1.39	22,472	1.60	20,090	1.09	19,878	1.03
Residential mortgage loans	**68,297**	**2.93**	59,801	3.13	54,493	3.30	51,509	3.07	50,218	2.82
Personal loans	**38,434**	**3.16**	36,273	3.68	35,816	4.25	35,041	3.98	33,298	3.65
Credit card receivables	**1,864**	**13.47**	1,995	14.62	2,221	14.06	2,165	13.69	2,209	13.09
Business and government loans	**56,192**	**2.73**	53,325	3.37	47,986	4.42	42,803	4.09	37,794	3.33
POCI loans	**686**	**22.64**	1,073	16.45	1,386	13.37	1,486	13.12	1,238	15.18
Average interest-bearing assets[1]	**314,404**	**2.22**	281,983	2.69	263,295	3.12	245,299	2.81	227,028	2.58
Other assets	**49,258**		36,216		22,867		20,641		21,323	
	363,662	**1.92**	318,199	2.39	286,162	2.87	265,940	2.60	248,351	2.36
Liabilities and equity										
Personal deposits	**68,334**	**0.42**	63,634	0.87	58,680	1.22	53,179	1.08	50,878	0.99
Deposit-taking institutions	**6,522**	**0.09**	6,494	0.63	5,987	1.80	5,985	1.45	7,567	0.69
Other deposits	**161,373**	**0.68**	137,253	1.26	119,793	2.06	108,012	1.66	95,809	1.21
	236,229	**0.58**	207,381	1.12	184,460	1.79	167,176	1.47	154,254	1.11
Subordinated debt	**758**	**3.22**	759	3.25	758	3.25	564	3.20	423	3.81
Obligations other than deposits[1]	**57,698**	**0.21**	49,671	0.65	47,404	1.35	47,762	1.20	44,204	0.74
Average interest-bearing liabilities[1]	**294,685**	**0.68**	257,811	1.23	232,622	1.90	215,502	1.57	198,881	1.11
Other liabilities	**51,298**		44,702		38,827		36,492		36,722	
Equity	**17,679**		15,686		14,713		13,946		12,748	
	363,662	**0.55**	318,199	1.00	286,162	1.55	265,940	1.27	248,351	0.89
Net interest margin[1]		**1.37**		1.39		1.32		1.33		1.47

(1) For additional information on supplementary financial measures composition, see the Glossary section on pages 123 to 126.
(2) For additional information on non-GAAP financial measures, see the Financial Reporting Method section on pages 18 to 21.

Table 9 – Distribution of Gross Loans and Acceptances by Borrower Category Under Basel Asset Classes

As at October 31 (millions of Canadian dollars)	2021 $	2021 %	2020 $	2020 %	2019 $	2019 %	2018 $	2018 %	2017 $	2017 %
Residential mortgage[1]	**89,035**	**48.5**	81,543	49.2	74,448	48.4	70,591	48.1	66,398	48.4
Qualifying revolving retail	**3,589**	**2.0**	3,599	2.2	4,099	2.7	4,211	2.9	4,217	3.1
Other retail	**12,949**	**7.0**	11,569	7.0	11,606	7.5	12,246	8.3	12,150	8.9
Agriculture	**7,357**	**4.0**	6,696	4.0	6,308	4.1	5,759	3.9	4,923	3.6
Oil and gas, and pipelines	**4,325**	**2.4**	5,052	3.0	4,329	2.8	4,056	2.8	3,364	2.5
Mining	**529**	**0.3**	756	0.5	758	0.5	1,032	0.7	470	0.3
Utilities	**5,387**	**2.9**	4,352	2.6	3,372	2.2	2,715	1.9	2,347	1.7
Non-real-estate construction[2]	**1,541**	**0.8**	1,079	0.7	1,168	0.8	1,049	0.7	1,336	1.0
Manufacturing	**5,502**	**3.0**	5,545	3.3	6,303	4.1	5,303	3.6	4,274	3.1
Wholesale	**2,598**	**1.4**	2,206	1.3	2,221	1.4	2,163	1.5	2,066	1.5
Retail	**2,978**	**1.6**	2,955	1.8	3,289	2.1	3,069	2.1	3,431	2.5
Transportation	**1,811**	**1.0**	1,528	0.9	1,682	1.1	1,452	1.0	1,425	1.0
Communications	**1,441**	**0.8**	1,184	0.7	1,614	1.0	1,597	1.1	1,662	1.2
Finance and insurance	**4,960**	**2.7**	4,347	2.6	4,335	2.8	4,732	3.2	4,932	3.6
Real estate and real-estate-construction[3]	**18,195**	**9.9**	14,171	8.6	11,635	7.6	11,629	7.9	10,418	7.6
Professional services	**1,872**	**1.0**	1,490	0.9	1,846	1.2	1,582	1.1	1,416	1.0
Education and health care	**4,073**	**2.2**	3,800	2.3	3,520	2.3	3,284	2.2	2,886	2.1
Other services	**5,875**	**3.2**	5,296	3.2	4,937	3.2	4,715	3.2	4,762	3.5
Government	**1,159**	**0.6**	1,160	0.7	1,071	0.7	1,445	1.0	1,452	1.1
Other	**8,047**	**4.4**	6,715	4.0	4,222	2.7	2,534	1.7	1,233	0.9
POCI loans	**464**	**0.3**	855	0.5	1,166	0.8	1,576	1.1	1,990	1.4
	183,687	**100.0**	165,898	100.0	153,929	100.0	146,740	100.0	137,152	100.0

(1) Includes residential mortgage loans on one- to four-unit dwellings (Basel definition) and home equity lines of credit.
(2) Includes civil engineering loans, public-private partnership loans, and project finance loans.
(3) Includes residential mortgages on dwellings of five or more units and SME loans.

Table 10 – Impaired Loans[1]

As at October 31 (millions of Canadian dollars)	2021	2020	2019	2018	2017[2]
Net impaired loans[3]					
Personal Banking	**106**	206	187	199	81
Commercial Banking	**112**	206	222	187	121
Wealth Management	**16**	2	3	3	1
Financial Markets	**9**	21	23	–	–
USSF&I	**40**	30	15	15	3
Other	**–**	–	–	–	–
	283	465	450	404	206
Gross impaired loans	**662**	817	684	630	380
Allowances for credit losses on impaired loans	**379**	352	234	226	
Individual and collective allowances on impaired loans					174
Net impaired loans[3]	**283**	465	450	404	206
Provisioning rate[4]	**57.3 %**	43.1 %	34.2 %	35.9 %	45.8 %
Net impaired loans as a % of loans and acceptances[4]	**0.2 %**	0.3 %	0.3 %	0.3 %	0.2 %

(1) Given the adoption of IFRS 9, all loans classified in Stage 3 of the expected credit loss model are impaired loans. Under IAS 39, loans were considered impaired according to different criteria. The impaired loans presented in this table exclude POCI loans.
(2) These figures are presented in accordance with IAS 39.
(3) Net impaired loans are presented net of allowances for credit losses on Stage 3 loan amounts drawn.
(4) For additional information on supplementary financial measures composition, see the Glossary section on pages 123 to 126.

Table 11 – Allowances for Credit Losses

Year ended October 31 (millions of Canadian dollars)	2021	2020	2019	2018	2017[1]
Balance at beginning	1,343	755	714	735	769
Provisions for credit losses	2	846	347	327	244
Write-offs	(192)	(294)	(351)	(367)	(320)
Disposals	(14)	–	(1)	(24)	–
Recoveries	44	44	52	45	13
Exchange and other movements	(14)	(8)	(6)	(2)	(11)
Balance at end	1,169	1,343	755	714	695
Composition of allowances:					
Allowances for credit losses on impaired loans[2]	379	352	234	226	174
Allowances for credit losses on non-impaired loans	708	872	501	498	
Allowances for credit losses on off-balance-sheet commitments and other assets	171	185	77	56	
Allowances for credit losses on POCI loans	(89)	(66)	(57)	(66)	(24)
Sectoral allowance on non-impaired loans – Oil and gas[3]					139
Collective allowance on non-impaired loans[4]					406

(1) These figures are presented in accordance with IAS 39.
(2) Given the adoption of IFRS 9, all loans classified in Stage 3 of the expected credit loss model are impaired loans. Under IAS 39, loans were considered impaired according to different criteria. Allowances for credit losses on impaired loans presented in this table exclude allowances for credit losses on POCI loans.
(3) The sectoral allowance on non-impaired loans – oil and gas was established collectively for the portfolio of loans to producers and service companies in the oil and gas sector.
(4) The collective allowance for credit risk on non-impaired loans was established taking into account the Bank's overall credit portfolio, except for loans covered by the sectoral allowance and POCI loans.

Table 12 – Deposits

As at October 31 (millions of Canadian dollars)	2021		2020		2019		2018		2017	
	$	%	$	%	$	%	$	%	$	%
Personal	70,076	29.1	67,499	31.3	60,065	31.7	55,688	32.6	52,175	33.3
Business and government	167,870	69.7	143,787	66.6	125,266	66.1	110,321	64.6	99,115	63.3
Deposit-taking institutions	2,992	1.2	4,592	2.1	4,235	2.2	4,821	2.8	5,381	3.4
Total	240,938	100.0	215,878	100.0	189,566	100.0	170,830	100.0	156,671	100.0
Canada	216,906	90.0	195,730	90.7	172,764	91.1	156,054	91.4	145,288	92.8
United States	9,234	3.8	8,126	3.7	6,907	3.7	6,048	3.5	5,825	3.7
Other countries	14,798	6.2	12,022	5.6	9,895	5.2	8,728	5.1	5,558	3.5
Total	240,938	100.0	215,878	100.0	189,566	100.0	170,830	100.0	156,671	100.0
Personal deposits as a % of total assets		19.7		20.4		21.3		21.2		21.2

Glossary

Acceptances
Acceptances and the customers' liability under acceptances constitute a guarantee of payment by a bank and can be traded in the money market. The Bank earns a "stamping fee" for providing this guarantee.

Assets under administration
Assets in respect of which a financial institution provides administrative services such as custodial services, collection of investment income, settlement of purchase and sale transactions and record-keeping. Assets under administration, which are beneficially owned by clients, are not reported on the balance sheet of the institution offering such services.

Assets under management
Assets managed by a financial institution and that are beneficially owned by clients. Management services are more comprehensive than administrative services and include selecting investments or offering investment advice. Assets under management, which may also be administered by the financial institution, are not reported on the balance sheet of the institution offering such services.

Allowances for credit losses
Allowances for credit losses represent management's unbiased estimate of expected credit losses as at the balance sheet date. These allowances are primarily related to loans and off-balance-sheet items such as loan commitments and financial guarantees.

Average assets
Average assets represent the average of the daily balances for the fiscal year.

Average common shareholders' equity
Average common shareholders' equity represents the average of the daily balances for the fiscal year.

Average deposits
Average deposits represent the average of the daily balances for the fiscal year.

Average interest-bearing assets
Average interest-bearing assets include interest-bearing deposits with financial institutions and certain cash items, securities, securities purchased under reverse repurchase agreements and securities borrowed, and loans, while excluding other assets. The average is calculated based on the daily balances for the fiscal year.

Average interest-bearing liabilities
Average interest-bearing liabilities include deposits, obligations related to securities sold short, obligations related to securities sold under repurchase agreements and securities loaned, and subordinated debt, while excluding other liabilities. The average is calculated based on the daily balances for the fiscal year.

Average loans
Average loans represent the average of the daily balances for the fiscal year.

Average loans and acceptances
Average loans and acceptances represent the average of the daily balances for the fiscal year of loans and the customers' liability under acceptances.

Average loans and receivables
Average loans and receivables represent the average of the daily balances for the fiscal year.

Average obligations other than deposits
Average obligations other than deposits represent the average of the daily balances for the fiscal year of obligations related to securities sold short and obligations related to securities sold under repurchase agreements and securities loaned.

Average securities
Average securities represent the average of the daily balances for the fiscal year.

Average securities purchased under reverse repurchase agreements and securities borrowed
Average securities purchased under reverse repurchase agreements and securities borrowed represent the average of the daily balances for the fiscal year.

Average volumes
Average volumes represent the average of the daily balances for the fiscal year of the consolidated balance sheet items.

Basic earnings per share
Basic earnings per share excluding specified items (or adjusted)
Basic earnings per share is calculated by dividing net income attributable to common shareholders by the weighted average basic number of common shares outstanding. Basic earnings per share excluding specified items (or adjusted) is calculated by dividing net income attributable to common shareholders excluding specified items (or adjusted) by the weighted average basic number of common shares outstanding.

Basis point
Unit of measure equal to one one-hundredth of a percentage point (0.01%).

Book value of a common share
The book value of a common share is calculated by dividing common shareholders' equity by the number of common shares on a given date.

Common Equity Tier 1 (CET1) capital ratio
CET1 capital consists of common shareholders' equity less goodwill, intangible assets and other capital deductions. The CET1 capital ratio is calculated by dividing Common Equity Tier 1 capital by the corresponding risk-weighted assets.

Compound annual growth rate (CAGR)
CAGR is a rate of growth that shows, for a period exceeding one year, the annual change as though the growth had been constant throughout the period.

Derivative financial instruments
Derivative financial instruments are financial contracts whose value is derived from an underlying interest rate, exchange rate or equity, commodity or credit instrument or index. Examples of derivatives include swaps, options, forward rate agreements and futures. The notional amount of the derivative is the contract amount used as a reference point to calculate the payments to be exchanged between the two parties, and the notional amount itself is generally not exchanged by the parties.

Diluted earnings per share
Diluted earnings per share excluding specified items (or adjusted)
Diluted earnings per share is calculated by dividing net income attributable to common shareholders by the weighted average number of common shares outstanding after taking into account the dilution effect of stock options using the treasury stock method and any gain (loss) on the redemption of preferred shares. Diluted earnings per share excluding specified items (or adjusted) is calculated by dividing net income attributable to common shareholders excluding specified items (or adjusted) by the weighted average number of common shares outstanding after taking into account the dilution effect of stock options using the treasury stock method and any gain (loss) on the redemption of preferred shares.

Dividend payout ratio
Dividend payout ratio excluding specified items (or adjusted)
The dividend payout ratio represents the dividends of common shares (per share amount) expressed as a percentage of basic earnings per share. The dividend payout ratio excluding specified items (or adjusted) represents the dividends on common shares (per share amount) expressed as a percentage of basic earnings per share excluding specified items (or adjusted).

Economic capital
Economic capital is the internal measure used by the Bank to determine the capital required for its solvency and to pursue its business operations. Economic capital takes into consideration the credit, market, operational, business and other risks to which the Bank is exposed as well as the risk diversification effect among them and among the business segments. Economic capital thus helps the Bank to determine the capital required to protect itself against such risks and ensure its long-term viability.

Efficiency ratio
Efficiency ratio on a taxable equivalent basis
Efficiency ratio on a taxable equivalent basis and excluding specified items (or adjusted)
The efficiency ratio represents non-interest expenses expressed as a percentage of total revenues. It measures the efficiency of the Bank's operations. The efficiency ratio on a taxable equivalent basis represents non-interest expenses expressed as a percentage of total revenues on a taxable equivalent basis. The efficiency ratio on a taxable equivalent basis and excluding specified items (or adjusted) represents non-interest expenses excluding specified items (or adjusted) expressed as a percentage of total revenues on a taxable equivalent basis and excluding specified items (or adjusted).

Fair value
The fair value of a financial instrument is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction in the principal market at the measurement date under current market conditions (i.e., an exit price).

Gross impaired loans as a percentage of total loans and acceptances
This measure represents gross impaired loans expressed as a percentage of the balance of loans and acceptances.

Hedging
The purpose of a hedging transaction is to modify the Bank's exposure to one or more risks by creating an offset between changes in the fair value of, or the cash flows attributable to, the hedged item and the hedging instrument.

Impaired loans
The Bank considers a financial asset, other than a credit card receivable, to be credit-impaired when one or more events that have a detrimental impact on the estimated future cash flows of the financial asset have occurred or when contractual payments are 90 days past due. Credit card receivables are considered credit-impaired and are fully written off at the earlier of the following dates: when a notice of bankruptcy is received, a settlement proposal is made, or contractual payments are 180 days past due.

Leverage ratio
The leverage ratio is calculated by dividing Tier 1 capital by total exposure. Total exposure is defined as the sum of on-balance-sheet assets (including derivative financial instruments exposures and securities financing transaction exposures) and off-balance-sheet items.

Liquidity coverage ratio (LCR)
The LCR is a measure designed to ensure that the Bank has sufficient high-quality liquid assets to cover net cash outflows given a severe, 30-day liquidity crisis.

Loans and acceptances
Loans and acceptances represent the sum of loans and of the customers' liability under acceptances.

Loan-to-value ratio
The loan-to-value ratio is calculated according to the total facility amount for residential mortgages and home equity lines of credit divided by the value of the related residential property.

Master netting agreement
Legal agreement between two parties that have multiple derivative contracts with each other that provides for the net settlement of all contracts through a single payment, in the event of default, insolvency or bankruptcy.

Net impaired loans
Net impaired loans are presented net of allowances for credit losses on Stage 3 loan amounts drawn.

Net impaired loans as a percentage of total loans and acceptances
This measure represents net impaired loans as a percentage of the balance of loans and acceptances.

Net interest margin
Net interest margin is calculated by dividing net interest income by average interest-bearing assets.

Net stable funding ratio (NSFR)
The NSFR ratio is a measure that helps guarantee that a bank is maintaining a stable funding profile to reduce the risk of funding stress.

Net write-offs as a percentage of average loans and acceptances
This measure represents the net write-offs (net of recoveries) expressed as a percentage of average loans and acceptances.

Office of the Superintendent of Financial Institutions (Canada) (OSFI)
The mandate of OSFI is to regulate and supervise financial institutions and private pension plans subject to federal oversight, to help minimize undue losses to depositors and policyholders and, thereby, to contribute to public confidence in the Canadian financial system.

Operating leverage
Operating leverage on a taxable equivalent basis and excluding specified items (or adjusted)
Operating leverage is the difference between the growth rate for total revenues and the growth rate for non-interest expenses. Operating leverage on a taxable equivalent basis and excluding specified items (or adjusted) is the difference between the growth rate for total revenues on a taxable equivalent basis and excluding specified items (or adjusted) and the growth rate for non-interest expenses excluding specified items (or adjusted).

Provisioning rate
This measure represents the allowances for credit losses on impaired loans expressed as a percentage of gross impaired loans.

Provisions for credit losses
Amount charged to income necessary to bring the allowances for credit losses to a level deemed appropriate by management and is comprised of provisions for credit losses on impaired and non-impaired financial assets.

Provisions for credit losses as a percentage of average loans and acceptances
This measure represents the provisions for credit losses expressed as a percentage of average loans and acceptances.

Provisions for credit losses on impaired loans as a percentage of average loans and acceptances
This measure represents the provisions for credit losses on impaired loans expressed as a percentage of average loans and acceptances.

Return on average assets
Return on average assets represents net income expressed as a percentage of average assets.

Return on common shareholders' equity (ROE)
Return on common shareholders' equity (ROE) excluding specified items (or adjusted)
ROE represents net income attributable to common shareholders expressed as a percentage of average equity attributable to common shareholders. It's a general measure of the Bank's efficiency in using equity. ROE excluding specified items (or adjusted) represents net income attributable to common shareholders excluding specified items (or adjusted) as a percentage of average equity attributable to common shareholders excluding specified items (or adjusted).

Risk-weighted assets
Assets are risk weighted according to the guidelines established by the Office of the Superintendent of Financial Institutions (Canada). In the Standardized calculation approach, risk factors are applied to the face value of certain assets in order to reflect comparable risk levels. In the Advanced Internal Rating-Based (AIRB) approach, risk-weighted assets are derived from the Bank's internal models, which represent the Bank's own assessment of the risks it incurs. Off-balance-sheet instruments are converted to balance sheet (or credit) equivalents by adjusting the notional values before applying the appropriate risk-weighting factors.

Securities purchased under reverse repurchase agreements
Securities purchased by the Bank from a client pursuant to an agreement under which the securities will be resold to the same client on a specified date and at a specified price. Such an agreement is a form of short-term collateralized lending.

Securities sold under repurchase agreements
Financial obligations related to securities sold pursuant to an agreement under which the securities will be repurchased on a specified date and at a specified price. Such an agreement is a form of short-term funding.

Stressed VaR (SVaR)
SVaR is a statistical measure of risk that replicates the VaR calculation method but uses, instead of a two-year history of risk factor changes, a 12-month data period corresponding to a continuous period of significant financial stress that is relevant in terms of the Bank's portfolios.

Structured entity
A structured entity is an entity created to accomplish a narrow and well-defined objective and is designed so that voting or similar rights are not the dominant factor in deciding who controls the entity, such as when any voting rights relate solely to administrative tasks and the relevant activities are directed by means of contractual arrangements.

Taxable equivalent basis
Taxable equivalent basis is a calculation method that consists in grossing up certain tax-exempt income (particularly dividends) by the amount of income tax that would have otherwise been payable. The Bank uses the taxable equivalent basis to calculate net interest income, non-interest income and income taxes.

Tier 1 capital ratio
Tier 1 capital ratio consists of Common Equity Tier 1 capital and Additional Tier 1 instruments, namely, qualifying non-cumulative preferred shares and the eligible amount of innovative instruments. Tier 1 capital ratio is calculated by dividing Tier 1 capital, less regulatory adjustments, by the corresponding risk-weighted assets.

Total capital ratio
Total capital is the sum of Tier 1 and Tier 2 capital. Tier 2 capital consists of the eligible portion of subordinated debt and certain credit loss allowances. Total capital ratio is calculated by dividing total capital, less regulatory adjustments, by the corresponding risk-weighted assets.

Total shareholder return (TSR)
TSR represents the average total return on an investment in the Bank's common shares. The return includes changes in share price and assumes that the dividends received were reinvested in additional common shares of the Bank.

Trading activity revenues
Trading activity revenues on a taxable equivalent basis (or adjusted)
Trading activity revenues consist of the net interest income and the non-interest income related to trading activities. Net interest income comprises dividends related to financial assets and liabilities associated with trading activities, net of interest expenses and interest income related to the financing of these financial assets and liabilities. Non-interest income consists of realized and unrealized gains and losses as well as interest income on securities measured at fair value through profit or loss, income from held-for-trading derivative financial instruments, changes in the fair value of loans at fair value through profit or loss, changes in the fair value of financial instruments designated at fair value through profit or loss, certain commission income, other trading activity revenues, and any applicable transaction costs. Trading activity revenues on a taxable equivalent basis includes net interest income on a taxable equivalent basis (or adjusted) and non-interest income on a taxable equivalent basis (or adjusted) related to trading activities.

Value-at-Risk (VaR)
VaR is a statistical measure of risk that is used to quantify market risks across products, per types of risks and aggregate risk on a portfolio basis. VaR is defined as the maximum loss at a specific confidence level over a certain horizon under normal market conditions. The VaR method has the advantage of providing a uniform measurement of financial instrument-related market risks based on a single statistical confidence level and time horizon.

Audited Consolidated Financial Statements

Management's Responsibility for Financial Reporting

The consolidated financial statements of National Bank of Canada (the Bank) have been prepared in accordance with section 308(4) of the *Bank Act* (Canada), which states that, except as otherwise specified by the Office of the Superintendent of Financial Institutions (Canada) (OSFI), the financial statements are to be prepared in accordance with International Financial Reporting Standards (IFRS), as issued by the International Accounting Standards Board (IASB). IFRS represent Canadian generally accepted accounting principles (GAAP). None of the OSFI accounting requirements are exceptions to IFRS.

Management maintains the accounting and internal control systems needed to discharge its responsibility, which is to provide reasonable assurance that the financial accounts are accurate and complete and that the Bank's assets are adequately safeguarded. Controls that are currently in place include quality standards on staff hiring and training; the implementation of organizational structures with clear divisions of responsibility and accountability for performance; the *Code of Professional Conduct*; and the communication of operating policies and procedures.

As Chief Executive Officer and as Chief Financial Officer, we have overseen the evaluation of the design and operation of the Bank's internal controls over financial reporting in accordance with *National Instrument 52-109 Certification of Disclosure in Issuers' Annual and Interim Filings* released by the Canadian Securities Administrators. Based on the evaluation work performed, we have concluded that the internal controls over financial reporting and the disclosure controls and procedures were effective as at October 31, 2021 and that they provide reasonable assurance that the financial information is reliable and that the Bank's consolidated financial statements have been prepared in accordance with IFRS.

The Board of Directors (the Board) is responsible for reviewing and approving the financial information contained in the *Annual Report*. Acting through the Audit Committee, the Board also oversees the presentation of the consolidated financial statements and ensures that accounting and control systems are maintained. Composed of directors who are neither officers nor employees of the Bank, the Audit Committee is responsible, through Internal Audit, for performing an independent and objective review of the Bank's internal control effectiveness, i.e., governance processes, risk management processes and control measures. Furthermore, the Audit Committee reviews the consolidated financial statements and recommends their approval to the Board.

The control systems are further supported by the presence of the Compliance Service, which exercises independent oversight and evaluation in order to assist managers in effectively managing regulatory compliance risk and to obtain reasonable assurance that the Bank is compliant with regulatory requirements.

Both the Senior Vice-President, Internal Audit and the Senior Vice-President, Chief Compliance Officer and Chief Anti-Money Laundering Officer have a direct functional link to the Chair of the Audit Committee and to the Chair of the Risk Management Committee. They both also have direct access to the President and Chief Executive Officer.

In accordance with the *Bank Act* (Canada), OSFI is mandated to protect the rights and interests of depositors. Accordingly, OSFI examines and enquires into the business and affairs of the Bank, as deemed necessary, to ensure that the provisions of the *Bank Act* (Canada) are being satisfied and that the Bank is in sound financial condition.

The independent auditor, Deloitte LLP, whose report follows, was appointed by the shareholders at the recommendation of the Board. The auditor has full and unrestricted access to the Audit Committee to discuss audit and financial reporting matters.

Laurent Ferreira
President and Chief Executive Officer

Ghislain Parent
Chief Financial Officer and Executive Vice-President, Finance

Montreal, Canada, November 30, 2021

Independent Auditor's Report

To the Shareholders of National Bank of Canada

Opinion
We have audited the consolidated financial statements of National Bank of Canada (the Bank), which comprise the consolidated balance sheets as at October 31, 2021 and 2020, and the consolidated statements of income, the consolidated statements of comprehensive income, the consolidated statements of changes in equity and the consolidated statements of cash flows for the years then ended, and notes to the consolidated financial statements, including a summary of significant accounting policies (collectively referred to as the "financial statements").

In our opinion, the accompanying financial statements present fairly, in all material respects, the financial position of the Bank as at October 31, 2021 and 2020, and its financial performance and its cash flows for the years then ended in accordance with International Financial Reporting Standards as issued by the International Accounting Standards Board (IFRS).

Basis for Opinion
We conducted our audit in accordance with Canadian generally accepted auditing standards (Canadian GAAS). Our responsibilities under those standards are further described in the *Auditor's Responsibilities for the Audit of the Financial Statements* section of our report. We are independent of the Bank in accordance with the ethical requirements that are relevant to our audit of the 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 financial statements for the year ended October 31, 2021. These matters were addressed in the context of our audit of the financial statements as a whole, and in forming our opinion thereon, and we do not provide a separate opinion on these matters.

Allowances for Credit Losses — Refer to Notes 1 and 7 to the Financial Statements
Key Audit Matter Description
The allowances for credit losses represent management's estimate of expected credit losses (ECL) on financial assets calculated under the IFRS 9 – *Financial Instruments* ECL framework. The calculation of ECL is based on the probability of default (PD), loss given default (LGD), and exposure at default (EAD) of the underlying assets and represents an unbiased and probability-weighted estimate of losses expected to occur in the future based on forecasts of macroeconomic variables for three scenarios. Lifetime ECL is recorded for financial assets that have experienced significant increases in credit risk (SICR) since initial recognition or that are impaired; otherwise, 12-month ECL is recorded. Given uncertainty surrounding the key inputs used to measure credit losses, the Bank has applied expert credit judgment to adjust the modelled ECL results.

We have identified the allowances for credit losses as a key audit matter due to the inherent complexity of the ECL models used and the significant judgment required by management in relation to the forward-looking nature of some key assumptions, including the impact of the COVID-19 pandemic on the economy. Significant auditor judgment was required in evaluating: (i) the models and methodologies used to measure ECL; (ii) the forecasts of macroeconomic scenarios and their probability weighting; (iii) the determination of SICR; and (iv) the adjustments to the modelled ECL results representing management's expert credit judgment. Auditing the ECL models and the key judgments and assumptions required a high degree of auditor judgment and an increased extent of audit effort, including the involvement of professionals with specialized skills in credit risk and economics.

How the Key Audit Matter Was Addressed in the Audit
Our audit procedures related to the models and the key judgments and assumptions used by management to estimate the ECL included the following, among others:

- With the assistance of professionals with specialized skills in credit risk or economics:
  - For a selection of ECL models, evaluated the appropriateness of the models used to estimate ECL;
  - Evaluated the forecasts of macroeconomic scenarios and their probability weighting by comparing against independently developed forecasts and publicly available industry data, including the impact of the COVID-19 pandemic;
  - Assessed management's determination of SICR and the appropriateness of the related model's programming;
  - Assessed the adjustments to the modelled ECL results by evaluating management's expert credit judgment.

Income Taxes – Uncertain Tax Positions — Refer to Notes 1 and 24 to the Financial Statements

Key Audit Matter Description

In the normal course of its business, the Bank is involved in a number of transactions for which the tax impacts are uncertain. The Bank accounts for provisions for uncertain tax positions that adequately represent the risk stemming from tax matters under discussion or being audited by tax authorities or from other matters involving uncertainty. These provisions reflect management's best possible estimate of the amounts that may have to be paid based on qualitative assessments of all relevant factors. As disclosed in Note 24, the Bank was reassessed by the tax authorities for additional income taxes and interest in respect of certain Canadian dividends received by the Bank for certain taxation years and may be reassessed for subsequent taxation years in regard to similar activities. The Bank has not recognized any tax liability related to these uncertain tax positions.

We have identified the assessment of the accounting of the uncertain tax positions related to certain Canadian dividends as a key audit matter given the significant judgment made by management when evaluating the probability of acceptance of the Bank's tax positions and interpreting relevant tax and case law and administrative positions. Auditing these judgments required a high degree of auditor judgment and resulted in an increased extent of audit effort, including the involvement of tax specialists.

How the Key Audit Matter Was Addressed in the Audit

Our audit procedures pertaining to the assessment of the accounting of the uncertain tax positions related to certain Canadian dividends included the following, among others:

- With the assistance of tax specialists, evaluated management's assessment of the probability of acceptance of the Bank's tax positions by assessing:
    - The Bank's interpretations of relevant tax and case law and administrative positions;
    - The correspondence with the relevant tax authorities; and
    - The advice and legal opinions obtained by the Bank's external tax advisors.

Other Information

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

- Management's Discussion and Analysis; and
- The information, other than the financial statements and our auditor's report thereon, in the Annual Report.

Our opinion on the 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 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 financial statements or our knowledge obtained in the audit, or otherwise appears to be materially misstated.

We obtained Management's Discussion and Analysis and the Annual Report prior to the date of this auditor's 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 this auditor's report. We have nothing to report in this regard.

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

Management is responsible for the preparation and fair presentation of the financial statements in accordance with IFRS, and for such internal control as management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the 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.

Auditor's Responsibilities for the Audit of the Financial Statements
Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's 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 GAAS 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 these financial statements.

As part of an audit in accordance with Canadian GAAS, we exercise professional judgment and maintain professional skepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the 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 auditor's report to the related disclosures in the 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 auditor's 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 financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.
- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Bank to express an opinion on the financial statements. We are responsible for the direction, supervision and performance of the group audit. We remain solely responsible for our audit opinion.

We 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.

We also provide those charged with governance with a statement that we have complied with relevant ethical requirements regarding independence, and to communicate with them all relationships and other matters that may reasonably be thought to bear on our independence, and where applicable, related safeguards.

From the matters communicated with those charged with governance, we determine those matters that were of most significance in the audit of the financial statements of the current period and are therefore the key audit matters. We describe these matters in our auditor's 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 report because the adverse consequences of doing so would reasonably be expected to outweigh the public interest benefits of such communication.

The engagement partner on the audit resulting in this independent auditor's report is Carl Magnan.

/s/ Deloitte LLP[1]

November 30, 2021
Montreal, Quebec

[1] CPA auditor, CA, public accountancy permit No. A121501

(millions of Canadian dollars)

Consolidated Balance Sheets

As at October 31		2021	2020
Assets			
Cash and deposits with financial institutions		33,879	29,142
Securities	Notes 3, 4 and 6		
At fair value through profit or loss		84,811	78,326
At fair value through other comprehensive income		9,583	12,726
At amortized cost		11,910	11,079
		106,304	102,131
Securities purchased under reverse repurchase agreements and securities borrowed		7,516	14,512
Loans	Note 7		
Residential mortgage		72,542	64,959
Personal		41,053	37,613
Credit card		2,150	2,038
Business and government		61,106	54,422
		176,851	159,032
Customers' liability under acceptances		6,836	6,866
Allowances for credit losses		(998)	(1,158)
		182,689	164,740
Other			
Derivative financial instruments	Note 16	16,484	13,422
Investments in associates and joint ventures	Note 9	225	409
Premises and equipment	Note 10	1,216	1,155
Goodwill	Note 11	1,504	1,414
Intangible assets	Note 11	1,510	1,434
Other assets	Note 12	4,468	3,266
		25,407	21,100
		355,795	331,625
Liabilities and equity			
Deposits	Notes 4 and 13	240,938	215,878
Other			
Acceptances		6,836	6,866
Obligations related to securities sold short		20,266	16,368
Obligations related to securities sold under repurchase agreements and securities loaned	Note 8	17,293	33,859
Derivative financial instruments	Note 16	19,367	12,923
Liabilities related to transferred receivables	Notes 4 and 8	25,170	22,855
Other liabilities	Note 14	6,301	5,718
		95,233	98,589
Subordinated debt	Note 15	768	775
Equity			
Equity attributable to the Bank's shareholders and holders of other equity instruments	Notes 18 and 22		
Preferred shares and other equity instruments		2,650	2,950
Common shares		3,160	3,057
Contributed surplus		47	47
Retained earnings		13,028	10,444
Accumulated other comprehensive income		(32)	(118)
		18,853	16,380
Non-controlling interests	Note 19	3	3
		18,856	16,383
		355,795	331,625

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

Laurent Ferreira
President and Chief Executive Officer

Karen Kinsley
Director

(millions of Canadian dollars)

Consolidated Statements of Income

Year ended October 31		2021	2020
Interest income			
Loans		5,460	5,915
Securities at fair value through profit or loss		1,092	1,140
Securities at fair value through other comprehensive income		181	224
Securities at amortized cost		178	211
Deposits with financial institutions		76	88
		6,987	7,578
Interest expense			
Deposits		1,635	2,552
Liabilities related to transferred receivables		372	392
Subordinated debt		17	19
Other		180	360
		2,204	3,323
Net interest income(1)		4,783	4,255
Non-interest income			
Underwriting and advisory fees		415	314
Securities brokerage commissions		238	204
Mutual fund revenues		563	477
Investment management and trust service fees		900	735
Credit fees		506	467
Card revenues		148	138
Deposit and payment service charges		274	262
Trading revenues (losses)	Note 21	268	544
Gains (losses) on non-trading securities, net		151	93
Insurance revenues, net		131	128
Foreign exchange revenues, other than trading		202	164
Share in the net income of associates and joint ventures	Note 9	23	28
Other	Note 9	325	118
		4,144	3,672
Total revenues		8,927	7,927
Non-interest expenses			
Compensation and employee benefits		3,027	2,713
Occupancy		299	291
Technology	Notes 10 and 11	821	805
Communications		53	58
Professional fees		246	244
Other		407	434
		4,853	4,545
Income before provisions for credit losses and income taxes		4,074	3,382
Provisions for credit losses	Note 7	2	846
Income before income taxes		4,072	2,536
Income taxes	Note 24	895	453
Net income		3,177	2,083
Net income attributable to			
Preferred shareholders and holders of other equity instruments		123	118
Common shareholders		3,054	1,923
Bank shareholders and holders of other equity instruments		3,177	2,041
Non-controlling interests		–	42
		3,177	2,083
Earnings per share *(dollars)*	Note 25		
Basic		9.06	5.73
Diluted		8.96	5.70
Dividends per common share *(dollars)*	Note 18	2.84	2.84

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

(1) *Net interest income* includes dividend income. For additional information, see Note 1 to these audited consolidated financial statements.

(millions of Canadian dollars)

Consolidated Statements of Comprehensive Income

Year ended October 31	2021	2020
Net income	3,177	2,083
Other comprehensive income, net of income taxes		
Items that may be subsequently reclassified to net income		
Net foreign currency translation adjustments		
Net unrealized foreign currency translation gains (losses) on investments in foreign operations	(314)	43
Net foreign currency translation (gains) losses on investments in foreign operations reclassified to net income	16	56
Impact of hedging net foreign currency translation gains (losses)	95	(14)
Impact of hedging net foreign currency translation (gains) losses reclassified to net income	–	(20)
	(203)	65
Net change in debt securities at fair value through other comprehensive income		
Net unrealized gains (losses) on debt securities at fair value through other comprehensive income	6	240
Net (gains) losses on debt securities at fair value through other comprehensive income reclassified to net income	(34)	(155)
Change in allowances for credit losses on debt securities at fair value through other comprehensive income reclassified to net income	(2)	2
	(30)	87
Net change in cash flow hedges		
Net gains (losses) on derivative financial instruments designated as cash flow hedges	280	(271)
Net (gains) losses on designated derivative financial instruments reclassified to net income	26	(6)
	306	(277)
Share in the other comprehensive income of associates and joint ventures	–	3
Items that will not be subsequently reclassified to net income		
Remeasurements of pension plans and other post-employment benefit plans	475	238
Net gains (losses) on equity securities designated at fair value through other comprehensive income	64	(2)
Net fair value change attributable to credit risk on financial liabilities designated at fair value through profit or loss	(12)	(44)
	527	192
Total other comprehensive income (loss), net of income taxes	600	70
Comprehensive income	3,777	2,153
Comprehensive income attributable to		
Bank shareholders and holders of other equity instruments	3,790	2,099
Non-controlling interests	(13)	54
	3,777	2,153

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

(millions of Canadian dollars)

Consolidated Statements of Comprehensive Income (cont.)

Income Taxes – Other Comprehensive Income

The following table presents the income tax expense or recovery for each component of other comprehensive income.

Year ended October 31	2021	2020
Items that may be subsequently reclassified to net income		
Net foreign currency translation adjustments		
Net unrealized foreign currency translation gains (losses) on investments in foreign operations	14	(13)
Net foreign currency translation (gains) losses on investments in foreign operations reclassified to net income	(2)	6
Impact of hedging net foreign currency translation gains (losses)	24	(4)
Impact of hedging net foreign currency translation (gains) losses reclassified to net income	–	(18)
	36	(29)
Net change in debt securities at fair value through other comprehensive income		
Net unrealized gains (losses) on debt securities at fair value through other comprehensive income	2	86
Net (gains) losses on debt securities at fair value through other comprehensive income reclassified to net income	(12)	(56)
Change in allowances for credit losses on debt securities at fair value through other comprehensive income reclassified to net income	–	1
	(10)	31
Net change in cash flow hedges		
Net gains (losses) on derivative financial instruments designated as cash flow hedges	100	(97)
Net (gains) losses on designated derivative financial instruments reclassified to net income	9	(2)
	109	(99)
Share in the other comprehensive income of associates and joint ventures	–	1
Items that will not be subsequently reclassified to net income		
Remeasurements of pension plans and other post-employment benefit plans	170	86
Net gains (losses) on equity securities designated at fair value through other comprehensive income	24	–
Net fair value change attributable to credit risk on financial liabilities designated at fair value through profit or loss	(5)	(16)
	189	70
	324	(26)

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

(millions of Canadian dollars)

Consolidated Statements of Changes in Equity

Year ended October 31		2021	2020
Preferred shares and other equity instruments at beginning	Note 18	**2,950**	2,450
Issuances of preferred shares and other equity instruments		**500**	500
Redemptions of preferred shares and other equity instruments for cancellation		**(800)**	–
Preferred shares and other equity instruments at end		**2,650**	2,950
Common shares at beginning	Note 18	**3,057**	2,949
Issuances of common shares pursuant to the Stock Option Plan		**104**	111
Repurchases of common shares for cancellation		**–**	(5)
Impact of shares purchased or sold for trading		**(1)**	2
Common shares at end		**3,160**	3,057
Contributed surplus at beginning		**47**	51
Stock option expense	Note 22	**11**	9
Stock options exercised		**(11)**	(13)
Contributed surplus at end		**47**	47
Retained earnings at beginning		**10,444**	9,312
Net income attributable to the Bank's shareholders and holders of other equity instruments		**3,177**	2,041
Dividends on preferred shares and distributions on other equity instruments	Note 18	**(131)**	(119)
Dividends on common shares	Note 18	**(958)**	(953)
Premium paid on common shares repurchased for cancellation	Note 18	**–**	(25)
Issuance expenses for shares and other equity instruments, net of income taxes		**(4)**	(5)
Remeasurements of pension plans and other post-employment benefit plans		**475**	238
Net gains (losses) on equity securities designated at fair value through other comprehensive income		**64**	(2)
Net fair value change attributable to the credit risk on financial liabilities designated at fair value through profit or loss		**(12)**	(44)
Impact of a financial liability resulting from put options written to non-controlling interests	Note 14	**(25)**	–
Other		**(2)**	1
Retained earnings at end		**13,028**	10,444
Accumulated other comprehensive income at beginning		**(118)**	16
Net foreign currency translation adjustments		**(190)**	53
Net change in unrealized gains (losses) on debt securities at fair value through other comprehensive income		**(30)**	87
Net change in gains (losses) on cash flow hedges		**306**	(277)
Share in the other comprehensive income of associates and joint ventures		**–**	3
Accumulated other comprehensive income at end		**(32)**	(118)
Equity attributable to the Bank's shareholders and holders of other equity instruments		**18,853**	16,380
Non-controlling interests at beginning	Note 19	**3**	358
Non-controlling interest from the Flinks Technology Inc. acquisition	Note 31	**3**	–
Purchase of the non-controlling interest of the Credigy Ltd. subsidiary	Note 31	**10**	–
Redemption of trust units issued by NBC Asset Trust		**–**	(350)
Net income attributable to non-controlling interests		**–**	42
Other comprehensive income attributable to non-controlling interests		**(13)**	12
Distributions to non-controlling interests		**–**	(59)
Non-controlling interests at end		**3**	3
Equity		**18,856**	16,383

Accumulated Other Comprehensive Income

As at October 31	2021	2020
Accumulated other comprehensive income		
Net foreign currency translation adjustments	**(129)**	61
Net unrealized gains (losses) on debt securities at fair value through other comprehensive income	**71**	101
Net gains (losses) on instruments designated as cash flow hedges	**23**	(283)
Share in the other comprehensive income of associates and joint ventures	**3**	3
	(32)	(118)

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

(millions of Canadian dollars)

Consolidated Statements of Cash Flows

Year ended October 31		2021	2020
Cash flows from operating activities			
Net income		3,177	2,083
Adjustments for			
Provisions for credit losses		2	846
Depreciation of premises and equipment, including right-of-use assets		195	196
Amortization of intangible assets		286	252
Impairment losses on premises and equipment and on intangible assets	Notes 10 and 11	16	71
Gain on remeasurement of the previously held equity interest in Flinks Technology Inc.	Note 31	(33)	–
Remeasurement at fair value of an investment	Notes 6 and 9	30	–
Foreign currency translation loss on disposal of subsidiaries	Note 30	–	24
Deferred taxes		119	(158)
Losses (gains) on sales of non-trading securities, net		(151)	(93)
Share in the net income of associates and joint ventures		(23)	(28)
Stock option expense		11	9
Change in operating assets and liabilities			
Securities at fair value through profit or loss		(6,485)	(16,503)
Securities purchased under reverse repurchase agreements and securities borrowed		6,996	3,211
Loans and acceptances, net of securitization		(15,661)	(10,883)
Deposits		25,060	26,312
Obligations related to securities sold short		3,898	3,519
Obligations related to securities sold under repurchase agreements and securities loaned		(16,566)	11,959
Derivative financial instruments, net		3,382	778
Securitization – Credit cards		49	(846)
Interest and dividends receivable and interest payable		(186)	(156)
Current tax assets and liabilities		272	(167)
Other items		1,725	(445)
		6,113	19,981
Cash flows from financing activities			
Issuances of preferred shares and other equity instruments		500	500
Redemptions of preferred shares and other equity instruments for cancellation		(800)	–
Issuances of common shares (including the impact of shares purchased for trading)		92	100
Repurchases of common shares for cancellation		–	(30)
Purchase of the non-controlling interest of the Credigy Ltd. subsidiary		(300)	–
Investment in the Flinks Technology Inc. subsidiary	Note 31	(30)	–
Redemption of trust units issued by NBC Asset Trust		–	(350)
Issuance expenses for shares and other equity instruments		(4)	(5)
Repayments of lease liabilities		(96)	(88)
Dividends paid on shares and distributions on other equity instruments		(1,101)	(1,300)
Distributions to non-controlling interests		–	(59)
		(1,739)	(1,232)
Cash flows from investing activities			
Acquisition of Flinks Technology Inc.	Note 31	(73)	–
Net change in investments in associates and joint ventures		225	(4)
Purchases of non-trading securities		(7,348)	(16,247)
Maturities of non-trading securities		2,500	1,873
Sales of non-trading securities		6,655	11,543
Net change in premises and equipment, excluding right-of-use assets		(217)	(182)
Net change in intangible assets		(350)	(332)
		1,392	(3,349)
Impact of currency rate movements on cash and cash equivalents		(1,029)	44
Increase (decrease) in cash and cash equivalents		4,737	15,444
Cash and cash equivalents at beginning		29,142	13,698
Cash and cash equivalents at end(1)		33,879	29,142
Supplementary information about cash flows from operating activities			
Interest paid		2,261	3,535
Interest and dividends received		6,858	7,634
Income taxes paid		542	536

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

(1) This item is the equivalent of Consolidated Balance Sheet item *Cash and deposits with financial institutions*. It includes an amount of $6.8 billion as at October 31, 2021 ($5.9 billion as at October 31, 2020) for which there are restrictions.

Notes to the Audited Consolidated Financial Statements

Note 1 – Basis of Presentation and Summary of Significant Accounting Policies

National Bank of Canada (the Bank) is a financial institution incorporated and domiciled in Canada and whose shares are listed on the Toronto Stock Exchange. Its head office is located at 600 De La Gauchetière Street West in Montreal, Quebec, Canada. The Bank is a chartered bank under Schedule 1 of the *Bank Act* (Canada) and is regulated by the Office of the Superintendent of Financial Institutions Canada (OSFI).

National Bank of Canada offers financial services to individuals, businesses, institutional clients and governments throughout Canada as well as specialized services at the international level. It operates four business segments, namely, the Personal and Commercial segment, the Wealth Management segment, the Financial Markets segment, and the U.S. Specialty Finance and International (USSF&I) segment. Its full line of services includes banking and investing solutions for individuals and businesses, corporate banking and investment banking services, securities brokerage, insurance, and wealth management.

On November 30, 2021, the Board of Directors (the Board) authorized the publication of the Bank's audited annual consolidated financial statements (the consolidated financial statements) for the year ended October 31, 2021.

Basis of Presentation

The Bank's consolidated financial statements are prepared in accordance with International Financial Reporting Standards (IFRS), as issued by the International Accounting Standards Board (IASB). The financial statements also comply with section 308(4) of the *Bank Act* (Canada), which states that, except as otherwise specified by the OSFI, the consolidated financial statements are to be prepared in accordance with IFRS. IFRS represent Canadian generally accepted accounting principles (GAAP). None of the OSFI accounting requirements are exceptions to IFRS.

The accounting policies covered in the Summary of Significant Accounting Policies section have been applied consistently to all periods presented except for the changes described hereafter in the Accounting Policy Changes section, which have been applied since November 1, 2020 following the Bank's early adoption of amendments to IFRS 9 – *Financial Instruments* (IFRS 9) and to IAS 39 – *Financial Instruments: Recognition and Measurement* (IAS 39) as well as to the related standard IFRS 7 – *Financial Instruments: Disclosures* (IFRS 7), to IFRS 4 – *Insurance Contracts* (IFRS 4), and to IFRS 16 – *Leases* (IFRS 16) resulting from interest rate benchmark reform.

On November 1, 2020, the Bank amended the classification of certain Consolidated Statement of Income amounts to better reflect the nature of the revenues reported in the Wealth Management segment. The reclassifications were made retrospectively among the items presented in *Non-Interest Income*. These reclassifications had no impact on the total amount of this income or on *Net income*.

Unless otherwise indicated, all amounts are expressed in Canadian dollars, which is the Bank's functional and presentation currency.

Accounting Policy Changes

The Bank adopted the following new and amended standards on November 1, 2020.

Interest Rate Benchmark Reform

In August 2020, the IASB finalized its response to the ongoing reform of interbank offered rates (IBOR) and other interest rate benchmarks by issuing amendments to its new and former financial instrument standards, IFRS 9 – *Financial Instruments* (IFRS 9) and IAS 39 – *Financial Instruments: Recognition and Measurement* (IAS 39) as well as to related standard IFRS 7 – *Financial Instruments: Disclosures* (IFRS 7), to IFRS 4 – *Insurance Contracts* (IFRS 4), and to IFRS 16 – *Leases* (IFRS 16). The amendments complement those issued in 2019 and focus on how financial statements will be affected once existing benchmark rates are replaced with alternative benchmark rates. The amendments in this final phase relate to changes to contractual cash flows, hedge accounting, and disclosures. On November 1, 2020, the Bank early adopted the amendments to IFRS 9, IAS 39, IFRS 7, IFRS 4 and IFRS 16.

The amendments introduce a practical expedient to account for a change in the basis for determining the contractual cash flows of non-derivative financial instruments by prospectively revising the effective interest rate to reflect the change in the interest rate benchmark if the change is a direct consequence of the interest rate benchmark reform and the new basis for determining the contractual cash flows is economically equivalent to the previous basis. If additional changes are made and are not directly related to the reform, the IFRS 9 requirements are to be applied.

A temporary relief is also provided to hedge accounting requirements such that existing relationships that do not qualify under IAS 39 will be permitted if the change is affected by the interest rate benchmark reform. The Bank will update the hedge documentation without discontinuing the hedging relationship. For cash flow hedges, if the hedged item is modified due to the interest rate benchmark reform, the cumulative gain or loss in the cash flow hedge reserve for designated IBOR cash flow hedges will be deemed to be based on the alternative benchmark rate. For the fair value hedges of a non-contractually specified benchmark component of interest rate risk, if that risk rate is not separately identifiable upon transition to the alternative benchmark rate at the date of designation, it will be deemed to have met the separately identifiable requirement at that date if the Bank reasonably expects the term-specific interest rate component to be separately identifiable within a period of 24 months from the date the alternative benchmark rate is first designated, regardless of the term for which the risk is designated in that hedge. The 24-month period will apply on a rate-by-rate basis.

The reform of interest rate benchmarks is a global initiative that is being coordinated and led by central banks and governments around the world, including Canada. The objective is to improve benchmarks by ensuring that they meet robust international standards. The initiative introduces other benchmarks as recommended rates (risk-free rates such as Secured Overnight Financing Rate (SOFR), Canadian Overnight Repo Rate Average (CORRA) and Euro Short-Term Rate (ESTR)) to replace the Interbank Offered Rate (IBOR), which are the benchmark rates used by the world's major banks for short-term lending in the interbank market. These rates, in particular LIBOR (London Interbank Offered Rates), are widely used around the world as benchmarks for derivative financial instruments, bonds, and other variable-rate instruments. To ensure an orderly transition to the risk-free rates for derivatives, the industry has proposed a solution through ISDA (International Swaps and Derivatives Association) via a protocol (2020 IBOR Fallbacks Protocol) as well as a supplement to the 2006 definitions, which came into force on January 25, 2021. The Bank adopted the 2020 IBOR Fallbacks Protocol on October 16, 2020 and is monitoring the adherence by its derivatives counterparties to plan the transition of its legacy derivatives contracts accordingly. For certain other types of contracts, contractual amendments are expected by the end of 2021, at which time certain LIBOR rates are expected to be withdrawn. On March 5, 2021, the Financial Conduct Authority (FCA) in the United Kingdom announced the cessation or loss of representativeness of all LIBOR rates in two phases: pound sterling (GBP), euro (EUR), Japanese yen (JPY), Swiss franc (CHF) rates as of December 31, 2021 and U.S. dollar (USD) rates as of June 30, 2023 (except for 1-week and 2-month USD LIBOR, which cease as of December 31, 2021). The risk-free rates Sterling OverNight Index Average (SONIA), ESTR, Tokyo OverNight Average Rate (TONAR), and Swiss Average Rate OverNight (SARON) are being recommended to replace LIBOR as of December 31, 2021. This official announcement had the effect of fixing spread adjustments between the LIBOR rates and the corresponding risk-free rates set out in the rate-replacement methodology proposed by ISDA. At the same time, the FCA announced that in the months ahead it is launching consultations to assess the appropriateness of publishing certain synthetic LIBOR rates for a given period; they would be calculated using the rate-replacement methodology and based on the corresponding risk-free rates with spread adjustments. This measure would be adopted from a consumer protection and market integrity viewpoint to mitigate the difficulty of amending certain types of contracts when replacing the applicable rate. On May 20, 2021 and June 24, 2021, the FCA issued two consultations on this topic. On September 29, 2021, the FCA confirmed that 1-, 3-, and 6-month GBP and JPY LIBOR rates would continue being published for a period of one year following the discontinuance thereof on December 31, 2021 using a "synthetic" methodology, i.e., to be calculated using the corresponding risk-free rates, namely, ICE Term SONIA and the Tokyo Term Risk-Free Rate (TORF), with the respective ISDA fixed spread adjustment. This announcement was accompanied by a consultation on the acceptable parameters for using these synthetic rates. On November 16, 2021, the FCA confirmed that the use of synthetic rates GBP and JPY LIBOR would be permitted until the end of 2022 for all pre-existing contracts except for cleared derivative financial instruments. In addition, on May 21, 2021, the group working on alternative reference rates in the United States, named the Alternative Reference Rates Committee (ARRC), announced that CME Group had been selected as the administrator for a secured overnight financing rate (SOFR) term rates and that the ARRC will be able to officially recommend these SOFR term rates once certain conditions are met; these rates are to be used in certain sectors of the market, in particular the commercial loans market. On July 29, 2021, the ARRC announced that it was formally recommending the SOFR term rate administered by CME Group.

(millions of Canadian dollars)

Note 1 – Basis of Presentation and Summary of Significant Accounting Policies (cont.)

To prepare for the interest rate benchmark reform, the Bank developed an enterprise-wide project, put together a dedicated team, and established a formal governance structure. Several committees were created to ensure the success of the project and to prepare for the interest rate benchmark reform. The project team is made up of qualified resources from different fields of expertise to ensure an in-depth analysis of all aspects of the changes as well as the financial, legal, operational and technological impacts. Many of these experts, who have in-depth knowledge of accounting standards and reform-related activities, are involved in the Canadian Bankers Association's working group where representatives of the major Canadian banks discuss the issues and interpretations of the reform. The Bank also participates in meetings with OSFI to discuss these same issues and interpretations. Furthermore, workshops are held to analyze the impact of the reform's implementation, ensuring that information is disseminated to stakeholders affected by this reform; information-sharing meetings are held with all stakeholders affected by the reform, and participants from various industry committees share the latest developments.

The project team regularly reports on the project's progress to the project steering committee and the Financial Markets Risk Committee, which are committees made up of members of management and experts from all departments involved. As at October 31, 2021, the project was progressing according to schedule. Lastly, a training plan for staff, management, and board members has been created.

The Bank is exposed to several risks, including interest rate risk and operational risk, which arise from non-derivative financial assets, non-derivative financial liabilities, and derivative financial instruments. The project team ensures that risks are mitigated while ensuring a positive experience for its clients. The Bank is taking all necessary steps to identify, measure, and control all risks to ensure a smooth transition to the interest rate benchmark reform.

The following table discloses the non-derivative financial assets, non-derivative financial liabilities, and derivative financial instruments subject to the interest rate benchmark reform as at October 31, 2021 that have yet to transition to alternative benchmark rates and that will mature after December 31, 2021.

					As at October 31, 2021
	USD LIBOR(1)	EUR LIBOR	GBP LIBOR	JPY LIBOR	CHF LIBOR
Non-derivative financial assets(2)	8,084	48	131	–	–
Non-derivative financial liabilities(3)	11	–	–	–	–
Derivative financial instruments(4)	156,929	–	9,015	478	36

(1) Includes only non-derivative financial assets, non-derivative financial liabilities, and derivative financial instruments indexed at USD LIBOR that will mature after June 30, 2023.
(2) Non-derivative financial assets include the carrying values of securities and of securities purchased under reverse repurchase agreements and securities borrowed as well as the outstanding balances on loans.
(3) Non-derivative financial liabilities include the notional amounts of deposits and subordinated debt as well as the carrying values of obligations related to securities sold short and of obligations related to securities sold under repurchase agreements and securities loaned.
(4) Derivative financial instruments include the notional amounts of interest rate contracts and foreign exchange contracts.

Conceptual Framework for Financial Reporting

The Revised Conceptual Framework for Financial Reporting stipulates that financial information must be relevant and achieve fair presentation to be useful. The framework provides revised definitions and recognition criteria for assets and liabilities and confirms that different measurement bases are useful and permitted. The adoption of the Revised Conceptual Framework for Financial Reporting did not have a significant impact on the Bank.

International Financial Reporting Interpretations Committee (IFRIC) Final Agenda Decision

In April 2021, IFRIC issued a final agenda decision on accounting for configuration or customization costs on a supplier's software in a cloud computing arrangement, often referred to as a Software as a Service (SaaS) arrangement. In these types of arrangements, access to software is usually provided through the Internet. The main conclusion is that, where the costs do not give rise to an intangible asset that is separate from the software, they are recognized as an expense when the customer receives the configuration or customization services. IFRIC determined that sufficient guidance exists within the relevant accounting standards and that the conclusions, as set out in the final agenda decision, form part of the interpretation of IFRS. As such, any changes from these interpretations would be accounted for as a retrospectively applied accounting policy change in accordance with IAS 8 – *Accounting Policies, Changes in Accounting Estimates and Errors*. The Bank is currently assessing the impact of these interpretations on its consolidated financial statements and expects to finalize its assessment during the year ended October 31, 2022.

Summary of Significant Accounting Policies

Judgments, Estimates and Assumptions

In preparing consolidated financial statements in accordance with IFRS, management must exercise judgment and make estimates and assumptions that affect the reporting date carrying amounts of assets and liabilities, net income, and related information. Furthermore, certain accounting policies require complex judgments and estimates because they apply to matters that are inherently uncertain, in particular accounting policies applicable to the following: the fair value determination of financial instruments, the impairment of financial assets, the impairment of non-financial assets, pension plans and other post-employment benefits, income taxes, provisions, the consolidation of structured entities, and the classification of debt instruments. Descriptions of these judgments and estimates are provided in each of the notes related thereto in the consolidated financial statements. Actual results could therefore differ from these estimates, in which case the impacts are recognized in the consolidated financial statements of future fiscal periods. The accounting policies described in this note provide greater detail about the use of estimates and assumptions and reliance on judgment.

COVID-19 Pandemic Considerations

The COVID-19 pandemic continues to evolve, and, given the heightened uncertainty associated with the unprecedented nature of the pandemic, developing reliable estimates and applying judgment has become even more challenging. Some of the Bank's accounting policies, such as measurement of expected credit losses, require particularly complex judgments and estimates. The uncertainty regarding certain key inputs used in measuring expected credit losses (ECLs) is described in Note 7 to these consolidated financial statements.

Basis of Consolidation

Subsidiaries

These consolidated financial statements include all the assets, liabilities, operating results and cash flows of the Bank and its subsidiaries, after elimination of intercompany transactions and balances. Subsidiaries are entities, including structured entities, controlled by the Bank. A structured entity is an entity created to accomplish a narrow and well-defined objective and is designed so that voting or similar rights are not the dominant factor in deciding who controls the entity, such as when voting rights relate solely to administrative tasks and the relevant activities are directed by means of contractual arrangements.

Management must exercise judgment in determining whether the Bank must consolidate an entity. The Bank controls an entity only if the following three conditions are met:

- it has decision-making authority regarding the entity's relevant activities;
- it has exposure or rights to variable returns from its involvement with the entity;
- it has the ability to use its power to affect the amount of the returns.

When determining decision-making authority, the Bank considers many factors, including the existence and effect of actual and potential voting rights held by the Bank that can be exercised as well as the holding of instruments that are convertible into voting shares. In addition, the Bank must determine whether, as an investor with decision-making rights, it acts as a principal or agent.

Based on these principles, an assessment of control is performed at the inception of a relationship between any entity and the Bank. When performing this assessment, the Bank considers all facts and circumstances, and it must reassess whether it still controls an investee if facts and circumstances indicate that one or more of the three conditions of control have changed.

The Bank consolidates the entities it controls from the date on which control is obtained and ceases to consolidate them from the date control ceases. The Bank uses the acquisition method to account for the acquisition of a subsidiary from a third party on the date control is obtained.

Non-Controlling Interests

Non-controlling interests in subsidiaries represent the equity interests held by third parties in the Bank's subsidiaries and are presented in total *Equity,* separately from *Equity attributable to the Bank's shareholders and holders of other equity instruments.* The non-controlling interests' proportionate shares of the net income and other comprehensive income of the Bank's subsidiaries are presented separately in the Consolidated Statement of Income and in the Consolidated Statement of Comprehensive Income, respectively.

With respect to units issued to third parties by mutual funds and certain other funds that are consolidated, they are presented at fair value in *Other liabilities* on the Consolidated Balance Sheet. Lastly, changes in ownership interests in subsidiaries that do not result in a loss of control are recognized as equity transactions. The difference between the adjustment in the carrying value of the non-controlling interest and the fair value of the consideration paid or received is recognized directly in *Equity attributable to the Bank's shareholders and holders of other equity instruments*.

Note 1 – Basis of Presentation and Summary of Significant Accounting Policies (cont.)

Investments in Associates and Joint Ventures

The Bank exercises significant influence over an entity when it has the power to participate in the financial and operating policy decisions of the investee. The Bank has joint control when there's a contractually agreed sharing of control of an entity, and joint control exists only when decisions about the relevant activities require the unanimous consent of the parties sharing control.

Investments in associates, i.e., entities over which the Bank exercises significant influence, and investments in joint ventures, i.e., entities over which the Bank has rights to the net assets and exercises joint control, are accounted for using the equity method. Under the equity method, the investment is initially recorded at cost and, following acquisition, the Bank's proportionate shares in the net income and in the other comprehensive income are recognized, respectively, in *Non-interest income* in the Consolidated Statement of Income and in *Other comprehensive income* in the Consolidated Statement of Comprehensive Income. The carrying value of the investment is adjusted by an equivalent amount on the Consolidated Balance Sheet and reduced by distributions received.

Translation of Foreign Currencies

The consolidated financial statements are presented in Canadian dollars, which is the Bank's functional and presentation currency. Each foreign operation within the Bank's scope of consolidation determines its own functional currency, and the items reported in the financial statements of each foreign operation are measured using that currency.

Monetary items and non-monetary items measured at fair value and denominated in foreign currencies are translated into the functional currency at exchange rates prevailing at the Consolidated Balance Sheet date. Non-monetary items not measured at fair value are translated into the functional currency at historical rates. Revenues and expenses denominated in foreign currencies are translated at the average exchange rates for the period. Translation gains and losses are recognized in *Non-interest income* in the Consolidated Statement of Income, except for equity instruments designated at fair value through other comprehensive income, for which unrealized gains and losses are recorded in *Other comprehensive income* and will not be subsequently reclassified to net income.

In the consolidated financial statements, the assets and liabilities of all foreign operations are translated into the Bank's functional currency at the exchange rates prevailing at the Consolidated Balance Sheet date, whereas the revenues and expenses of such foreign operations are translated into the Bank's functional currency at the average exchange rates for the period. Any goodwill resulting from the acquisition of a foreign operation that does not have the same functional currency as the parent company, and any fair value adjustments to the carrying amounts of assets and liabilities resulting from the acquisition, are treated as assets and liabilities of the foreign operation and translated at the exchange rates prevailing at the Consolidated Balance Sheet date. Unrealized translation gains and losses relating to foreign operations, along with the impact of hedges and income taxes on the related results, are presented in *Other comprehensive income*. Upon disposal of a foreign operation, any accumulated translation gains and losses, along with the related hedges, recorded in the *Accumulated other comprehensive income* item of this foreign operation, are reclassified to *Non-interest income* in the Consolidated Statement of Income.

Classification and Measurement of Financial Instruments

At initial recognition, all financial instruments are recorded at fair value on the Consolidated Balance Sheet. At initial recognition, financial assets must be classified as subsequently measured at fair value through other comprehensive income, at amortized cost, or at fair value through profit or loss. The Bank determines the classification based on the contractual cash flow characteristics of the financial assets and on the business model it uses to manage these financial assets. At initial recognition, financial liabilities are classified as subsequently measured at amortized cost or as at fair value through profit or loss.

For the purpose of classifying a financial asset, the Bank must determine whether the contractual cash flows associated with the financial asset are solely payments of principal and interest on the principal amount outstanding. The principal is generally the fair value of the financial asset at initial recognition. The interest consists of consideration for the time value of money, for the credit risk associated with the principal amount outstanding during a particular period, and for other basic lending risks and costs as well as of a profit margin. If the Bank determines that the contractual cash flows associated with a financial asset are not solely payments of principal and interest, the financial assets must be classified as measured at fair value through profit or loss.

When classifying financial assets, the Bank determines the business model used for each portfolio of financial assets that are managed together to achieve a same business objective. The business model reflects how the Bank manages its financial assets and the extent to which the financial asset cash flows are generated by the collection of the contractual cash flows, the sale of the financial assets, or both. The Bank determines the business model using scenarios that it reasonably expects to occur. Consequently, the business model determination is a matter of fact and requires the use of judgment and consideration of all the relevant evidence available at the date of determination.

A financial asset portfolio falls within a "hold to collect" business model when the Bank's primary objective is to hold these financial assets in order to collect contractual cash flows from them and not to sell them. When the Bank's objective is achieved both by collecting contractual cash flows and by selling the financial assets, the financial asset portfolio falls within a "hold to collect and sell" business model. In this type of business model, collecting contractual cash flows and selling financial assets are both integral components to achieving the Bank's objective for this financial asset portfolio. Financial assets are mandatorily measured at fair value through profit or loss if they do not fall within either a "hold to collect" business model or a "hold to collect and sell" business model.

Financial Instruments Designated at Fair Value Through Profit or Loss

A financial asset may be irrevocably designated at fair value through profit or loss at initial recognition if certain conditions are met. The Bank may apply this option if, consistent with a documented risk management strategy, doing so eliminates or significantly reduces a measurement or recognition inconsistency that would otherwise arise from measuring financial assets or liabilities or recognizing gains and losses on them on different bases and if the fair values are reliable. Financial assets thus designated are recognized at fair value, and any change in fair value is recorded in *Non-interest income* in the Consolidated Statement of Income. Interest income arising from these financial instruments designated at fair value through profit or loss is recorded in *Net interest income* in the Consolidated Statement of Income.

A financial liability may be irrevocably designated at fair value through profit or loss when it is initially recognized. Financial liabilities thus designated are recognized at fair value, and any changes in fair value attributable to changes in the Bank's own credit risk are recognized in *Other comprehensive income* unless these changes create or enlarge an accounting mismatch in *Net income.* Fair value changes not attributable to the Bank's own credit risk are recognized in *Non-interest income* in the Consolidated Statement of Income. The amounts recognized in *Other comprehensive income* will not be subsequently reclassified to *Net income*. Interest expense arising from these financial liabilities designated at fair value through profit or loss is recorded in the *Net interest income* item of the Consolidated Statement of Income. The Bank may use this option in the following cases:

- if, consistent with a documented risk management strategy, using this option allows the Bank to eliminate or significantly reduce a measurement or recognition inconsistency that would otherwise arise from measuring financial assets or liabilities on different bases, and if the fair values are reliable;
- if a group of financial assets and financial liabilities to which an instrument belongs is managed and its performance is evaluated on a fair value basis, in accordance with the Bank's documented risk management or investment strategy, and information is provided on that basis to senior management. Consequently, the Bank may use this option if it has implemented a documented risk management strategy to manage a group of financial instruments together on the fair value basis, if it can demonstrate that significant financial risks are eliminated or significantly reduced, and if the fair values are reliable;
- for hybrid financial instruments with one or more embedded derivatives that would significantly modify the cash flows of the financial instruments and that would otherwise be bifurcated and accounted for separately.

Financial Instruments Designated at Fair Value Through Other Comprehensive Income

At initial recognition, an investment in an equity instrument that is neither held for trading nor a contingent consideration recognized in a business combination may be irrevocably designated as being at fair value through other comprehensive income. In accordance with this designation, any change in fair value is recognized in *Other comprehensive income* with no subsequent reclassification to net income. Dividend income is recorded in *Interest income* in the Consolidated Statement of Income.

Securities Measured at Fair Value Through Other Comprehensive Income

Securities measured at fair value through other comprehensive income include: (i) debt securities for which the contractual terms of the financial asset give rise, on specified dates, to cash flows that are solely payments of principal and interest on the principal amount outstanding and that fall within a "hold to collect and sell" business model and (ii) equity securities designated at fair value through other comprehensive income with no subsequent reclassification of gains and losses to net income.

The Bank recognizes securities transactions at fair value through other comprehensive income on the trade date, and the transaction costs are capitalized. Interest income and dividend income are recognized in *Interest income* in the Consolidated Statement of Income.

Debt Securities Measured at Fair Value Through Other Comprehensive Income

Debt securities measured at fair value through other comprehensive income are recognized at fair value. Unrealized gains and losses are recognized, net of expected credit losses and income taxes, and provided that they are not hedged by derivative financial instruments in a fair value hedging relationship, in *Other comprehensive income*. When the securities are sold, realized gains or losses, determined on an average cost basis, are reclassified to *Non-interest income – Gains (losses) on non-trading securities, net* in the Consolidated Statement of Income. Premiums, discounts and related transaction costs are amortized over the expected life of the instrument to interest income using the effective interest rate method.

Note 1 – Basis of Presentation and Summary of Significant Accounting Policies (cont.)

Equity Securities Designated at Fair Value Through Other Comprehensive Income
Equity securities designated at fair value through other comprehensive income are recognized at fair value. Unrealized gains and losses are presented, net of income taxes, in *Other comprehensive income* with no subsequent reclassification of realized gains and losses to net income. Transaction costs incurred upon the purchase of such equity securities are not reclassified to net income upon the sale of the securities.

Securities Measured at Amortized Cost
Securities measured at amortized cost include debt securities for which the contractual terms give rise, on specified dates, to cash flows that are solely payments of principal and interest on the principal amount outstanding and that fall within a "hold to collect" business model.

The Bank recognizes these securities transactions at fair value on the trade date, and the transaction costs are capitalized. After initial recognition, debt securities in this category are recorded at amortized cost. Interest income is recognized in *Interest income* in the Consolidated Statement of Income. Premiums, discounts and related transaction costs are amortized over the expected life of the instrument to interest income using the effective interest rate method. Securities measured at amortized cost are presented net of allowances for credit losses on the Consolidated Balance Sheet.

Securities Measured at Fair Value Through Profit or Loss
Securities not classified or designated as measured at fair value through other comprehensive income or at amortized cost are classified as measured at fair value through profit or loss.

Securities measured at fair value through profit or loss include (i) securities held for trading, (ii) securities designated at fair value through profit or loss, (iii) all equity securities other than those designated as measured at fair value through other comprehensive income with no subsequent reclassifications of gains and losses to net income, and (iv) debt securities for which the contractual cash flows are not solely payments of principal and any interest on any principal amount outstanding.

The Bank recognizes securities transactions at fair value through profit or loss on the settlement date on the Consolidated Balance Sheet. Changes in fair value between the trade date and the settlement date are recognized in *Non-interest income* in the Consolidated Statement of Income.

Securities at fair value through profit or loss are recognized at fair value. Interest income, any transaction costs, as well as realized and unrealized gains or losses on securities held for trading are recognized in *Non-interest income – Trading revenues (losses)* in the Consolidated Statement of Income. Dividend income is recorded in *Interest income* in the Consolidated Statement of Income. Interest income on securities designated at fair value through profit or loss is recorded in *Interest income* in the Consolidated Statement of Income. Realized and unrealized gains or losses on these securities are recognized in *Non-interest income – Trading revenues (losses)* in the Consolidated Statement of Income.

Realized and unrealized gains or losses on equity securities at fair value through profit or loss, other than those held for trading, as well as debt securities for which the contractual cash flows are not solely payments of principal and interest on the principal amount outstanding, are recognized in *Non-interest income – Gains (losses) on non-trading securities, net* in the Consolidated Statement of Income. The dividend and interest income on these financial assets are recognized in *Interest income* in the Consolidated Statement of Income.

Securities Purchased Under Reverse Repurchase Agreements, Obligations Related to Securities Sold Under Repurchase Agreements, and Securities Borrowed and Loaned
The Bank recognizes these transactions at amortized cost using the effective interest rate method, except when they are designated at fair value through profit or loss and are recorded at fair value. These transactions are held within a business model whose objective is to collect contractual cash flows, i.e., cash flows that are solely payments of principal and interest on the principal amount outstanding. Securities sold under repurchase agreements remain on the Consolidated Balance Sheet, whereas securities purchased under reverse repurchase agreements are not recognized. Reverse repurchase agreements and repurchase agreements are treated as collateralized lending and borrowing transactions.

The Bank also borrows and lends securities. Securities loaned remain on the Consolidated Balance Sheet while securities borrowed are not recognized. As part of these transactions, the Bank pledges or receives collateral in the form of cash or securities. Collateral pledged in the form of securities remains on the Consolidated Balance Sheet. Collateral received in the form of securities is not recognized on the Consolidated Balance Sheet. Collateral pledged or received in the form of cash is recognized in financial assets or liabilities on the Consolidated Balance Sheet.

When the collateral is pledged or received in the form of cash, the interest income and expense are recorded in *Net interest income* in the Consolidated Statement of Income.

Loans

Loans Measured at Amortized Cost

Loans classified as measured at amortized cost include loans originated or purchased by the Bank that are not classified as measured at fair value through profit or loss or designated at fair value through profit or loss. These loans are held within a business model whose objective is to collect contractual cash flows, i.e., cash flows that are solely payments of principal and interest on the principal amount outstanding. All loans originated by the Bank are recognized when cash is advanced to a borrower. Purchased loans are recognized when the cash consideration is paid by the Bank.

All loans are initially recognized at fair value plus directly attributable costs and are subsequently measured at amortized cost using the effective interest rate method, net of an allowance for expected credit losses. For purchased performing loans, the acquisition date fair value adjustment on each loan is amortized to interest income over the expected remaining life of the loan using the effective interest rate method. For purchased credit-impaired loans, the acquisition date fair value adjustment on each loan consists of management's estimate of the shortfall of principal and interest cash flows that the Bank expects to collect and of the time value of money. The time value of money component of the fair value adjustment is amortized to interest income over the remaining life of the loan using the effective interest rate method. Loans are presented net of allowances for credit losses on the Consolidated Balance Sheet.

Loans Measured at Fair Value Through Profit or Loss

Loans classified as measured at fair value through profit or loss, loans designated at fair value through profit or loss, and loans for which the contractual cash flows are not solely payments of principal and interest on the principal amount outstanding are recognized at fair value on the Consolidated Balance Sheet. The interest income on loans at fair value through profit or loss is recorded in *Interest income* in the Consolidated Statement of Income.

Changes in the fair value of loans classified as at fair value through profit or loss and loans designated at fair value through profit or loss are recognized in *Non-interest income – Trading revenues (losses)* in the Consolidated Statement of Income. With respect to loans whose contractual cash flows are not solely payments of principal and interest on the principal amount outstanding, changes in fair value are recognized in *Non-interest income – Other* in the Consolidated Statement of Income.

Reclassification of Financial Assets

A financial asset, other than a derivative financial instrument or a financial asset that, at initial recognition, was designated as measured at fair value through profit or loss, is reclassified only in rare situations, i.e., when there is a change in the business model used to manage the financial asset. The reclassification is applied prospectively from the reclassification date.

Establishing Fair Value

The fair value of a financial instrument is the price that would be received to sell a financial asset or paid to transfer a financial liability in an orderly transaction in the principal market at the measurement date under current market conditions (i.e., an exit price).

Unadjusted quoted prices in active markets, based on bid prices for financial assets and offered prices for financial liabilities, provide the best evidence of fair value. A financial instrument is considered quoted in an active market when prices in exchange, dealer, broker or principal-to-principal markets are accessible at the measurement date. An active market is one where transactions occur with sufficient frequency and volume to provide quoted prices on an ongoing basis.

When there is no quoted price in an active market, the Bank uses another valuation technique that maximizes the use of relevant observable inputs and minimizes the use of unobservable inputs. The chosen valuation technique incorporates all the factors that market participants would consider when pricing a transaction. Judgment is required when applying a large number of acceptable valuation techniques and estimates to determine fair value. The estimated fair value reflects market conditions on the valuation date and, consequently, may not be indicative of future fair value.

The best evidence of the fair value of a financial instrument at initial recognition is the transaction price, i.e., the fair value of the consideration received or paid. If there is a difference between the fair value at initial recognition and the transaction price, and the fair value is determined using a valuation technique based on observable market inputs or, in the case of a derivative, if the risks are fully offset by other contracts entered into with third parties, this difference is recognized in the Consolidated Statement of Income. In other cases, the difference between the fair value at initial recognition and the transaction price is deferred on the Consolidated Balance Sheet. The amount of the deferred gain or loss is recognized over the term of the financial instrument. The unamortized balance is immediately recognized in net income when (i) observable market inputs can be obtained and support the fair value of the transaction, (ii) the risks associated with the initial contract are substantially offset by other contracts entered into with third parties, (iii) the gain or loss is realized through a cash receipt or payment, or (iv) the transaction matures or is cancelled before maturity.

Note 1 – Basis of Presentation and Summary of Significant Accounting Policies (cont.)

In certain cases, measurement adjustments are recognized to address factors that market participants would use at the measurement date to determine fair value but that are not included in the measurement technique due to system limitations or uncertainty surrounding the measure. These factors include, but are not limited to, the unobservable nature of inputs used in the valuation model, assumptions about risk such as market risk, credit risk, or risk related to the valuation model, and future administration costs. The Bank may also consider market liquidity risk when determining the fair value of financial instruments when it believes these instruments could be disposed of for a consideration below the fair value otherwise determined due to a lack of market liquidity or an insufficient volume of transactions in a given market. The measurement adjustments also include the funding valuation adjustment applied to derivative financial instruments to reflect the market implied cost or benefits of funding collateral for uncollateralized or partly collateralized transactions.

As permitted when certain criteria are met, the Bank has elected to determine fair value based on net exposure to credit risk or market risk for certain portfolios of financial instruments, mainly derivative financial instruments.

Impairment of Financial Assets
At the end of each reporting period, the Bank applies a three-stage impairment approach to measure the expected credit losses (ECL) on all debt instruments measured at amortized cost or at fair value through other comprehensive income and on loan commitments and financial guarantees that are not measured at fair value. The ECL model is forward looking. Measurement of ECLs at each reporting period reflects reasonable and supportable information about past events, current conditions, and forecasts of future events and economic conditions.

<u>Determining the Stage</u>
The ECL three-stage impairment approach is based on the change in the credit quality of financial assets since initial recognition. If, at the reporting date, the credit risk of non-impaired financial instruments has not increased significantly since initial recognition, these financial instruments are classified in Stage 1, and an allowance for credit losses that is measured, at each reporting date, in an amount equal to 12-month expected credit losses is recorded. When there is a significant increase in credit risk since initial recognition, these non-impaired financial instruments are migrated to Stage 2, and an allowance for credit losses that is measured, at each reporting date, in an amount equal to lifetime expected credit losses is recorded. In subsequent reporting periods, if the credit risk of the financial instrument improves such that there is no longer a significant increase in credit risk since initial recognition, the ECL model requires reverting to Stage 1, i.e., recognition of 12-month expected credit losses. When one or more events that have a detrimental impact on the estimated future cash flows of a financial asset have occurred, the financial asset is considered credit-impaired and is migrated to Stage 3, and an allowance for credit losses equal to lifetime expected losses continues to be recorded or the financial asset is written off. Interest income is calculated on the gross carrying amount for financial assets in Stages 1 and 2 and on the net carrying amount for financial assets in Stage 3.

<u>Assessment of Significant Increase in Credit Risk</u>
In determining whether credit risk has increased significantly, the Bank uses an internal credit risk grading system, external risk ratings, and forward-looking information to assess deterioration in credit quality of a financial instrument. To assess whether or not the credit risk of a financial instrument has increased significantly, the Bank compares the probability of default (PD) occurring over its expected life as at the reporting date with the PD occurring over its expected life on the date of initial recognition and considers reasonable and supportable information indicative of a significant increase in credit risk since initial recognition. The Bank includes relative and absolute thresholds in the definition of significant increase in credit risk and a backstop of 30 days past due. All financial instruments that are 30 days past due are migrated to Stage 2 even if other metrics do not indicate that a significant increase in credit risk has occurred. The assessment of a significant increase in credit risk requires significant judgment.

<u>Measurement of Expected Credit Losses</u>
ECLs are measured as the probability-weighted present value of all expected cash shortfalls over the remaining expected life of the financial instrument, and reasonable and supportable information about past events, current conditions, and forecasts of future events and economic conditions is considered. The estimation and application of forward-looking information requires significant judgment. Cash shortfalls represent the difference between all contractual cash flows owed to the Bank and all cash flows that the Bank expects to receive.

The measurement of ECLs is primarily based on the product of the financial instrument's PD, loss given default (LGD), and exposure at default (EAD). Forward-looking macroeconomic factors such as unemployment rates, housing price indices, interest rates, and the gross domestic product (GDP) are incorporated into the risk parameters. The estimate of expected credit losses reflects an unbiased and probability-weighted amount that is determined by evaluating a range of possible outcomes. The Bank incorporates three forward-looking macroeconomic scenarios in its ECL calculation process: a base scenario, an upside scenario, and a downside scenario. Probability weights are attributed to each scenario. The scenarios and probability weights are reassessed quarterly and are subject to management review. The Bank applies experienced credit judgment to adjust the modelled ECL results when it becomes evident that known or expected risk factors and information were not considered in the credit risk rating and modelling process.

ECLs for all financial instruments are recognized in *Provisions for credit losses* in the Consolidated Statement of Income. In the case of debt instruments measured at fair value through other comprehensive income, ECLs are recognized in *Provisions for credit losses* in the Consolidated Statement of Income, and a corresponding amount is recognized in *Other comprehensive income* with no reduction in the carrying amount of the asset on the Consolidated Balance Sheet. As for debt instruments measured at amortized cost, they are presented net of the related allowance for credit losses on the Consolidated Balance Sheet. Allowances for credit losses for off-balance-sheet credit exposures that are not measured at fair value are included in *Other liabilities* on the Consolidated Balance Sheet.

Purchased or Originated Credit-Impaired Financial Assets
On initial recognition of a financial asset, the Bank determines whether the asset is credit-impaired. For financial assets that are credit-impaired upon purchase or origination, the lifetime expected credit losses are reflected in the initial fair value. In subsequent reporting periods, the Bank recognizes only the cumulative changes in these lifetime ECLs since initial recognition as an allowance for credit losses. The Bank recognizes changes in ECLs in *Provisions for credit losses* in the Consolidated Statement of Income, even if the lifetime ECLs are less than the ECLs that were included in the estimated cash flows on initial recognition.

Definition of Default
The definition of default used by the Bank to measure ECLs and transfer financial instruments between stages is consistent with the definition of default used for internal credit risk management purposes. The Bank considers a financial asset, other than a credit card receivable, to be credit-impaired when one or more events that have a detrimental impact on the estimated future cash flows of the financial asset have occurred or when contractual payments are 90 days past due. Credit card receivables are considered credit-impaired and are fully written off at the earlier of the following dates: when a notice of bankruptcy is received, a settlement proposal is made, or contractual payments are 180 days past due.

Write-Offs
A financial asset and its related allowance for credit losses are normally written off in whole or in part when the Bank considers the probability of recovery to be non-existent and when all guarantees and other remedies available to the Bank have been exhausted or if the borrower is bankrupt or winding up and balances owing are not likely to be recovered.

Derecognition of Financial Assets and Securitization
A financial asset is considered for derecognition when the Bank has transferred contractual rights to receive the cash flows or assumed an obligation to transfer these cash flows to a third party. The Bank derecognizes a financial asset when it considers that substantially all the risks and rewards of ownership of the asset have been transferred or when the contractual rights to the cash flows of the financial asset expire. When the Bank considers that it has retained substantially all the risks and rewards of ownership of the transferred asset, it continues to recognize the financial asset and, if applicable, recognizes a financial liability on the Consolidated Balance Sheet. If, due to a derivative financial instrument, the transfer of a financial asset does not result in derecognition, the derivative financial instrument is not recognized on the Consolidated Balance Sheet.

When the Bank has neither transferred nor retained substantially all the risks and rewards of ownership of the financial asset, it derecognizes the financial asset it no longer controls. Any rights and obligations retained following the asset transfer are recognized separately as an asset or liability. If the Bank retains control of the financial asset, it continues to recognize the asset to the extent of its continuing involvement in that asset, i.e., to the extent to which it is exposed to changes in the value of the transferred asset.

In order to diversify its funding sources, the Bank participates in two Canada Mortgage and Housing Corporation (CMHC) securitization programs: the Mortgage-Backed Securities Program under the *National Housing Act* (Canada) (NHA) and Canada Mortgage Bond (CMB) program. Under the first program, the Bank issues NHA securities backed by insured residential mortgages and, under the second, the Bank sells NHA securities to Canada Housing Trust (CHT). As part of these transactions, the Bank retains substantially all the risks and rewards related to ownership of the mortgage loans sold. Therefore, the insured mortgage loans securitized under the CMB program continue to be recognized in the *Loans* item of the Bank's Consolidated Balance Sheet and the liabilities for the considerations received from the transfer are recognized in *Liabilities related to transferred receivables* on the Consolidated Balance Sheet. Moreover, insured mortgage loans securitized and retained by the Bank continue to be recognized in *Loans* on the Consolidated Balance Sheet.

Derecognition of Financial Liabilities
A financial liability is derecognized when the obligation is discharged, cancelled, or expires. The difference between the carrying value of the financial liability transferred and the consideration paid is recognized in the Consolidated Statement of Income.

Cash and Deposits With Financial Institutions
Cash and deposits with financial institutions consist of cash and cash equivalents, amounts pledged as collateral as well as amounts placed in escrow. Cash comprises cash and bank notes. Cash equivalents consist of deposits with the Bank of Canada, deposits with financial institutions, including net receivables related to cheques and other items in the clearing process as well as the net amount of cheques and other items in transit.

Note 1 – Basis of Presentation and Summary of Significant Accounting Policies (cont.)

Acceptances and Customers' Liability Under Acceptances
The potential liability of the Bank under acceptances is recorded as a customer commitment liability on the Consolidated Balance Sheet. The Bank's potential recourse vis à vis clients is recorded as an equivalent offsetting asset. Fees are recorded in *Non-interest income* in the Consolidated Statement of Income.

Obligations Related to Securities Sold Short
This financial liability represents the Bank's obligation to deliver the securities it sold but did not own at the time of sale. Obligations related to securities sold short are recorded at fair value and presented as liabilities on the Consolidated Balance Sheet. Realized and unrealized gains and losses are recognized in *Non-interest income* in the Consolidated Statement of Income.

Derivative Financial Instruments
In the normal course of business, the Bank uses derivative financial instruments to meet the needs of its clients, to generate trading activity revenues, and to manage its exposure to interest rate risk, foreign exchange risk, credit risk, and other market risks.

All derivative financial instruments are measured at fair value on the Consolidated Balance Sheet. Derivative financial instruments with a positive fair value are included in assets, and derivative financial instruments with a negative fair value are included in liabilities on the Consolidated Balance Sheet. Where there are offsetting financial assets and financial liabilities, the net fair value of certain derivative financial instruments is reported either as an asset or as a liability.

<u>Embedded Derivative Financial Instruments</u>
An embedded derivative is a component of a hybrid contract that also includes a non-derivative host, the effect being that some of the cash flows of the combined instrument vary in a way similar to a stand-alone derivative. An embedded derivative causes some or all of the cash flows that otherwise would be required by the contract to be modified according to a specified interest rate, financial instrument price, commodity price, foreign exchange rate, index of prices or rates, credit rating or credit index, or other variable, provided in the case of a non-financial variable that the variable is not specific to one of the parties to the contract.

A derivative embedded in a financial liability is separated from the host contract and treated as a separate derivative if, and only if, the following three conditions are met: the economic characteristics and risks of the embedded derivative are not closely related to those of the host contract, the embedded derivative is a separate instrument that meets the definition of a derivative financial instrument, and the hybrid contract is not measured at fair value through profit or loss.

Embedded derivatives that are separately accounted for are measured at fair value on the Consolidated Balance Sheet, and subsequent changes in fair value are recognized in *Non-interest income* in the Consolidated Statement of Income. In general, all embedded derivatives are presented on a combined basis with the host contract. However, certain embedded derivatives that are separated from the host contract are presented in *Derivative financial instruments* on the Consolidated Balance Sheet.

<u>Held-for-Trading Derivative Financial Instruments</u>
Derivative financial instruments are recognized at fair value, and the realized and unrealized gains and losses (including interest income and expense) are recorded in *Non-interest income* in the Consolidated Statement of Income.

<u>Derivative Financial Instruments Designated as Hedging Instruments</u>
Policy
The purpose of a hedging transaction is to modify the Bank's exposure to one or more risks by creating an offset between changes in the fair value of, or the cash flows attributable to, the hedged item and the hedging instrument. Hedge accounting ensures that offsetting gains, losses, revenues and expenses are recognized in the Consolidated Statement of Income in the same period or periods.

Documenting and Assessing Effectiveness
The Bank designates and formally documents each hedging relationship, at its inception, by detailing the risk management objective and the hedging strategy. The documentation identifies the specific asset, liability, or cash flows being hedged, the related hedging instrument, the nature of the specific risk exposure or exposures being hedged, the intended term of the hedging relationship, and the method for assessing the effectiveness or ineffectiveness of the hedging relationship. At the inception of the hedging relationship, and for every financial reporting period for which the hedge has been designated, the Bank ensures that the hedging relationship is highly effective and consistent with its originally documented risk management objective and strategy. When a hedging relationship meets the hedge accounting requirements, it is designated as either a fair value hedge, a cash flow hedge or a foreign exchange hedge of a net investment in a foreign operation.

Interest Rate Benchmark Reform
A hedging relationship is directly affected by interest rate benchmark reform such as Interbank Offered Rates (IBORs) only if the reform gives rise to uncertainties about (a) the interest rate benchmark (contractually or non-contractually specified) designated as a hedged risk; and/or (b) the timing or the amount of the interest-rate-benchmark-based cash flows of the hedged item or of the hedging instrument.

For such hedging relationships, the following temporary exceptions apply during the period of uncertainty:

- when determining whether a forecast transaction is highly probable or expected to occur, it is assumed that the interest rate benchmark on which the hedged cash flows (contractually or non-contractually specified) are based is not altered as a result of interest rate benchmark reform;
- when assessing whether a hedge is expected to be highly effective, it is assumed that the interest rate benchmark on which the hedged cash flows and/or the hedged risk (contractually or non-contractually specified) are based, or the interest rate benchmark on which the cash flows of the hedging instrument are based, is not altered as a result of interest rate benchmark reform;
- a hedge is not required to be discontinued if the actual results of the hedge are outside an effectiveness range of 80% to 125% as a result of interest rate benchmark reform;
- for a hedge of a non-contractually specified benchmark portion of interest rate risk, the requirement that the designated portion is separately identifiable need only be met at the inception of the hedging relationship.

Fair Value Hedges
For fair value hedges, the Bank mainly uses interest rate swaps to hedge changes in the fair value of a hedged item. The carrying amount of the hedged item is adjusted based on the effective portion of the gains or losses attributable to the hedged risk, which are recognized in the Consolidated Statement of Income, as well as the change in the fair value of the hedging instrument. The resulting ineffective portion is recognized in *Non-interest income* in the Consolidated Statement of Income.

The Bank prospectively discontinues hedge accounting if the hedging instrument is sold or expires or if the hedging relationship no longer qualifies for hedge accounting or if the Bank revokes the designation. When the designation is revoked, the hedged item is no longer adjusted to reflect changes in fair value, and the amounts previously recorded as cumulative adjustments with respect to the effective portion of gains and losses attributable to the hedged risk are amortized using the effective interest rate method and recognized in the Consolidated Statement of Income over the remaining useful life of the hedged item. If the hedged item is sold or terminated before maturity, the cumulative adjustments with respect to the effective portion of gains and losses attributable to the hedged risk are immediately recorded in the Consolidated Statement of Income.

Cash Flow Hedges
For cash flow hedges, the Bank mainly uses interest rate swaps and total return swaps to hedge variable cash flows attributable to the hedged risk related to a financial asset or liability (or to a group of financial assets or liabilities). The effective portion of changes in fair value of the hedging instrument is recognized in *Other comprehensive income* and the ineffective portion in *Non-interest income* in the Consolidated Statement of Income.

The amounts previously recorded in *Accumulated other comprehensive income* are reclassified to the Consolidated Statement of Income of the period or periods during which the cash flows of the hedged item affect the Consolidated Statement of Income. If the hedging instrument is sold or expires or if the hedging relationship no longer qualifies for hedge accounting or if the Bank cancels that designation, then the amounts previously recognized in *Accumulated other comprehensive income* are reclassified to the Consolidated Statement of Income in the period or periods during which the cash flows of the hedged item affect the Consolidated Statement of Income.

Hedges of Net Investments in Foreign Operations
Derivative and non-derivative financial instruments are used to hedge foreign exchange risk related to investments made in foreign operations whose functional currency is not the Canadian dollar. The effective portion of the gains and losses on the hedging instrument is recognized in *Other comprehensive income* and the ineffective portion in *Non-interest income* in the Consolidated Statement of Income. Upon the total or partial sale of a net investment in a foreign operation, amounts reported in *Accumulated other comprehensive income* are reclassified, in whole or in part, to *Non-interest income* in the Consolidated Statement of Income.

Offsetting of Financial Assets and Liabilities
Financial assets and liabilities are offset, and the net amount is presented on the Consolidated Balance Sheet when the Bank has a legally enforceable right to set off the recognized amounts and intends to settle on a net basis or to realize the asset and settle the liability simultaneously.

Note 1 – Basis of Presentation and Summary of Significant Accounting Policies (cont.)

Premises and Equipment

Premises and equipment, except for land and the head office building under construction, are recognized at cost less accumulated depreciation and accumulated impairment losses, if any. Land and the head office building under construction are recorded at cost less any accumulated impairment losses. Right-of-use assets are presented in Premises and equipment on the Consolidated Balance Sheet. For additional information about the accounting treatment of right-of-use assets, see the Leases section presented below.

Buildings, computer equipment, and equipment and furniture are systematically depreciated over their estimated useful lives. The depreciation period for leasehold improvements is the lesser of the estimated useful life of the leasehold improvements or the non-cancellable period of the lease plus the first renewal option. Depreciation methods and estimated useful lives are reviewed on an annual basis. The depreciation expense is recorded in *Non-interest expenses* in the Consolidated Statement of Income.

	Method	Useful life
Buildings	5% declining balance	
Computer equipment	Straight-line	3-4 years
Equipment and furniture	Straight-line	1-8 years
Leasehold improvements	Straight-line	(1)

(1) The depreciation period is the lesser of the estimated useful life or the lease term plus the first renewal period.

Leases

At the inception date of a contract, the Bank assesses whether the contract is, or contains, a lease. A contract is, or contains, a lease if it conveys the right to control the use of an identified asset for a period of time in exchange for consideration. When the Bank is a lessee, it recognizes a right-of-use asset and a corresponding lease liability at the lease commencement date except for short-term leases (defined as leases with terms of 12 months or less) other than real estate leases and leases for which the underlying asset is of low value. For such leases, the Bank recognizes the lease payments as a non-interest expense on a straight-line basis over the lease term. As a practical expedient, the Bank elected for real estate leases not to separate non-lease components from lease components and instead account for them as a single lease component. When the Bank is the lessor, the leased assets remain on the Consolidated Balance Sheet and are reported in *Premises and equipment*, and the rental income is recognized net of related expenses in *Non-interest income* in the Consolidated Statement of Income.

Right-of-use assets are initially measured at cost, and subsequently measured at cost less accumulated depreciation and accumulated impairment losses, if any, and adjusted for certain remeasurements of lease liabilities. The cost of a right-of-use asset comprises the amount of the initial measurement of the lease liability, any lease payments made at or before the commencement date, any initial direct costs incurred when entering into the lease, and an estimate of costs to dismantle the asset or restore the site, less any lease incentives received. Right-of-use assets are depreciated on a straight-line basis over the lesser of the lease term and the estimated useful life of the asset. Right-of-use assets are presented in *Premises and equipment* on the Consolidated Balance Sheet. The depreciation expense and impairment losses, if any, are recorded in *Non-interest expenses* in the Consolidated Statement of Income.

The lease liability is initially measured at the present value of future lease payments net of lease incentives not yet received. The present value of lease payments is determined using the Bank's incremental borrowing rate. The lease liability is subsequently measured at amortized cost using the effective interest method. In determining the lease term, the Bank considers all the facts and circumstances that create an economic incentive to exercise an extension option or not to exercise a termination option. The lease term determined by the Bank comprises the non-cancellable period of lease contracts, the periods covered by an option to extend the lease if the Bank is reasonably certain to exercise that option, and the periods covered by an option to terminate the lease if the Bank is reasonably certain not to exercise that option. The Bank reassesses the lease term if a significant event or change in circumstances occurs and that is within its control. The Bank applies judgment to determine the lease term when the lease includes extension and termination options. Lease liabilities are presented in *Other liabilities* on the Consolidated Balance Sheet, and the interest expense is presented in the *Interest expense – Other* item of the Consolidated Statement of Income.

Goodwill

The Bank uses the acquisition method to account for business combinations. The consideration transferred in a business combination is measured at the acquisition-date fair value, and the transaction costs related to the acquisition are expensed as incurred. When the Bank acquires control of a business, all of the identifiable assets and liabilities of the acquiree, including intangible assets, are recorded at fair value. The interests previously held in the acquiree are also measured at fair value. Goodwill represents the excess of the purchase consideration and all previously held interests over the fair value of the identifiable net assets of the acquiree. If the fair value of the identifiable net assets exceeds the purchase consideration and all previously held interests, the difference is immediately recognized in income as a gain on a bargain purchase.

Non-controlling interests in the net assets of consolidated subsidiaries are identified separately from the Bank's ownership interest and can be initially measured at either fair value or at the non-controlling interest's proportionate share of the acquiree's identifiable net assets. The measurement basis is selected on a case-by-case basis. Following an acquisition, non-controlling interests consist of the value assigned to those interests at initial recognition plus the non-controlling interests' share of changes in equity since the date of the acquisition.

Intangible Assets

Intangible Assets With Finite Useful Lives

Software and certain other intangible assets are recognized at cost less accumulated amortization and accumulated impairment losses. These intangible assets are systematically amortized on a straight-line basis over their useful lives, which vary between four and ten years. The amortization expense is recorded in *Non-interest expenses* in the Consolidated Statement of Income.

Intangible Assets With Indefinite Useful Lives

The Bank's intangible assets with indefinite useful lives come from the acquisition of subsidiaries or groups of assets and consist of management contracts and a trademark. They are recognized at the acquisition-date fair value. The management contracts are for the management of open-ended funds. At the end of each reporting period, the Bank reviews the useful lives to determine whether facts and circumstances continue to support an indefinite useful life assessment. Intangible assets are deemed to have an indefinite useful life following an examination of all relevant factors, in particular: (a) the contracts do not have contractual maturities; (b) the stability of the business segment to which the intangible assets belong; (c) the Bank's capacity to control the future economic benefits of the intangible assets; and (d) the continued economic benefits generated by the intangible assets.

Impairment of Non-Financial Assets

Premises and equipment and intangible assets with finite useful lives are tested for impairment when events or changes in circumstances indicate that their carrying value may not be recoverable. At the end of each reporting period, the Bank determines whether there is an indication that premises and equipment or intangible assets with finite useful lives may be impaired. Goodwill and intangible assets that are not available for use or that have indefinite useful lives are tested for impairment annually or more frequently if there is an indication that the asset might be impaired.

An asset is tested for impairment by comparing its carrying amount with its recoverable amount. The recoverable amount must be estimated for the individual asset. Where it is not possible to estimate the recoverable amount of an individual asset, the recoverable amount of the cash-generating unit (CGU) to which the asset belongs will be determined. A CGU is the smallest identifiable group of assets that generates cash inflows that are largely independent of the cash inflows from other assets or groups of assets. The Bank uses judgment to identify CGUs.

An asset's recoverable amount is the higher of fair value less costs to sell and the value in use of the asset or CGU. Value in use is the present value of expected future cash flows from the asset or CGU. The recoverable amount of the CGU is determined using valuation models that consider various factors such as projected future cash flows, discount rates, and growth rates. The use of different estimates and assumptions in applying the impairment tests could have a significant impact on income.

Corporate assets, such as the head office building and computer equipment, do not generate cash inflows that are largely independent of the cash inflows generated by other assets or groups of assets. Therefore, the recoverable amount of an individual corporate asset cannot be determined unless management has decided to dispose of the asset. However, if there is an indication that a corporate asset may be impaired, the recoverable amount is determined for the CGU or group of CGUs to which the corporate asset belongs, and that recoverable amount is compared with the carrying amount of this CGU or group of CGUs.

Note 1 – Basis of Presentation and Summary of Significant Accounting Policies (cont.)

Goodwill is always tested for impairment at the level of a CGU or group of CGUs. For impairment testing purposes, from the acquisition date, goodwill resulting from a business combination must be allocated to the CGU or group of CGUs expected to benefit from the synergies of the business combination. Each CGU or group of CGUs to which goodwill is allocated must represent the lowest level for which the goodwill is monitored internally at the Bank and must not be larger than an operating segment. The allocation of goodwill to a CGU or group of CGUs involves management's judgment. If an impairment loss is to be recognized, the Bank does so by first reducing the carrying amount of goodwill allocated to the CGU or group of CGUs and then reducing the carrying amounts of the other assets of the CGU or group of CGUs in proportion to the carrying amount of each asset in the CGU or group of CGUs.

If the recoverable amount of an asset or a CGU is less than its carrying amount, the carrying amount is reduced to its recoverable amount and an impairment loss is recognized in *Non-interest expenses* in the Consolidated Statement of Income. An impairment loss recognized in prior periods for an asset other than goodwill must be reversed if, and only if, there has been a change in the estimates used to determine the asset's recoverable amount since the last impairment was recognized. If this is the case, the carrying amount of the asset is increased, given that the impairment loss was reversed, but shall not exceed the carrying amount that would have been determined, net of amortization, had no impairment loss been recognized for this asset in previous years.

Provisions
Provisions are liabilities of uncertain timing and amount. A provision is recognized when the Bank has a present obligation (legal or constructive) arising from a past event, when it is probable that an outflow of economic resources will be required to settle the obligation and when the amount of the obligation can be reliably estimated. Provisions are based on the Bank's best estimates of the economic resources required to settle the present obligation, given all relevant risks and uncertainties, and, when it is significant, the effect of the time value of money. Provisions are reviewed at the end of each reporting period. Provisions are presented in *Other liabilities* on the Consolidated Balance Sheet.

Interest Income and Expense
Interest income and expense, except for the interest income on securities classified as at fair value through profit or loss, are recognized in *Net interest income* and calculated using the effective interest method.

The effective interest rate is the rate that exactly discounts estimated future cash inflows and outflows through the expected life of the financial asset or financial liability to the gross carrying amount of a financial asset or to the amortized cost of a financial liability. When calculating the effective interest rate, the Bank estimates expected cash flows by considering all the contractual terms of the financial instrument but does not consider expected credit losses. The calculation includes all fees and points paid or received between the parties to the contract that are an integral part of the effective interest rate, transaction costs, and all other premiums or discounts. Interest income is calculated by applying the effective interest rate to the gross carrying amount of a financial asset except for purchased or originated credit-impaired financial assets and financial assets that were not impaired upon their purchase or origination but became impaired thereafter. For purchased or originated credit-impaired financial assets, the Bank applies the credit-adjusted effective interest rate to the amortized cost of the financial asset from initial recognition. The credit-adjusted effective interest rate reflects expected credit losses. As for loans that have subsequently become credit-impaired, interest income is calculated by applying the effective interest rate to the net carrying amount (net of allowances for credit losses) rather than to the carrying amount.

Loan origination fees, including commitment, restructuring, and renegotiation fees, are considered an integral part of the yield earned on the loan. They are deferred and amortized using the effective interest method, and the amortization is recognized in *Interest income* over the term of the loan. Direct costs for originating a loan are netted against the loan origination fees. If it is likely that a commitment will result in a loan, commitment fees receive the same accounting treatment, i.e., they are deferred and amortized using the effective interest rate method and the amortization is recognized in *Interest income* over the term of the loan. Otherwise, they are recorded in *Non-interest income* over the term of the commitment.

Loan syndication fees are recorded in *Non-interest income* unless the yield on the loan retained by the Bank is less than that of other comparable lenders involved in the financing. In such cases, an appropriate portion of the fees is deferred and amortized using the effective interest rate method, and the amortization is recognized in *Interest income* over the term of the loan. Certain mortgage loan prepayment fees are recognized in *Interest income* in the Consolidated Statement of Income when earned.

Dividend Income
Dividends from an equity instrument are recognized in *Net interest income* in the Consolidated Statement of Income when the Bank's right to receive payment is established.

Fee and Commission Income

Fee and commission income is recognized when, or as, a performance obligation is satisfied, i.e., when control of a promised service is transferred to a customer and in an amount that reflects the consideration that the entity expects to be entitled to receive in exchange for the service. The revenue may therefore be recognized at a point in time, upon completion of the service, or over time as services are provided.

The Bank must also determine whether its performance obligation is to provide the service itself or to arrange for another party to provide the service (in other words, whether the Bank is acting as a principal or agent). A principal may itself satisfy its performance obligation to provide the specified good or service or it may engage another party to satisfy some or all of the performance obligation on its behalf. A principal also has the primary responsibility for fulfilling the promise to provide the good or service to the customer and has discretion in establishing the price for the service. If the Bank is acting as a principal, revenue is recognized on a gross basis in an amount corresponding to the consideration to which the Bank expects to be entitled. If the Bank is acting as an agent, then revenue is recognized net of the service fees and other costs incurred in relation to the commission and fees earned.

Underwriting and Advisory Fees

Underwriting and advisory fees include underwriting fees, financial advisory fees, and loan syndication fees. These fees are mainly earned in the Financial Markets segment and are recognized at a point in time as revenue upon successful completion of the engagement. Financial advisory fees are fees earned for assisting customers with transactions related to mergers and acquisitions and financial restructurings. Loan syndication fees represent fees earned as the agent or lead lender responsible for structuring, arranging, and administering a loan syndication and are recorded in *Non-interest income* unless the yield on the loan retained by the Bank is less than that of other comparable lenders involved in the financing. In such cases, an appropriate portion of the fees is deferred and amortized using the effective interest rate method, and the amortization is recognized in *Interest income* over the term of the loan.

Securities Brokerage Commissions

Securities brokerage commissions are earned in the Wealth Management segment and are recognized when the transaction is executed.

Mutual Fund Revenues

Mutual fund revenues include management fees earned in the Wealth Management segment. Management fees are primarily calculated based on a fund's net asset value and are recorded in the period the services are performed.

Investment management and trust service fees

Investment management and trust service fees include management fees, trust service fees, and fees for other investment services provided to clients and earned in the Wealth Management segment. Generally, these fees are calculated using the balances of assets under administration and assets under management. Such fees are recognized in the period the service is performed.

Card Revenues

Card revenues are earned in the Personal and Commercial segment and include card fees such as annual and transactional fees as well as interchange fees. Interchange fees are recognized when a card transaction is settled. Card fees are recognized on the transaction date except for annual fees, which are recorded evenly throughout the year. Reward costs are recorded as a reduction to interchange fees.

Credit Fees and Deposit and Payment Service Charges

Credit fees and deposit and payment service charges are earned in the Personal and Commercial, Financial Markets, and U.S. Specialty Finance and International segments. Credit fees are generally recognized in income over the period the services are provided. Deposit and payment service charges include fees related to account maintenance activities and transaction-based service charges. Fees related to account maintenance activities are recognized in the period the services are provided, whereas transaction-based service charges are recognized when the transaction is executed.

Insurance Revenues

Insurance contracts, including reinsurance contracts, are arrangements under which one party accepts significant insurance risk by agreeing to compensate the policyholder if a specified uncertain future event was to occur. Gross premiums, net of premiums transferred under reinsurance contracts, are recognized when they become due. Royalties received from reinsurers are recognized when earned. Claims are recognized when received and an amount is estimated as they are being processed. All these amounts are recognized on a net basis in *Non-interest income* in the Consolidated Statement of Income.

Upon recognition of a premium, a reinsurance asset and insurance liability are recognized, respectively, in *Other assets* and in *Other liabilities* on the Consolidated Balance Sheet. Subsequent changes in the carrying value of the reinsurance asset and insurance liability are recognized on a net basis in *Non-interest income* in the Consolidated Statement of Income.

Note 1 – Basis of Presentation and Summary of Significant Accounting Policies (cont.)

Income Taxes
Income taxes include current taxes and deferred taxes and are recorded in net income except for income taxes generated by items recognized in *Other comprehensive income* or directly in equity.

Current tax is the amount of income tax payable on the taxable income for a period. It is calculated using the enacted or substantively enacted tax rates prevailing on the reporting date, and any adjustments recognized in the period for the current tax of prior periods. Current tax assets and liabilities are offset, and the net balance is presented in either *Other assets* or *Other liabilities* on the Consolidated Balance Sheet when the Bank has a legally enforceable right to set off the recognized amounts and intends to settle on a net basis or to simultaneously realize the asset and settle the liability.

Deferred tax is established based on temporary differences between the carrying values and the tax bases of assets and liabilities, in accordance with enacted or substantively enacted income tax laws and rates that will apply on the date the differences reverse. Deferred tax is not recognized for temporary differences related to the following:

- the initial accounting of goodwill;
- the initial accounting of an asset or liability in a transaction that is not a business combination and that, at the time of the transaction, affects neither accounting income nor taxable income;
- investments in subsidiaries, associates and joint ventures when it is probable that the temporary difference will not reverse in the foreseeable future and that the Bank controls the timing of the reversal of the temporary difference;
- investments in subsidiaries, associates and joint ventures when it is probable that the temporary difference will not reverse in the foreseeable future and that there will not be taxable income to which the temporary difference can be recognized.

Deferred tax assets are tax benefits in the form of deductions that the Bank may claim to reduce its taxable income in future years. At the end of each reporting period, the carrying amount of deferred tax assets is revised, and it is reduced to the extent that it is no longer probable that sufficient taxable income will be available to allow the benefit of the deferred tax asset to be utilized.

Deferred tax assets and liabilities are offset, and the net balance is presented in either *Other assets* or *Other liabilities* on the Consolidated Balance Sheet when the Bank has a legally enforceable right to set off the current tax assets and liabilities and if the deferred tax assets and liabilities relate to taxes levied by the same taxation authority on the same taxable entity or on different taxable entities that intend to settle current tax assets and liabilities based on their net amount.

The Bank makes assumptions to estimate income taxes as well as deferred tax assets and liabilities. This process includes estimating the actual amount of current taxes and evaluating tax loss carryforwards and temporary differences arising from differences between the values of items reported for accounting and for income tax purposes. Deferred tax assets and liabilities presented on the Consolidated Balance Sheet are calculated according to the tax rates to be applied in future periods. Previously recorded deferred tax assets and liabilities must be adjusted when the date of the future event is revised based on current information.

The Bank is subject to the jurisdictions of various tax authorities. In the normal course of its business, the Bank is involved in a number of transactions for which the tax impacts are uncertain. As a result, the Bank accounts for provisions for uncertain tax positions that adequately represent the tax risk stemming from tax matters under discussion or being audited by tax authorities or from other matters involving uncertainty. The amounts of these provisions reflect the best possible estimates of the amounts that may have to be paid based on qualitative assessments of all relevant factors. The provisions are estimated at the end of each reporting period. However, it is possible that, at a future date, a provision might need to be adjusted following an audit by the tax authorities. When the final assessment differs from the initially provisioned amounts, the difference will impact the income taxes of the period in which the assessment was made.

Financial Guarantee Contracts
A financial guarantee contract is a contract or indemnification agreement that could require the Bank to make specified payments (in cash, financial instruments, other assets, Bank shares, or provisions of services) to reimburse a beneficiary in the event of a loss resulting from a debtor defaulting on the original or amended terms of a debt instrument.

To reflect the fair value of the obligation assumed at the inception of a financial guarantee, a liability is recorded in *Other liabilities* on the Consolidated Balance Sheet. After initial recognition, the Bank must measure financial guarantee contracts at the higher of the allowance for credit losses determined using the ECL model and of the initially recognized amount less, where applicable, the cumulative amount of revenue recognized. This revenue is recognized in *Credit fees* in the Consolidated Statement of Income.

Employee Benefits – Pension Plans and Other Post-Employment Benefit Plans
The Bank offers defined benefit pension plans and other post-employment benefit plans to eligible employees. Other post-employment benefit plans include post-employment medical, dental, and life insurance coverage. While pension plans are funded, the other plans are not.

Plan expenses and obligations are actuarially determined based on the projected benefit method prorated on service. The calculations use management's best estimates of various actuarial assumptions such as discount rates, rates of compensation increase, health care cost trend rates, mortality rates, and retirement age.

The net asset or net liability of pension plans and other post-employment benefit plans are calculated separately for each plan as the difference between the present value of the future benefits earned by employees in respect of current- and prior-period service and the fair value of plan assets. The net asset or net liability is included in either the *Other assets* or *Other liabilities* item of the Consolidated Balance Sheet.

The expense related to pension plans and other post-employment benefit plans consists of the following items: current service cost, net interest on the net plan asset or liability, administration costs, and past service cost, if any, recognized when a plan is amended. This expense is recognized in *Compensation and employee benefits* in the Consolidated Statement of Income. The net amount of interest income and expense is determined by applying a discount rate to the net plan asset or liability amount.

Remeasurements resulting from pension plans and other post-employment benefit plans represent actuarial gains and losses related to the defined benefit obligation and the actual return on plan assets, excluding net interest determined by applying a discount rate to the net asset or liability of the plans. Remeasurements are immediately recognized in *Other comprehensive income* and will not be subsequently reclassified to net income; these cumulative gains and losses are reclassified to *Retained earnings.*

Share-Based Payments
The Bank has several share-based compensation plans: the Stock Option Plan, the Stock Appreciation Rights (SAR) Plan, the Deferred Stock Unit (DSU) Plan, the Restricted Stock Unit (RSU) Plan, the Performance Stock Unit (PSU) Plan, the Deferred Compensation Plan (DCP) of National Bank Financial, and the Employee Share Ownership Plan.

Compensation expense is recognized over the service period required for employees to become fully entitled to the award. This period is generally the same as the vesting period, except where the required service period begins before the award date. Compensation expense related to awards granted to employees eligible to retire on the award date is immediately recognized on the award date. Compensation expense related to awards granted to employees who will become eligible to retire during the vesting period is recognized over the period from the award date to the date the employee becomes eligible to retire. For all of these plans, as of the first year of recognition, the expense includes cancellation and forfeiture estimates. These estimates are subsequently revised as necessary. The Bank uses derivative financial instruments to hedge the risks associated with some of these plans. The compensation expense for these plans, net of related hedges, is recognized in the Consolidated Statement of Income.

Under the Stock Option Plan, the Bank uses the fair value method to account for stock options awarded. The options vest at 25% per year, and each tranche is treated as though it was a separate award. The fair value of each of the tranches is measured on the award date using the Black-Scholes model, and this fair value is recognized in *Compensation and employee benefits* and *Contributed surplus.* When the options are exercised, the *Contributed surplus* amount is credited to *Equity – Common shares* on the Consolidated Balance Sheet. The proceeds received from the employees when these options are exercised are also credited to *Equity – Common shares* on the Consolidated Balance Sheet.

SARs are recorded at fair value when awarded and their fair value is remeasured at the end of each reporting period until they are exercised. The cost is recognized in *Compensation and employee benefits* in the Consolidated Statement of Income and in *Other liabilities* on the Consolidated Balance Sheet. The obligation that results from the change in fair value at each period is recognized in net income gradually over the vesting period, and periodically thereafter, until the SARs are exercised. When a SAR is exercised, the Bank makes a cash payment equal to the increase in the stock price since the date of the award.

Note 1 – Basis of Presentation and Summary of Significant Accounting Policies (cont.)

The obligation that results from the award of a DSU, RSU, PSU and DCP unit is recognized in net income, and the corresponding amount is included in *Other liabilities* on the Consolidated Balance Sheet. For the DSU, RSU and DCP plans, the change in the obligation attributable to variations in the share price and dividends paid on the common shares of these plans is recognized in *Compensation and employee benefits* in the Consolidated Statement of Income for the period in which the variations occur. On the redemption date, the Bank makes a cash payment equal to the value of the common shares on that date. For the PSU Plan, the change in the obligation attributable to changes in the stock price, adjusted upward or downward depending on the relative result of the performance criteria, and the change in the obligation attributable to dividends paid on the shares awarded under the plan, are recognized in *Compensation and employee benefits* in the Consolidated Statement of Income for the period in which the changes occur. On the redemption date, the Bank makes a cash payment equal to the value of the common shares on that date, adjusted upward or downward according to the performance criteria.

The Bank's contributions to the employee share ownership plan are expensed as incurred.

Note 2 – Future Accounting Policy Changes

The Bank closely monitors both new accounting standards and amendments to existing accounting standards issued by the IASB. The following standards have been issued but are not yet in effect. The Bank is currently assessing the impact of the application of these standards on the consolidated financial statements.

Effective Date – November 1, 2023

IFRS 17 – *Insurance Contracts*

In May 2017, the IASB issued IFRS 17 – *Insurance Contracts* (IFRS 17), a new standard that replaces IFRS 4, the current insurance contract accounting standard. IFRS 17 introduces a new accounting framework that will improve the comparability and quality of financial information. IFRS 17 provides guidance on the recognition, measurement, presentation and disclosure of insurance contracts. In June 2020, the IASB issued amendments to IFRS 17 that included a two-year deferral of the effective date along with other changes aimed at addressing concerns and implementation challenges identified after IFRS 17 was published in 2017. IFRS 17, as amended, is to be applied retrospectively for annual periods beginning on or after January 1, 2023, with earlier application permitted. If full retrospective application to a group of insurance contracts is impractical, the modified retrospective approach or the fair value approach may be used.

(millions of Canadian dollars)

Note 3 – Fair Value of Financial Instruments

Fair Value and Carrying Value of Financial Instruments by Category

Financial assets and financial liabilities are recognized on the Consolidated Balance Sheet at fair value or at amortized cost in accordance with the categories set out in the accounting framework for financial instruments.

								As at October 31, 2021
	Carrying value and fair value				Carrying value	Fair value		
	Financial instruments classified as at fair value through profit or loss	Financial instruments designated at fair value through profit or loss	Debt securities classified as at fair value through other comprehensive income	Equity securities designated at fair value through other comprehensive income	Financial instruments at amortized cost, net	Financial instruments at amortized cost, net	Total carrying value	Total fair value
Financial assets								
Cash and deposits with financial institutions	–	–	–	–	33,879	33,879	33,879	33,879
Securities	83,464	1,347	8,966	617	11,910	11,897	106,304	106,291
Securities purchased under reverse repurchase agreements and securities borrowed	–	–	–	–	7,516	7,516	7,516	7,516
Loans and acceptances, net of allowances	8,539	–	–	–	174,150	173,769	182,689	182,308
Other								
Derivative financial instruments	16,484	–	–	–	–	–	16,484	16,484
Other assets	–	–	–	–	1,684	1,684	1,684	1,684
Financial liabilities								
Deposits(1)	–	14,018			226,920	227,054	240,938	241,072
Other								
Acceptances	–	–			6,836	6,836	6,836	6,836
Obligations related to securities sold short	20,266	–			–	–	20,266	20,266
Obligations related to securities sold under repurchase agreements and securities loaned	–	–			17,293	17,293	17,293	17,293
Derivative financial instruments	19,367	–			–	–	19,367	19,367
Liabilities related to transferred receivables	–	11,398			13,772	13,724	25,170	25,122
Other liabilities	–	–			1,709	1,709	1,709	1,709
Subordinated debt	–	–			768	773	768	773

(1) Includes embedded derivative financial instruments.

(millions of Canadian dollars)

Note 3 – Fair Value of Financial Instruments (cont.)

As at October 31, 2020

	Carrying value and fair value				Carrying value	Fair value		
	Financial instruments classified as at fair value through profit or loss	Financial instruments designated at fair value through profit or loss	Debt securities classified as at fair value through other comprehensive income	Equity securities designated at fair value through other comprehensive income	Financial instruments at amortized cost, net	Financial instruments at amortized cost, net	Total carrying value	Total fair value
Financial assets								
Cash and deposits with financial institutions	–	–	–	–	29,142	29,142	29,142	29,142
Securities	75,647	2,679	12,107	619	11,079	11,290	102,131	102,342
Securities purchased under reverse repurchase agreements and securities borrowed	–	–	–	–	14,512	14,512	14,512	14,512
Loans and acceptances, net of allowances	8,109	–	–	–	156,631	159,473	164,740	167,582
Other								
Derivative financial instruments	13,422	–	–	–	–	–	13,422	13,422
Other assets	–	–	–	–	1,153	1,153	1,153	1,153
Financial liabilities								
Deposits(1)	–	11,418			204,460	205,337	215,878	216,755
Other								
Acceptances	–	–			6,866	6,866	6,866	6,866
Obligations related to securities sold short	16,368	–			–	–	16,368	16,368
Obligations related to securities sold under repurchase agreements and securities loaned	–	–			33,859	33,859	33,859	33,859
Derivative financial instruments	12,923	–			–	–	12,923	12,923
Liabilities related to transferred receivables	–	8,762			14,093	14,432	22,855	23,194
Other liabilities	–	–			1,892	1,894	1,892	1,894
Subordinated debt	–	–			775	787	775	787

(1) Includes embedded derivative financial instruments.

Establishing Fair Value

The fair value of a financial instrument is the price that would be received to sell a financial asset or paid to transfer a financial liability in an orderly transaction in the principal market at the measurement date under current market conditions (i.e., an exit price).

Unadjusted quoted prices in active markets provide the best evidence of fair value. When there is no quoted price in an active market, the Bank applies other valuation techniques that maximize the use of relevant observable inputs and that minimize the use of unobservable inputs. Such valuation techniques include the following: using information available from recent market transactions, referring to the current fair value of a comparable financial instrument, applying discounted cash flow analysis, applying option pricing models, or relying on any other valuation technique that is commonly used by market participants and has proven to yield reliable estimates. Judgment is required when applying many of the valuation techniques. The Bank's valuation was based on its assessment of the conditions prevailing as at October 31, 2021 and may change in the future. Furthermore, there may be valuation uncertainty resulting from the choice of valuation model used.

Valuation Governance

Fair value is established in accordance with a rigorous control framework. The Bank has policies and procedures that govern the process for determining fair value. These policies are documented and periodically reviewed by the Risk Management Group. All valuation models are validated, and controls have been implemented to ensure that they are applied.

The fair value of existing or new products is determined and validated by functions independent of the risk-taking team. Complex fair value matters are reviewed by valuation committees made up of experts from various specialized functions.

For financial instruments classified in Level 3 of the fair value hierarchy, the Bank has documented the hierarchy classification policies, and there are controls in place to ensure that fair value is measured appropriately, reliably, and consistently. Valuation methods and the underlying assumptions are reviewed on a regular basis.

Valuation Methods and Assumptions

Financial Instruments Whose Fair Value Equals Carrying Value

The carrying value of the following financial instruments is a reasonable approximation of fair value:

- cash and deposits with financial institutions;
- securities purchased under reverse repurchase agreements and securities borrowed;
- obligations related to securities sold under repurchase agreements and securities loaned;
- customers' liability under acceptances;
- acceptances;
- certain items of other assets and other liabilities.

Securities and Obligations Related to Securities Sold Short

These financial instruments, except for securities at amortized cost, are recognized at fair value on the Consolidated Balance Sheet. Their fair value is based on quoted prices in active markets, i.e., bid prices for financial assets and offered prices for financial liabilities. If there are no quoted prices in an active market, fair value is estimated using prices for securities that, in substance, are identical. If such prices are not available, fair value is determined using valuation techniques that incorporate assumptions based primarily on observable market inputs such as current market prices, the contractual prices of the underlying instruments, the time value of money, credit risk, interest rate yield curves and currency rates.

When one or more significant inputs are not observable in the markets, fair value is established primarily using internal estimates and data that consider the valuation policies in effect at the Bank, economic conditions, the characteristics specific to the financial asset or liability, and other relevant factors.

Securities Issued or Guaranteed by Governments

Securities issued or guaranteed by governments include government debt securities of the governments of Canada (federal, provincial and municipal) as well as debt securities of the U.S. government (U.S. Treasury), of other U.S. agencies and of other foreign governments. The fair value of these securities is based on unadjusted quoted prices in active markets. For those classified in Level 2, quoted prices for identical or similar instruments in active markets are used to determine fair value. In the absence of an observable market, valuation techniques such as the discounted cash flow method could be used, incorporating assumptions on benchmark yields (CDOR, LIBOR and other) and the risk spreads of similar securities.

Equity Securities and Other Debt Securities

The fair value of equity securities is determined primarily by using quoted prices in active markets. For equity securities and other debt securities classified in Level 2, a valuation technique based on quoted prices of identical and similar instruments in an active market is used to determine fair value. In the absence of observable inputs, valuation techniques such as the discounted cash flow method could be used, incorporating assumptions on benchmark yields (CDOR, LIBOR and other) and the risk spreads of similar securities. For those classified in Level 3, fair value can be determined based on the net asset value, which represents the estimated value of a security based on valuations received from investment or fund managers or the general partners of the limited partnerships. Fair value can also be determined using internal valuation techniques adjusted for risk factors related to the financial instruments and for economic conditions.

Note 3 – Fair Value of Financial Instruments (cont.)

Derivative Financial Instruments

Derivative financial instruments are recorded at fair value on the Consolidated Balance Sheet. For exchange-traded derivative financial instruments, fair value is based on a quoted price in an active market.

For over-the-counter (OTC) derivative financial instruments, fair value is determined using well established valuation techniques that incorporate assumptions based primarily on observable market inputs such as current market prices and the contractual prices of the underlying instruments, the time value of money, interest rate yield curves, credit curves, currency rates as well as price and rate volatility factors. In establishing the fair value of OTC derivative financial instruments, the Bank also incorporates the following factors:

Credit Valuation Adjustment (CVA)

The CVA is a valuation adjustment applied to derivative financial instruments to reflect the credit risk of the counterparty. For each counterparty, the CVA is based on the expected positive exposure and probabilities of default through time. The exposures are determined by incorporating relevant factors such as current and potential future market values, master netting arrangements, collateral agreements and expected recovery rates. The default probabilities are inferred using credit default swap (CDS) spreads. When unavailable, relevant proxies are used. While the general methodology currently assumes independence between expected positive exposures and probabilities of default, adjustments are applied to certain types of transactions where there is a direct link between the exposure at default and the default probabilities.

Funding Valuation Adjustment (FVA)

The FVA is a valuation adjustment applied to derivative financial instruments to reflect the market-implied cost or benefits of funding collateral for uncollateralized or partly collateralized transactions. The expected exposures are determined using methodologies consistent with the CVA framework. The funding level used to determine the FVA is based on the average funding level of relevant market participants.

When the valuation techniques incorporate one or more significant inputs that are not observable in the markets, the fair value of OTC derivative financial instruments is established primarily on the basis of internal estimates and data that consider the valuation policies in effect at the Bank, economic conditions, the characteristics specific to the financial asset or financial liability, and other relevant factors.

Loans

The fair value of fixed-rate mortgage loans is determined by discounting expected future contractual cash flows, adjusted for several factors, including prepayment options, current market interest rates for similar loans, and other relevant variables where applicable. The fair value of variable-rate mortgage loans is deemed to equal carrying value.

The fair value of other fixed-rate loans is determined by discounting expected future contractual cash flows using current market interest rates charged for similar new loans. The fair value of other variable-rate loans is deemed to equal carrying value.

Deposits

The fair value of fixed-term deposits is determined primarily by discounting expected future contractual cash flows and considering several factors such as redemption options and market interest rates currently offered for financial instruments with similar conditions. For certain term funding instruments, fair value is determined using market prices for similar instruments. The fair value of demand deposits and notice deposits is deemed to equal carrying value.

The fair value of structured deposit notes is established using valuation models that maximize the use of observable inputs when available, such as benchmark indices, and also incorporates the Bank's own credit risk. In calculating the Bank's own credit risk, the market implied spreads of the Bank are used to infer its probabilities of default. Lastly, when fair value is determined using option pricing models, the valuation techniques are similar to those described for derivative financial instruments.

Liabilities Related to Transferred Receivables

These liabilities arise from sale transactions to Canada Housing Trust (CHT) of securities backed by insured residential mortgages and other securities under the Canada Mortgage Bond (CMB) program. These transactions do not qualify for derecognition. They are recorded as guaranteed borrowings, which results in the recording of liabilities on the Consolidated Balance Sheet. The fair value of these liabilities is established using valuation techniques based on observable market inputs such as Canada Mortgage Bond prices.

Other Liabilities and Subordinated Debt
The fair value of these financial liabilities is based on quoted market prices in an active market. If there is no active market, fair value is determined by discounting contractual cash flows using the current market interest rates offered for similar financial instruments that have the same term to maturity.

Hierarchy of Fair Value Measurements

Determining the Levels of the Fair Value Measurement Hierarchy
IFRS establishes a fair value measurement hierarchy that classifies the inputs used in financial instrument fair value measurement techniques according to three levels. This fair value hierarchy requires observable market inputs to be used whenever such inputs exist. According to the hierarchy, the highest level of inputs are unadjusted quoted prices in active markets for identical instruments and the lowest level of inputs are unobservable inputs. If inputs from different levels of the hierarchy are used, the financial instrument is classified in the same level as the lowest level input that is significant to the fair value measurement. The fair value measurement hierarchy has the following levels:

Level 1
Inputs corresponding to unadjusted quoted prices in active markets for identical assets and liabilities and accessible to the Bank at the measurement date. These instruments consist primarily of equity securities, derivative financial instruments traded in active markets, and certain highly liquid debt securities actively traded in over-the-counter markets.

Level 2
Valuation techniques based on inputs, other than the quoted prices included in Level 1 inputs, that are directly or indirectly observable in the market for the asset or liability. These inputs are quoted prices of similar instruments in active markets; quoted prices for identical or similar instruments in markets that are not active; inputs other than quoted prices used in a valuation model that are observable for that instrument; and inputs that are derived principally from or corroborated by observable market inputs by correlation or other means. These instruments consist primarily of certain loans, certain deposits, derivative financial instruments traded in over-the-counter markets, certain debt securities, certain equity securities whose value is not directly observable in an active market, liabilities related to transferred receivables, and certain other liabilities.

Level 3
Valuation techniques based on one or more significant inputs that are not observable in the market for the asset or liability. The Bank classifies financial instruments in Level 3 when the valuation technique is based on at least one significant input that is not observable in the markets. The valuation technique may also be partly based on observable market inputs.

Financial instruments whose fair values are classified in Level 3 consist of the following:

- financial instruments measured at fair value through profit or loss: investments in hedge funds for which there are certain restrictions on unit or security redemptions, equity securities and debt securities of private companies, as well as certain derivative financial instruments whose fair value is established using internal valuation models that are based on significant unobservable market inputs;
- securities at fair value through other comprehensive income: equity and debt securities of private companies;
- certain loans and certain deposits (structured deposit notes) whose fair value is established using internal valuation models that are based on significant unobservable market inputs.

Transfers Between the Fair Value Hierarchy Levels
Transfers of financial instruments between Levels 1 and 2 and transfers to (or from) Level 3 are deemed to have taken place at the beginning of the quarter in which the transfer occurred. Significant transfers can occur between the fair value hierarchy levels due to new information on inputs used to determine fair value and the observable nature of those inputs.

During fiscal 2021, $31 million in securities classified as at fair value through profit or loss and $2 million in obligations related to securities sold short were transferred from Level 2 to Level 1 resulting from changing market conditions ($15 million in securities classified as at fair value through profit or loss in fiscal 2020). In addition, during fiscal 2021, $30 million in securities classified as at fair value through profit or loss were transferred from Level 1 to Level 2 resulting from changing market conditions (for fiscal 2020, $10 million in securities classified as at fair value through profit or loss).

During fiscal years 2021 and 2020, financial instruments were transferred to (or from) Level 3 due to changes in the availability of observable market inputs resulting from changing market conditions.

(millions of Canadian dollars)

Note 3 – Fair Value of Financial Instruments (cont.)

Financial Instruments Recorded at Fair Value on the Consolidated Balance Sheet

The following tables show financial instruments recorded at fair value on the Consolidated Balance Sheet according to the fair value hierarchy.

				As at October 31, 2021
	Level 1	Level 2	Level 3	Total financial assets/liabilities at fair value
Financial assets				
Securities				
At fair value through profit or loss				
Securities issued or guaranteed by				
Canadian government	2,661	6,716	–	9,377
Canadian provincial and municipal governments	–	8,998	–	8,998
U.S. Treasury, other U.S. agencies and other foreign governments	2,547	1,878	–	4,425
Other debt securities	–	2,484	47	2,531
Equity securities	58,539	517	424	59,480
	63,747	20,593	471	84,811
At fair value through other comprehensive income				
Securities issued or guaranteed by				
Canadian government	19	4,214	–	4,233
Canadian provincial and municipal governments	–	2,313	–	2,313
U.S. Treasury, other U.S. agencies and other foreign governments	1,384	252	–	1,636
Other debt securities	–	784	–	784
Equity securities	–	311	306	617
	1,403	7,874	306	9,583
Loans	–	8,242	297	8,539
Other				
Derivative financial instruments	203	16,278	3	16,484
	65,353	52,987	1,077	119,417
Financial liabilities				
Deposits	–	14,215	–	14,215
Other				
Obligations related to securities sold short	15,546	4,720	–	20,266
Derivative financial instruments	693	18,673	1	19,367
Liabilities related to transferred receivables	–	11,398	–	11,398
	16,239	49,006	1	65,246

(millions of Canadian dollars)

As at October 31, 2020

	Level 1	Level 2	Level 3	Total financial assets/liabilities at fair value
Financial assets				
Securities				
At fair value through profit or loss				
Securities issued or guaranteed by				
Canadian government	1,852	7,632	–	9,484
Canadian provincial and municipal governments	–	9,105	–	9,105
U.S. Treasury, other U.S. agencies and other foreign governments	7,852	996	–	8,848
Other debt securities	–	2,048	40	2,088
Equity securities	47,941	443	417	48,801
	57,645	20,224	457	78,326
At fair value through other comprehensive income				
Securities issued or guaranteed by				
Canadian government	877	3,535	–	4,412
Canadian provincial and municipal governments	–	4,154	–	4,154
U.S. Treasury, other U.S. agencies and other foreign governments	2,165	284	–	2,449
Other debt securities	–	1,092	–	1,092
Equity securities	–	246	373	619
	3,042	9,311	373	12,726
Loans	–	7,737	372	8,109
Other				
Derivative financial instruments	343	13,049	30	13,422
	61,030	50,321	1,232	112,583
Financial liabilities				
Deposits(1)	–	11,575	(2)	11,573
Other				
Obligations related to securities sold short	11,575	4,793	–	16,368
Derivative financial instruments	242	12,680	1	12,923
Liabilities related to transferred receivables	–	8,762	–	8,762
	11,817	37,810	(1)	49,626

(1) The amount classified in Level 3 represents the fair value of embedded derivative financial instruments in deposits.

(millions of Canadian dollars)

Note 3 – Fair Value of Financial Instruments (cont.)

Financial Instruments Classified in Level 3

The Bank classifies financial instruments in Level 3 when the valuation technique is based on at least one significant input that is not observable in the markets. The valuation technique may also be based, in part, on observable market inputs. The following table shows the significant unobservable inputs used for the fair value measurements of financial instruments classified in Level 3 of the hierarchy.

As at October 31, 2021

	Fair value	Primary valuation techniques	Significant unobservable inputs	Range of input values Low	Range of input values High
Financial assets					
Securities					
Equity securities and other debt securities	777	Net asset value	Net asset value	100 %	100 %
		Market comparable	EV/EBITDA[1] multiple	18 x	20 x
		Discounted cash flows	Credit spread	560 Bps[2]	560 Bps[2]
		Discounted cash flows	Discount rate	4.50 %	19.00 %
Loans					
Loans at fair value through profit or loss	297	Discounted cash flows	Discount rate	3.25 %	7.09 %
		Discounted cash flows	Liquidity premium	1.98 %	6.27 %
Other					
Derivative financial instruments					
Interest rate contracts	3	Discounted cash flows	Discount rate	2.20 %	2.20 %
	1,077				
Financial liabilities					
Other					
Derivative financial instruments					
Equity contracts	1	Option pricing model	Long-term volatility	6 %	86 %
			Market correlation	(5) %	90 %
	1				

As at October 31, 2020

	Fair value	Primary valuation techniques	Significant unobservable inputs	Range of input values Low	Range of input values High
Financial assets					
Securities					
Equity securities and other debt securities	830	Net asset value	Net asset value	100 %	100 %
		Market comparable	EV/EBITDA[1] multiple	18 x	20 x
		Discounted cash flows	Credit spread	460 Bps[2]	705 Bps[2]
		Discounted cash flows	Discount rate	4.50 %	19.00 %
Loans					
Loans at fair value through profit or loss	372	Discounted cash flows	Discount rate	3.54 %	9.84 %
		Discounted cash flows	Liquidity premium	3.11 %	9.56 %
Other					
Derivative financial instruments					
Interest rate contracts	11	Discounted cash flows	Discount rate	2.20 %	2.20 %
Equity contracts	6	Option pricing model	Long-term volatility	7 %	91 %
			Market correlation	29 %	93 %
Credit derivative contracts	13	Discounted cash flows	Liquidity premium	(6) %	6 %
	1,232				
Financial liabilities					
Deposits					
Structured deposit notes[3]	(2)	Option pricing model	Long-term volatility	8 %	49 %
			Market correlation	(68) %	94 %
Other					
Derivative financial instruments					
Credit derivative contracts	1	Discounted cash flows	Liquidity premium	(2) %	2 %
	(1)				

(1) EV/EBITDA means Enterprise Value/Earnings Before Interest, Taxes, Depreciation and Amortization.
(2) Bps or basis point is a unit of measure equal to 0.01%.
(3) The amount represents the fair value of the embedded derivative financial instruments related to structured deposit notes.

Significant Unobservable Inputs Used for Fair Value Measurements of Financial Instruments Classified in Level 3

Net Asset Value

Net asset value is the estimated value of a security based on valuations received from the investment or fund managers, the administrators of the conduits, or the general partners of limited partnerships. The net asset value of a fund is the total fair value of assets less liabilities.

EV/EBITDA (Enterprise Value/Earnings Before Interest, Taxes, Depreciation and Amortization) Multiple and Price Equivalent

Private equity valuation inputs include earnings multiples, which are determined based on comparable companies, and a higher multiple will translate into a higher fair value. Price equivalent is a percentage of the market price based on the liquidity of the security.

Credit Spread

A credit spread (yield) is the difference between the instrument's yield and a benchmark yield. Benchmark instruments have high credit quality ratings with similar maturities. The credit spread therefore represents the discount rate used to determine the present value of future cash flows of an asset to reflect the market return required for credit quality in the estimated cash flows. A higher credit spread will result in a lower value.

Discount Rate

The discount rate is the input used to bring future cash flows to their present value. A higher discount rate will translate into a lower fair value.

Liquidity Premium

A liquidity premium may be applied when few or no transactions exist to support the valuations. A higher liquidity premium will result in a lower value.

Long-Term Volatility

Volatility is a measure of the expected future variability of market prices. Volatility is generally observable in the market through options prices. However, the long-term volatility of options with a longer maturity might not be observable. An increase (decrease) in long-term volatility is generally associated with an increase (decrease) in long-term correlation. Higher long-term volatility may increase or decrease an instrument's fair value depending on its terms.

Market Correlation

Correlation is a measure of the inter-relationship between two different variables. A positive correlation means that the variables tend to move in the same direction; a negative correlation means that the variables tend to move in opposite directions. Correlation is used to measure financial instruments whose future returns depend on several variables. Changes in correlation will either increase or decrease a financial instrument's fair value depending on the terms of its contractual payout.

Sensitivity Analysis of Financial Instruments Classified in Level 3

The Bank performs sensitivity analyses for the fair value measurements of financial instruments classified in Level 3, substituting unobservable inputs with one or more reasonably possible alternative assumptions.

For equity securities and other debt securities, the Bank varies significant unobservable inputs such as net asset values, EV/EBITDA multiples, or price equivalents and establishes a reasonable fair value range that could result in a $115 million increase or decrease in the fair value recorded as at October 31, 2021 (a $102 million increase or decrease as at October 31, 2020).

For loans, the Bank varies unobservable inputs such as a liquidity premium and establishes a reasonable fair value range that could result in a $28 million increase or decrease in the fair value recorded as at October 31, 2021 (a $57 million increase or decrease as at October 31, 2020).

For derivative financial instruments and embedded derivative financial instruments related to structured deposit notes, the Bank varies long-term volatility, market correlation inputs, and the liquidity premium and establishes a reasonable fair value range. As at October 31, 2021, for derivative financial instruments, the net fair value could result in a $1 million increase or decrease (a $12 million increase or decrease as at October 31, 2020), whereas for structured deposit notes, the net fair value could have resulted in a $1 million increase or decrease as at October 31, 2020.

For all Level 3 financial instruments, the reasonable fair value ranges could result in an 5% increase or decrease in net income as at October 31, 2021 (an 8% increase or decrease in net income as at October 31, 2020).

(millions of Canadian dollars)

Note 3 – Fair Value of Financial Instruments (cont.)

Change in the Fair Value of Financial Instruments Classified in Level 3

The Bank may hedge the fair value of financial instruments classified in the various levels through offsetting hedge positions. Gains and losses for financial instruments classified in Level 3 presented in the following tables do not reflect the inverse gains and losses on financial instruments used for economic hedging purposes that may have been classified in Level 1 or 2 by the Bank. In addition, the Bank may hedge the fair value of financial instruments classified in Level 3 using other financial instruments classified in Level 3. The effect of these hedges is not included in the net amount presented in the following tables. The gains and losses presented hereafter may comprise changes in fair value based on observable and unobservable inputs.

					Year ended October 31, 2021
	Securities at fair value through profit or loss	**Securities at fair value through other comprehensive income**	**Loans**	**Derivative financial instruments[1]**	**Deposits[2]**
Fair value as at October 31, 2020	**457**	**373**	**372**	**29**	**2**
Total realized and unrealized gains (losses) included in *Net income*[3]	**13**	**–**	**24**	**(28)**	**–**
Total realized and unrealized gains (losses) included in *Other comprehensive income*	**–**	**(10)**	**–**	**–**	**–**
Purchases	**43**	**–**	**–**	**–**	**–**
Sales	**(42)**	**(113)**	**–**	**–**	**–**
Issuances	**–**	**–**	**12**	**–**	**–**
Settlements and other[4]	**–**	**56**	**(111)**	**(1)**	**–**
Financial instruments transferred into Level 3	**–**	**–**	**–**	**(1)**	**–**
Financial instruments transferred out of Level 3	**–**	**–**	**–**	**3**	**(2)**
Fair value as at October 31, 2021	**471**	**306**	**297**	**2**	**–**
Change in unrealized gains and losses included in *Net income* with respect to financial assets and financial liabilities held as at October 31, 2021[5]	**14**	**–**	**24**	**(28)**	**–**

					Year ended October 31, 2020
	Securities at fair value through profit or loss	Securities at fair value through other comprehensive income	Loans	Derivative financial instruments[1]	Deposits[2]
Fair value as at October 31, 2019	458	362	360	4	–
Total realized and unrealized gains (losses) included in *Net income*[6]	8	–	(17)	(10)	5
Total realized and unrealized gains (losses) included in *Other comprehensive income*	–	7	–	–	–
Purchases	26	4	–	–	–
Sales	(35)	–	–	–	–
Issuances	–	–	12	–	(18)
Settlements and other	–	–	(160)	(1)	–
Financial instruments transferred into Level 3	–	–	177	29	(9)
Financial instruments transferred out of Level 3	–	–	–	7	24
Fair value as at October 31, 2020	457	373	372	29	2
Change in unrealized gains and losses included in *Net income* with respect to financial assets and financial liabilities held as at October 31, 2020[7]	21	–	(17)	(10)	5

(1) The derivative financial instruments include assets and liabilities presented on a net basis.
(2) The amounts represent the fair value of embedded derivative financial instruments in deposits.
(3) Total gains (losses) included in *Non-interest income* was a gain of $9 million.
(4) On October 31, 2021, the Bank concluded that it had lost significant influence over AfrAsia Bank Limited (AfrAsia) and therefore ceased using the equity method to account for this investment. The Bank designated its investment in AfrAsia as a financial asset measured at fair value through other comprehensive income in an amount of $56 million. For additional information, see Note 9 to these consolidated financial statements.
(5) Total unrealized gains (losses) included in *Non-interest income* was an unrealized gain of $10 million.
(6) Total gains (losses) included in *Non-interest income* was a loss of $14 million.
(7) Total unrealized gains (losses) included in *Non-interest income* was an unrealized loss of $1 million.

(millions of Canadian dollars)

Financial Instruments Not Recorded at Fair Value on the Consolidated Balance Sheet

The following tables show the financial instruments that have not been recorded at fair value on the Consolidated Balance Sheet according to the fair value hierarchy, except for those whose carrying value is a reasonable approximation of fair value.

				As at October 31, 2021
	Level 1	Level 2	Level 3	Total
Financial assets				
Securities at amortized cost				
Securities issued or guaranteed by				
Canadian government	–	5,793	–	5,793
Canadian provincial and municipal governments	–	2,227	–	2,227
U.S. Treasury, other U.S. agencies and other foreign governments	–	–	–	–
Other debt securities	–	3,877	–	3,877
	–	11,897	–	11,897
Loans, net of allowances	–	67,149	99,872	167,021
Financial liabilities				
Deposits	–	227,054	–	227,054
Other				
Liabilities related to transferred receivables	–	13,724	–	13,724
Other liabilities	–	114	–	114
Subordinated debt	–	773	–	773
	–	241,665	–	241,665

				As at October 31, 2020
	Level 1	Level 2	Level 3	Total
Financial assets				
Securities at amortized cost				
Securities issued or guaranteed by				
Canadian government	–	6,298	–	6,298
Canadian provincial and municipal governments	–	2,416	–	2,416
U.S. Treasury, other U.S. agencies and other foreign governments	–	21	–	21
Other debt securities	–	2,555	–	2,555
	–	11,290	–	11,290
Loans, net of allowances	–	62,486	90,214	152,700
Financial liabilities				
Deposits	–	205,337	–	205,337
Other				
Liabilities related to transferred receivables	–	14,432	–	14,432
Other liabilities	–	67	–	67
Subordinated debt	–	787	–	787
	–	220,623	–	220,623

(millions of Canadian dollars)

Note 4 – Financial Instruments Designated at Fair Value Through Profit or Loss

The Bank chose to designate certain financial instruments at fair value through profit or loss according to the criteria presented in Note 1 to these consolidated financial statements. Consistent with its risk management strategy and in accordance with the fair value option, which permits the designation if it eliminates or significantly reduces a measurement or recognition inconsistency that would otherwise arise from measuring financial assets and liabilities or recognizing the gains and losses thereon on different bases, the Bank designated at fair value through profit or loss certain securities, and certain liabilities related to transferred receivables. The fair value of liabilities related to transferred receivables does not include credit risk, as the holders of these liabilities are not exposed to the Bank's credit risk. The Bank also designated certain deposits that include embedded derivative financial instruments at fair value through profit or loss.

To determine a change in fair value arising from a change in the credit risk of deposits designated at fair value through profit or loss, the Bank calculates, at the beginning of the period, the present value of the instrument's contractual cash flows using the following rates: first, using an observed discount rate for similar securities that reflects the Bank's credit spread and, then, using a rate that excludes the Bank's credit spread. The difference obtained between the two values is then compared to the difference obtained using the same rates at the end of the period.

Information about the financial assets and financial liabilities designated at fair value through profit or loss is provided in the following tables.

	Carrying value as at October 31, 2021	**Unrealized gains (losses) for the year ended October 31, 2021**	**Unrealized gains (losses) since the initial recognition of the instrument**
Financial assets designated at fair value through profit or loss			
Securities	**1,347**	**(55)**	**27**
	1,347	**(55)**	**27**
Financial liabilities designated at fair value through profit or loss			
Deposits(1)(2)	**14,018**	**(636)**	**(316)**
Liabilities related to transferred receivables	**11,398**	**253**	**27**
	25,416	**(383)**	**(289)**

	Carrying value as at October 31, 2020	Unrealized gains (losses) for the year ended October 31, 2020	Unrealized gains (losses) since the initial recognition of the instrument
Financial assets designated at fair value through profit or loss			
Securities	2,679	68	93
	2,679	68	93
Financial liabilities designated at fair value through profit or loss			
Deposits(1)(2)	11,418	628	592
Liabilities related to transferred receivables	8,762	(150)	(223)
	20,180	478	369

(1) For the year ended October 31, 2021, the change in the fair value of deposits designated at fair value through profit or loss attributable to credit risk, and recorded in *Other comprehensive income*, resulted in a loss of $17 million ($60 million loss for the year ended October 31, 2020).
(2) The amount at maturity that the Bank will be contractually required to pay to the holders of these deposits varies and will differ from the reporting date fair value.

(millions of Canadian dollars)

Note 5 – Offsetting Financial Assets and Financial Liabilities

Financial assets and liabilities are offset and the net amount is presented on the Consolidated Balance Sheet when the Bank has a legally enforceable right to set off the recognized amounts and intends to settle on a net basis or to realize the asset and settle the liability simultaneously.

Generally, over-the-counter financial derivatives subject to master netting arrangements of the International Swaps & Derivatives Association, Inc. or other similar agreements do not meet the netting criteria on the Consolidated Balance Sheet because the right of set-off is legally enforceable only in the event of default, insolvency, or bankruptcy.

Generally, securities purchased under reverse repurchase agreements and securities borrowed as well as obligations related to securities sold under repurchase agreements and securities loaned, subject to master agreements, do not meet the netting criteria if they confer only a right of set-off that is enforceable only in the event of default, insolvency, or bankruptcy.

However, the above-mentioned transactions may be subject to contractual netting agreements concluded with clearing houses. If the netting criteria are met, these transactions are netted on the Consolidated Balance Sheet. In addition, as part of these transactions, the Bank may give or receive cash or other financial instruments used as collateral.

The following tables present information on financial assets and financial liabilities that are netted on the Consolidated Balance Sheet because they meet the netting criteria and on those that are not netted and are subject to an enforceable master netting arrangement or similar agreement.

						As at October 31, 2021
				Associated amounts not set off on the Consolidated Balance Sheet		
	Gross amounts recognized	Amounts set off on the Consolidated Balance Sheet	Net amounts reported on the Consolidated Balance Sheet	Financial instruments[1]	Financial assets received/pledged as collateral[2][3]	Net amounts
Financial assets						
Securities purchased under reverse repurchase agreements and securities borrowed	15,216	7,700	7,516	1,413	6,042	61
Derivative financial instruments	20,936	4,452	16,484	9,398	2,475	4,611
	36,152	12,152	24,000	10,811	8,517	4,672
Financial liabilities						
Obligations related to securities sold under repurchase agreements and securities loaned	24,993	7,700	17,293	1,413	15,759	121
Derivative financial instruments	23,819	4,452	19,367	9,398	4,015	5,954
	48,812	12,152	36,660	10,811	19,774	6,075

						As at October 31, 2020
				Associated amounts not set off on the Consolidated Balance Sheet		
	Gross amounts recognized	Amounts set off on the Consolidated Balance Sheet	Net amounts reported on the Consolidated Balance Sheet	Financial instruments[1]	Financial assets received/pledged as collateral[2][4]	Net amounts
Financial assets						
Securities purchased under reverse repurchase agreements and securities borrowed	15,471	959	14,512	3,596	10,852	64
Derivative financial instruments	19,332	5,910	13,422	6,204	3,308	3,910
	34,803	6,869	27,934	9,800	14,160	3,974
Financial liabilities						
Obligations related to securities sold under repurchase agreements and securities loaned	34,818	959	33,859	3,596	30,181	82
Derivative financial instruments	18,833	5,910	12,923	6,204	3,993	2,726
	53,651	6,869	46,782	9,800	34,174	2,808

(1) Carrying amount of financial instruments that are subject to an enforceable master netting agreement or similar agreement but that do not satisfy offsetting criteria.
(2) Excludes non-financial instruments collateral.
(3) As at October 31, 2021, the financial assets pledged as collateral to the Bank of Canada included covered bonds issued by the Bank.
(4) As at October 31, 2020, the financial assets pledged as collateral to the Bank of Canada had included bearer deposit notes and covered bonds issued by the Bank.

(millions of Canadian dollars)

Note 6 – Securities

Residual Contractual Maturities of Securities

As at October 31					2021	2020
	1 year or less	Over 1 year to 5 years	Over 5 years	No specified maturity	Total	Total
Securities at fair value through profit or loss						
Securities issued or guaranteed by						
Canadian government	1,628	5,460	2,289	–	9,377	9,484
Canadian provincial and municipal governments	896	2,775	5,327	–	8,998	9,105
U.S. Treasury, other U.S. agencies and other foreign governments	3,564	311	550	–	4,425	8,848
Other debt securities	342	945	1,244	–	2,531	2,088
Equity securities	–	–	–	59,480	59,480	48,801
	6,430	9,491	9,410	59,480	84,811	78,326
Securities at fair value through other comprehensive income						
Securities issued or guaranteed by						
Canadian government	65	4,134	34	–	4,233	4,412
Canadian provincial and municipal governments	1	525	1,787	–	2,313	4,154
U.S. Treasury, other U.S. agencies and other foreign governments	619	153	864	–	1,636	2,449
Other debt securities	4	282	498	–	784	1,092
Equity securities	–	–	–	617	617	619
	689	5,094	3,183	617	9,583	12,726
Securities at amortized cost[1]						
Securities issued or guaranteed by						
Canadian government	500	5,276	35	–	5,811	6,163
Canadian provincial and municipal governments	525	945	755	–	2,225	2,353
U.S. Treasury, other U.S. agencies and other foreign governments	–	–	–	–	–	21
Other debt securities	599	3,233	42	–	3,874	2,542
	1,624	9,454	832	–	11,910	11,079

(1) As at October 31, 2021, securities at amortized cost are presented net of $3 million in allowances for credit losses ($1 million as at October 31, 2020).

Credit Quality

As at October 31, 2021 and 2020, securities at fair value through other comprehensive income and securities at amortized cost are classified in Stage 1, with their credit quality falling mostly in the "Excellent" category according to the Bank's internal risk-rating categories. For additional information on the reconciliation of allowances for credit losses, see Note 7 to these consolidated financial statements.

(millions of Canadian dollars)

Unrealized Gross Gains (Losses) on Securities at Fair Value Through Other Comprehensive Income

				As at October 31, 2021
	Amortized cost	Gross unrealized gains	Gross unrealized losses	Carrying value[1]
Securities issued or guaranteed by				
Canadian government	4,241	30	(38)	4,233
Canadian provincial and municipal governments	2,345	27	(59)	2,313
U.S. Treasury, other U.S. agencies and other foreign governments	1,648	–	(12)	1,636
Other debt securities	782	9	(7)	784
Equity securities	569	57	(9)	617
	9,585	123	(125)	9,583

				As at October 31, 2020
	Amortized cost	Gross unrealized gains	Gross unrealized losses	Carrying value[1]
Securities issued or guaranteed by				
Canadian government	4,302	110	–	4,412
Canadian provincial and municipal governments	4,013	142	(1)	4,154
U.S. Treasury, other U.S. agencies and other foreign governments	2,430	19	–	2,449
Other debt securities	1,051	42	(1)	1,092
Equity securities	633	13	(27)	619
	12,429	326	(29)	12,726

(1) The allowances for credit losses on securities at fair value through other comprehensive income, representing $1 million as at October 31, 2021 ($3 million as at October 31, 2020), are reported in *Other comprehensive income*. For additional information, see Note 7 to these consolidated financial statements.

Equity Securities Designated at Fair Value Through Other Comprehensive Income

The Bank designated certain equity securities, the main business objective of which is to generate dividend income, at fair value through other comprehensive income without subsequent reclassification of gains and losses to net income. During the year ended October 31, 2021, a dividend income amount of $34 million was recognized for these investments ($21 million for the year ended October 31, 2020), including an amount of $17 million in dividend income for investments that were sold during the year ended October 31, 2021 ($2 million for investments that were sold during the year ended October 31, 2020).

	Year ended October 31, 2021			Year ended October 31, 2020		
	Equity securities of private companies	Equity securities of public companies	Total	Equity securities of private companies	Equity securities of public companies	Total
Fair value at beginning	373	246	619	362	260	622
Change in fair value	(10)	98	88	7	(9)	(2)
Designated at fair value through other comprehensive income[1]	56	71	127	4	91	95
Sales[2]	(113)	(104)	(217)	–	(96)	(96)
Fair value at end	306	311	617	373	246	619

(1) On October 31, 2021, the Bank concluded that it had lost significant influence over AfrAsia Bank Limited (AfrAsia) and therefore ceased using the equity method to account for this investment. The Bank designated its investment in AfrAsia as a financial asset measured at fair value through other comprehensive income in an amount of $56 million. For additional information, see Note 9 to these consolidated financial statements.
(2) The Bank disposed of private and public company equity securities for economic reasons.

Gains (Losses) on Disposals of Securities at Amortized Cost

During the years ended October 31, 2021 and 2020, the Bank sold certain debt securities measured at amortized cost. The carrying value of these securities upon disposal was $179 million for the year ended October 31, 2021 ($258 million for the year ended October 31, 2020), and the Bank recognized negligible gains for the year ended October 31, 2021 ($6 million for the year ended October 31, 2020) in *Non-interest income – Gains (losses) on non-trading securities, net* in the Consolidated Statement of Income.

Note 7 – Loans and Allowances for Credit Losses

Loans are recognized either at fair value through profit or loss or at amortized cost using the financial asset classification criteria defined in IFRS 9.

Determining and Measuring Expected Credit Losses (ECL)

Determining Expected Credit Losses

Expected credit losses are determined using a three-stage impairment approach that is based on the change in the credit quality of financial assets since initial recognition.

Stage 1

Financial assets that have experienced no significant increase in credit risk between initial recognition and the reporting date and for which 12-month expected credit losses are recorded at the reporting date are classified in Stage 1.

Stage 2

Financial assets that have experienced a significant increase in credit risk between initial recognition and the reporting date, and for which lifetime expected credit losses are recorded at the reporting date, are classified in Stage 2.

Stage 3

Financial assets for which there is objective evidence of impairment, for which one or more events have had a detrimental impact on the estimated future cash flows of these financial assets at the reporting date, and for which lifetime expected credit losses are recorded, are classified in Stage 3.

POCI

Financial assets that are credit-impaired when purchased or originated (POCI) are classified in the POCI category.

Impairment Governance

A rigorous control framework is applied to the determination of expected credit losses. The Bank has policies and procedures that govern impairments arising from credit risk. These policies are documented and periodically reviewed by the Risk Management group. All models used to calculate expected credit losses are validated, and controls are in place to ensure they are applied.

These models are validated by groups that are independent of the team that prepares the calculations. Complex questions on measurement methodologies and assumptions are reviewed by a group of experts from various functions. Furthermore, the inputs and assumptions used to determine expected credit losses are reviewed on a regular basis.

Measurement of Expected Credit Losses (ECL)

Expected credit losses are estimated using three main variables: (1) probability of default (PD), (2) loss given default (LGD) and (3) exposure at default (EAD). For accounting purposes, 12-month PD and lifetime PD are the probabilities of a default occurring over the next 12 months or over the life of a financial instrument, respectively, based on conditions existing at the balance sheet date and on future economic conditions that have, or will have, an impact on credit risk. LGD reflects the losses expected should default occur and considers such factors as the mitigating effects of collateral, the realizable value thereof, and the time value of money. EAD is the expected balance owing at default and considers such factors as repayments of principal and interest between the balance sheet date and the time of default as well as any amounts expected to be drawn on a committed facility. Twelve-month expected credit losses are estimated by multiplying 12-month PD by LGD and by EAD. Lifetime expected credit losses are estimated using the lifetime PD.

For most financial instruments, expected credit losses are measured on an individual basis. Financial instruments that have credit losses measured on a collective basis are grouped according to similar credit risk characteristics such as type of instrument, geographic location, comparable risk level, and business sector or industry.

Inputs, Assumptions and Estimation Techniques

The Bank's approach to calculating expected credit losses consists essentially of leveraging existing regulatory models and then adjusting their parameters for IFRS 9 purposes. These models have the advantage of having been thoroughly tested and validated. In addition, using the same base models, regardless of the purpose, provides consistency across risk assessments. These models use inputs, assumptions and estimation techniques that require a high degree of management judgment. The main factors that contribute to changes in ECL that are subject to significant judgment include the following:

- calibration of regulatory parameters in order to obtain point-in-time and forward-looking parameters;
- forecasts of macroeconomic variables for multiple scenarios and the probability weighting of the scenarios;
- determination of the significant increases in credit risk (SICR) of a loan.

Main Parameters

PD Estimates

Since the objective of the regulatory calibration of PD is to align historical data to the long-run default rate, adjustments are required to obtain a point-in-time, forward-looking PD, as required by IFRS 9. The Bank performs the following: (1) A point-in-time calibration, where the PD of the portfolio is aligned with the appropriate default rate. The resulting PD estimate generally equals the prior-year default rate. The prior-year default rate is selected for the calibration performed at this stage, as it often reflects one of the most accurate and appropriate estimates of the current-year default rate; (2) Forward-looking adjustments are incorporated through, among other measures, a calibration factor based on forecasts produced by the stress testing team's analyses. The team considers three macroeconomic scenarios, and, for each scenario, produces a forward-looking assessment covering the three upcoming years.

LGD Estimates

The LGD estimation method consists of using, for each of the three macroeconomic scenarios, expected LGD based on the LGD values observed using backtesting, the economic LGD estimated and used to calculate economic capital, and lastly, the estimated downturn LGD used to calculate regulatory capital.

EAD Estimates

For term loans, the Bank uses expected EAD, which is the outstanding balance anticipated at each point in time. Expected EAD decreases over time according to contractual repayments and to prepayments. For revolving loans, the EAD percentage is based on the percentage estimated by the corresponding regulatory model and, thereafter, is converted to dollars according to the authorized balance.

Expected Life

For most financial instruments, the expected life used when measuring expected credit losses is the remaining contractual life. For revolving financial instruments where there is no contractual maturity, such as credit cards or lines of credit, the expected life is based on the behavioural life of clients who have defaulted or closed their account.

Incorporation of Forward-Looking Information

The Bank's Economy and Strategy Group is responsible for developing three macroeconomic scenarios and for recommending probability weights for each scenario. Macroeconomic scenarios are not developed for specific portfolios, as the Economy and Strategy Group provides a set of variables for each of the defined scenarios for the next three years. The PDs are also adjusted to incorporate economic assumptions (interest rates, unemployment rates, GDP forecasts, oil prices, housing price indices, etc.) that can be statistically tied to PD changes that will have an impact beyond the next 12 months. These statistical relationships are determined using the processes developed for stress testing. In addition, the group considers other relevant factors that may not be adequately reflected in the information used to calculate the PDs (including late payments and whether the financial asset is subject to additional monitoring within the watchlist process for business and government loan portfolios).

Determination of a Significant Increase in the Credit Risk of a Financial Instrument

At each reporting period, the Bank determines whether credit risk has increased significantly since initial recognition by examining the change in the risk of default occurring over the remaining life of the financial instrument. First, the Bank compares the point-in-time forward-looking remaining lifetime PD at the reporting date with the expected point-in-time forward-looking remaining lifetime PD established at initial recognition. Based on this comparison, the Bank determines whether the loan has deteriorated when compared to the initial conditions. Because the comparison includes an adjustment based on origination-date forward-looking information and reporting-date forward-looking information, the deterioration may be caused by the following factors: (i) deterioration of the economic outlook used in the forward-looking assessment; (ii) deterioration of the borrower's conditions (payment defaults, worsening financial ratios, etc.); or (iii) a combination of both factors. The quantitative criteria used to determine a significant increase in credit risk are a series of relative and absolute thresholds, and a backstop is also applied. All financial instruments that are over 30 days past due but below 90 days past due are migrated to Stage 2, even if the other criteria do not indicate a significant increase in credit risk.

Credit Quality of Loans

The following tables present the gross carrying amounts of loans as at October 31, 2021 and 2020, according to credit quality and ECL impairment stage of each loan category at amortized cost, and according to credit quality for loans at fair value through profit or loss. For additional information on credit quality according to the Advanced Internal Rating-Based (AIRB) categories, see the Internal Default Risk Ratings table on page 81 in the Credit Risk section of the MD&A for the year ended October 31, 2021.

(millions of Canadian dollars)

Note 7 – Loans and Allowances for Credit Losses (cont.)

						As at October 31, 2021
	Non-impaired loans[1]		Impaired loans			
	Stage 1	Stage 2	Stage 3	POCI	Loans at fair value through profit or loss[2]	Total
Residential mortgage						
Excellent	28,911	1	–	–	–	28,912
Good	17,083	53	–	–	–	17,136
Satisfactory	9,165	2,318	–	–	–	11,483
Special mention	314	266	–	–	–	580
Substandard	83	128	–	–	–	211
Default	–	–	82	–	–	82
AIRB approach	55,556	2,766	82	–	–	58,404
Standardized approach	5,803	129	57	332	7,817	14,138
Gross carrying amount	61,359	2,895	139	332	7,817	72,542
Allowances for credit losses[3]	50	52	29	(60)	–	71
Carrying amount	61,309	2,843	110	392	7,817	72,471
Personal						
Excellent	16,211	57	–	–	–	16,268
Good	11,439	1,041	–	–	–	12,480
Satisfactory	4,665	1,580	–	–	–	6,245
Special mention	336	483	–	–	–	819
Substandard	121	129	–	–	–	250
Default	–	–	101	–	–	101
AIRB approach	32,772	3,290	101	–	–	36,163
Standardized approach	4,692	51	15	132	–	4,890
Gross carrying amount	37,464	3,341	116	132	–	41,053
Allowances for credit losses[3]	70	98	63	(29)	–	202
Carrying amount	37,394	3,243	53	161	–	40,851
Credit card						
Excellent	559	–	–	–	–	559
Good	322	–	–	–	–	322
Satisfactory	623	38	–	–	–	661
Special mention	294	149	–	–	–	443
Substandard	38	62	–	–	–	100
Default	–	–	–	–	–	–
AIRB approach	1,836	249	–	–	–	2,085
Standardized approach	65	–	–	–	–	65
Gross carrying amount	1,901	249	–	–	–	2,150
Allowances for credit losses[3]	33	89	–	–	–	122
Carrying amount	1,868	160	–	–	–	2,028
Business and government[4]						
Excellent	5,086	–	–	–	269	5,355
Good	24,395	131	–	–	53	24,579
Satisfactory	22,808	6,254	–	–	140	29,202
Special mention	128	1,509	–	–	–	1,637
Substandard	45	194	–	–	–	239
Default	–	–	326	–	–	326
AIRB approach	52,462	8,088	326	–	462	61,338
Standardized approach	6,179	84	81	–	260	6,604
Gross carrying amount	58,641	8,172	407	–	722	67,942
Allowances for credit losses[3]	111	205	287	–	–	603
Carrying amount	58,530	7,967	120	–	722	67,339
Total loans and acceptances						
Gross carrying amount	159,365	14,657	662	464	8,539	183,687
Allowances for credit losses[3]	264	444	379	(89)	–	998
Carrying amount	159,101	14,213	283	553	8,539	182,689

(1) In response to the COVID-19 pandemic, the Bank has approved certain payment deferrals for all types of loans. As at October 31, 2021, the gross carrying value of loans for which deferrals have been approved totalled $181 million for business and government loans. These loans are presented in the stage in which they were positioned immediately prior to application of the payment deferral.
(2) Not subject to expected credit losses.
(3) The allowances for credit losses do not include the amounts related to undrawn commitments reported in the *Other liabilities* item of the Consolidated Balance Sheet.
(4) Includes customers' liability under acceptances.

(millions of Canadian dollars)

As at October 31, 2020

	Non-impaired loans[1]		Impaired loans		Loans at fair value through profit or loss[2]	
	Stage 1	Stage 2	Stage 3	POCI		Total
Residential mortgage						
Excellent	23,139	29	–	–	–	23,168
Good	15,753	108	–	–	–	15,861
Satisfactory	10,418	741	–	–	–	11,159
Special mention	730	299	–	–	–	1,029
Substandard	283	174	–	–	–	457
Default	–	–	149	–	–	149
AIRB approach	50,323	1,351	149	–	–	51,823
Standardized approach	4,993	31	44	531	7,537	13,136
Gross carrying amount	55,316	1,382	193	531	7,537	64,959
Allowances for credit losses[3]	63	23	35	(56)	–	65
Carrying amount	55,253	1,359	158	587	7,537	64,894
Personal						
Excellent	15,072	40	–	–	–	15,112
Good	9,680	1,039	–	–	–	10,719
Satisfactory	4,395	2,024	–	–	–	6,419
Special mention	300	696	–	–	–	996
Substandard	116	185	–	–	–	301
Default	–	–	140	–	–	140
AIRB approach	29,563	3,984	140	–	–	33,687
Standardized approach	3,532	48	22	324	–	3,926
Gross carrying amount	33,095	4,032	162	324	–	37,613
Allowances for credit losses[3]	87	145	76	(10)	–	298
Carrying amount	33,008	3,887	86	334	–	37,315
Credit card						
Excellent	385	–	–	–	–	385
Good	307	–	–	–	–	307
Satisfactory	660	28	–	–	–	688
Special mention	335	205	–	–	–	540
Substandard	29	64	–	–	–	93
Default	–	–	–	–	–	–
AIRB approach	1,716	297	–	–	–	2,013
Standardized approach	25	–	–	–	–	25
Gross carrying amount	1,741	297	–	–	–	2,038
Allowances for credit losses[3]	45	124	–	–	–	169
Carrying amount	1,696	173	–	–	–	1,869
Business and government[4]						
Excellent	4,732	–	–	–	289	5,021
Good	21,380	10	–	–	163	21,553
Satisfactory	19,421	7,037	–	–	73	26,531
Special mention	218	1,915	–	–	–	2,133
Substandard	10	246	–	–	–	256
Default	–	–	361	–	–	361
AIRB approach	45,761	9,208	361	–	525	55,855
Standardized approach	5,122	163	101	–	47	5,433
Gross carrying amount	50,883	9,371	462	–	572	61,288
Allowances for credit losses[3]	135	250	241	–	–	626
Carrying amount	50,748	9,121	221	–	572	60,662
Total loans and acceptances						
Gross carrying amount	141,035	15,082	817	855	8,109	165,898
Allowances for credit losses[3]	330	542	352	(66)	–	1,158
Carrying amount	140,705	14,540	465	921	8,109	164,740

(1) In response to the COVID-19 pandemic, the Bank approved certain payment deferrals for all types of loans. As at October 31, 2020, the gross carrying value of loans for which deferrals were approved had totalled $695 million for residential mortgages and $1,182 million for business and government loans. These loans are presented in the stage in which they had been positioned immediately prior to application of the payment deferral.
(2) Not subject to expected credit losses.
(3) The allowances for credit losses do not include the amounts related to undrawn commitments reported in the *Other liabilities* item of the Consolidated Balance Sheet.
(4) Includes customers' liability under acceptances.

(millions of Canadian dollars)

Note 7 – Loans and Allowances for Credit Losses (cont.)

The following table presents the credit risk exposures of off-balance-sheet commitments as at October 31, 2021 and 2020 according to credit quality and ECL impairment stage.

As at October 31				2021				2020
	Stage 1	Stage 2	Stage 3	Total	Stage 1	Stage 2	Stage 3	Total
Off-balance-sheet commitments[1]								
Retail								
Excellent	17,053	72	–	17,125	15,255	43	–	15,298
Good	3,750	323	–	4,073	3,967	309	–	4,276
Satisfactory	1,085	229	–	1,314	1,273	255	–	1,528
Special mention	197	57	–	254	84	69	–	153
Substandard	16	13	–	29	4	12	–	16
Default	–	–	3	3	–	–	3	3
Non-retail								
Excellent	14,097	–	–	14,097	10,616	–	–	10,616
Good	17,497	2	–	17,499	17,442	343	–	17,785
Satisfactory	7,575	2,377	–	9,952	5,013	3,450	–	8,463
Special mention	14	336	–	350	28	324	–	352
Substandard	5	38	–	43	2	84	–	86
Default	–	–	3	3	–	–	6	6
AIRB approach	61,289	3,447	6	64,742	53,684	4,889	9	58,582
Standardized approach	14,872	–	1	14,873	10,335	5	1	10,341
Total exposure	76,161	3,447	7	79,615	64,019	4,894	10	68,923
Allowances for credit losses	104	58	–	162	115	61	–	176
Total exposure, net of allowances	76,057	3,389	7	79,453	63,904	4,833	10	68,747

(1) Represent letters of guarantee and documentary letters of credit, undrawn commitments, and backstop liquidity and credit enhancement facilities.

Loans Past Due But Not Impaired[1]

As at October 31				2021[2]				2020[2]
	Residential mortgage	Personal	Credit card	Business and government[3]	Residential mortgage	Personal	Credit card	Business and government[3]
Past due but not impaired								
31 to 60 days	48	71	20	24	58	74	20	22
61 to 90 days	18	21	9	13	24	27	9	10
Over 90 days[4]	–	–	21	–	–	–	24	–
	66	92	50	37	82	101	53	32

(1) Loans less than 31 days past due are not presented as they are not considered past due from an administrative standpoint.
(2) In response to the COVID-19 pandemic, the Bank approved certain payment deferrals for all types of loans. These loans are presented in the loan category in which they were positioned immediately prior to the application of the payment deferral.
(3) Includes customers' liability under acceptances.
(4) All loans more than 90 days past due, except for credit card receivables, are considered impaired (Stage 3).

(millions of Canadian dollars)

Impaired Loans

As at October 31			2021			2020
	Gross	Allowances for credit losses	Net	Gross	Allowances for credit losses	Net
Loans – Stage 3						
Residential mortgage	139	29	110	193	35	158
Personal	116	63	53	162	76	86
Credit card[(1)]	–	–	–	–	–	–
Business and government[(2)]	407	287	120	462	241	221
	662	379	283	817	352	465
Loans – POCI	464	(89)	553	855	(66)	921
	1,126	290	836	1,672	286	1,386

(1) Credit card receivables are considered impaired, at the latest, when payment is 180 days past due, and they are written off at that time.
(2) Includes customers' liability under acceptances.

Maximum Exposure to Credit Risk on Impaired Loans

The following table presents the maximum exposure to credit risk of impaired loans, the percentage of exposure covered by guarantees, and the main types of collateral and guarantees held for each loan category.

As at October 31		2021		2020	
	Gross impaired loans	Percentage covered by guarantees[(1)]	Gross impaired loans	Percentage covered by guarantees[(1)]	Types of collateral and guarantees
Loans – Stage 3					
Residential mortgage	139	100 %	193	100 %	Residential buildings
Personal	116	47 %	162	49 %	Buildings and automobiles
Business and government[(2)]	407	62 %	462	65 %	Buildings, equipment, government and bank guarantees
Loans – POCI	464	36 %	855	31 %	Buildings and automobiles

(1) For gross impaired loans, the ratio is calculated on a weighted average basis using the estimated value of the collateral and guarantees held for each loan category presented. The value of the collateral and guarantees held for a specific loan may exceed the balance of the loan; when this is the case, the ratio is capped at 100%.
(2) Includes customers' liability under acceptances.

(millions of Canadian dollars)

Note 7 – Loans and Allowances for Credit Losses (cont.)

Allowances for Credit Losses

The following tables present a reconciliation of the allowances for credit losses by Consolidated Balance Sheet item and by type of off-balance-sheet commitment.

						Year ended October 31, 2021
	Allowances for credit losses as at October 31, 2020	**Provisions for credit losses**	**Write-offs[1]**	**Disposals**	**Recoveries and other**	**Allowances for credit losses as at October 31, 2021**
Balance sheet						
Cash and deposits with financial institutions[2][3]	**5**	**–**	**–**	**–**	**–**	**5**
Securities[3]						
At fair value through other comprehensive income[4]	**3**	**(2)**	**–**	**–**	**–**	**1**
At amortized cost[2]	**1**	**2**	**–**	**–**	**–**	**3**
Securities purchased under reverse repurchase agreements and securities borrowed[2][3]	**–**	**–**	**–**	**–**	**–**	**–**
Loans[5]						
Residential mortgage	**65**	**12**	**(6)**	**–**	**–**	**71**
Personal	**298**	**(29)**	**(69)**	**(14)**	**16**	**202**
Credit card	**169**	**(5)**	**(59)**	**–**	**17**	**122**
Business and government	**533**	**43**	**(58)**	**–**	**(3)**	**515**
Customers' liability under acceptances	**93**	**(5)**	**–**	**–**	**–**	**88**
	1,158	**16**	**(192)**	**(14)**	**30**	**998**
Other assets[2][3]	**–**	**–**	**–**	**–**	**–**	**–**
Off-balance-sheet commitments[6]						
Letters of guarantee and documentary letters of credit	**15**	**(2)**	**–**	**–**	**–**	**13**
Undrawn commitments	**157**	**(14)**	**–**	**–**	**–**	**143**
Backstop liquidity and credit enhancement facilities	**4**	**2**	**–**	**–**	**–**	**6**
	176	**(14)**	**–**	**–**	**–**	**162**
	1,343	**2**	**(192)**	**(14)**	**30**	**1,169**

						Year ended October 31, 2020
	Allowances for credit losses as at October 31, 2019	Provisions for credit losses	Write-offs[1]	Disposals	Recoveries and other	Allowances for credit losses as at October 31, 2020
Balance sheet						
Cash and deposits with financial institutions[2][3]	2	3	–	–	–	5
Securities[3]						
At fair value through other comprehensive income[4]	–	3	–	–	–	3
At amortized cost[2]	1	–	–	–	–	1
Securities purchased under reverse repurchase agreements and securities borrowed[2][3]	–	–	–	–	–	–
Loans[5]						
Residential mortgage	21	48	(6)	–	2	65
Personal	232	168	(121)	–	19	298
Credit card	128	116	(90)	–	15	169
Business and government	268	342	(77)	–	–	533
Customers' liability under acceptances	29	64	–	–	–	93
	678	738	(294)	–	36	1,158
Other assets[2][3]	–	–	–	–	–	–
Off-balance-sheet commitments[6]						
Letters of guarantee and documentary letters of credit	6	9	–	–	–	15
Undrawn commitments	66	91	–	–	–	157
Backstop liquidity and credit enhancement facilities	2	2	–	–	–	4
	74	102	–	–	–	176
	755	846	(294)	–	36	1,343

(1) The contractual amount outstanding on financial assets that were written off during the year ended October 31, 2021 and that are still subject to enforcement activity was $105 million ($155 million for the year ended October 31, 2020).
(2) These financial assets are presented net of the allowances for credit losses on the Consolidated Balance Sheet.
(3) As at October 31, 2021 and 2020, these financial assets were mainly classified in Stage 1 and their credit quality fell mostly within the *Excellent* category.
(4) The allowances for credit losses are reported in the *Accumulated other comprehensive income* item of the Consolidated Balance Sheet.
(5) The allowances for credit losses are reported in the *Allowances for credit losses* item of the Consolidated Balance Sheet.
(6) The allowances for credit losses are reported in the *Other liabilities* item of the Consolidated Balance Sheet.

(millions of Canadian dollars)

The following tables present the reconciliation of allowances for credit losses for each loan category at amortized cost according to ECL impairment stage.

Year ended October 31					2021					2020
	Allowances for credit losses on non-impaired loans		**Allowances for credit losses on impaired loans**			Allowances for credit losses on non-impaired loans		Allowances for credit losses on impaired loans		
	Stage 1	**Stage 2**	**Stage 3**	**POCI[1]**	**Total**	Stage 1	Stage 2	Stage 3	POCI[1]	Total
Residential mortgage										
Balance at beginning	63	23	35	(56)	65	37	12	25	(53)	21
Originations or purchases	12	–	–	–	12	11	–	–	–	11
Transfers[2]:										
to Stage 1	18	(13)	(5)	–	–	32	(23)	(9)	–	–
to Stage 2	(4)	5	(1)	–	–	(3)	5	(2)	–	–
to Stage 3	–	(1)	1	–	–	–	(4)	4	–	–
Net remeasurement of loss allowances[3]	(33)	39	6	(7)	5	(12)	35	21	(3)	41
Derecognitions[4]	(3)	(1)	(1)	–	(5)	(2)	(2)	–	–	(4)
Changes to models	–	–	–	–	–	–	–	–	–	–
Provisions for credit losses	(10)	29	–	(7)	12	26	11	14	(3)	48
Write-offs	–	–	(6)	–	(6)	–	–	(6)	–	(6)
Disposals	–	–	–	–	–	–	–	–	–	–
Recoveries	–	–	2	–	2	–	–	2	–	2
Foreign exchange movements and other	(3)	–	(2)	3	(2)	–	–	–	–	–
Balance at end	50	52	29	(60)	71	63	23	35	(56)	65
Includes:										
Amounts drawn	50	52	29	(60)	71	63	23	35	(56)	65
Undrawn commitments[5]	–	–	–	–	–	–	–	–	–	–
Personal										
Balance at beginning	89	148	76	(10)	303	65	104	69	(4)	234
Originations or purchases	41	–	–	–	41	39	–	–	–	39
Transfers[2]:										
to Stage 1	73	(66)	(7)	–	–	87	(79)	(8)	–	–
to Stage 2	(12)	14	(2)	–	–	(19)	22	(3)	–	–
to Stage 3	–	(27)	27	–	–	(4)	(53)	57	–	–
Net remeasurement of loss allowances[3]	(96)	58	19	(19)	(38)	(69)	165	64	(4)	156
Derecognitions[4]	(12)	(15)	(2)	–	(29)	(10)	(12)	(3)	–	(25)
Changes to models	–	–	–	–	–	1	–	–	–	1
Provisions for credit losses	(6)	(36)	35	(19)	(26)	25	43	107	(4)	171
Write-offs	–	–	(69)	–	(69)	–	–	(121)	–	(121)
Disposals	(8)	(6)	–	–	(14)	–	–	–	–	–
Recoveries	–	–	21	–	21	–	–	24	–	24
Foreign exchange movements and other	(2)	(3)	–	–	(5)	(1)	1	(3)	(2)	(5)
Balance at end	73	103	63	(29)	210	89	148	76	(10)	303
Includes:										
Amounts drawn	70	98	63	(29)	202	87	145	76	(10)	298
Undrawn commitments[5]	3	5	–	–	8	2	3	–	–	5

(1) The total amount of undiscounted initially expected credit losses on the POCI loans acquired during the year ended October 31, 2021 was $11 million ($66 million for the year ended October 31, 2020). The expected credit losses reflected in the purchase price have been discounted.
(2) Represent stage transfers deemed to have taken place at the beginning of the quarter in which the transfer occurred.
(3) Includes the net remeasurement of loss allowances (after transfers) attributable mainly to changes in volumes and in the credit quality of existing loans as well as to changes in risk parameters.
(4) Represent reversals to loss allowances arising from full loan repayments (excluding write-offs and disposals).
(5) The allowances for credit losses on undrawn commitments are reported in the *Other liabilities* item of the Consolidated Balance Sheet.

(millions of Canadian dollars)

Note 7 – Loans and Allowances for Credit Losses (cont.)

Year ended October 31					2021					2020
	Allowances for credit losses on non-impaired loans		Allowances for credit losses on impaired loans			Allowances for credit losses on non-impaired loans		Allowances for credit losses on impaired loans		
	Stage 1	Stage 2	Stage 3	POCI[1]	Total	Stage 1	Stage 2	Stage 3	POCI[1]	Total
Credit card										
Balance at beginning	68	137	–	–	205	47	113	–	–	160
Originations or purchases	10	–	–	–	10	10	–	–	–	10
Transfers[2]:										
to Stage 1	100	(100)	–	–	–	111	(111)	–	–	–
to Stage 2	(15)	15	–	–	–	(18)	18	–	–	–
to Stage 3	(1)	(29)	30	–	–	(1)	(40)	41	–	–
Net remeasurement of loss allowances[3]	(100)	84	12	–	(4)	(78)	159	34	–	115
Derecognitions[4]	(2)	(2)	–	–	(4)	(3)	(2)	–	–	(5)
Changes to models	(3)	(4)	–	–	(7)	–	–	–	–	–
Provisions for credit losses	(11)	(36)	42	–	(5)	21	24	75	–	120
Write-offs	–	–	(59)	–	(59)	–	–	(90)	–	(90)
Disposals	–	–	–	–	–	–	–	–	–	–
Recoveries	–	–	17	–	17	–	–	15	–	15
Foreign exchange movements and other	–	–	–	–	–	–	–	–	–	–
Balance at end	57	101	–	–	158	68	137	–	–	205
Includes:										
Amounts drawn	33	89	–	–	122	45	124	–	–	169
Undrawn commitments[5]	24	12	–	–	36	23	13	–	–	36
Business and government[6]										
Balance at beginning	214	287	241	–	742	83	105	141	–	329
Originations or purchases	116	–	–	–	116	93	–	–	–	93
Transfers[2]:										
to Stage 1	60	(58)	(2)	–	–	28	(23)	(5)	–	–
to Stage 2	(43)	48	(5)	–	–	(46)	51	(5)	–	–
to Stage 3	–	(21)	21	–	–	–	(49)	49	–	–
Net remeasurement of loss allowances[3]	(131)	24	98	–	(9)	77	235	142	–	454
Derecognitions[4]	(38)	(42)	(6)	–	(86)	(20)	(32)	(5)	–	(57)
Changes to models	–	–	–	–	–	–	–	–	–	–
Provisions for credit losses	(36)	(49)	106	–	21	132	182	176	–	490
Write-offs	–	–	(58)	–	(58)	–	–	(77)	–	(77)
Disposals	–	–	–	–	–	–	–	–	–	–
Recoveries	–	–	4	–	4	–	–	3	–	3
Foreign exchange movements and other	(1)	–	(6)	–	(7)	(1)	–	(2)	–	(3)
Balance at end	177	238	287	–	702	214	287	241	–	742
Includes:										
Amounts drawn	111	205	287	–	603	135	250	241	–	626
Undrawn commitments[5]	66	33	–	–	99	79	37	–	–	116
Total allowances for credit losses at end[7]	357	494	379	(89)	1,141	434	595	352	(66)	1,315
Includes:										
Amounts drawn	264	444	379	(89)	998	330	542	352	(66)	1,158
Undrawn commitments[5]	93	50	–	–	143	104	53	–	–	157

(1) The total amount of undiscounted initially expected credit losses on the POCI loans acquired during the year ended October 31, 2021 was $11 million ($66 million for the year ended October 31, 2020). The expected credit losses reflected in the purchase price have been discounted.
(2) Represent stage transfers deemed to have taken place at the beginning of the quarter in which the transfer occurred.
(3) Includes the net remeasurement of loss allowances (after transfers) attributable mainly to changes in volumes and in the credit quality of existing loans as well as to changes in risk parameters.
(4) Represent reversals to loss allowances arising from full loan repayments (excluding write-offs and disposals).
(5) The allowances for credit losses on undrawn commitments are reported in the *Other liabilities* item of the Consolidated Balance Sheet.
(6) Includes customers' liability under acceptances.
(7) Excludes allowances for credit losses on other financial assets at amortized cost and on off-balance-sheet commitments other than undrawn commitments.

(millions of Canadian dollars)

Distribution of Gross and Impaired Loans by Borrower Category Under the Basel Asset Classes

	2021					2020				
	As at October 31			Year ended October 31		As at October 31			Year ended October 31	
	Gross loans(1)	Impaired loans(1)	Allowances for credit losses on impaired loans(1)(2)	Provisions for credit losses	Write-offs	Gross loans(1)	Impaired loans(1)	Allowances for credit losses on impaired loans(1)(2)	Provisions for credit losses	Write-offs
Retail										
Residential mortgage(3)	89,035	153	31	(2)	6	81,543	234	40	17	8
Qualifying revolving retail(4)	3,589	12	10	48	77	3,599	20	16	94	112
Other retail(5)	12,949	67	49	32	51	11,569	83	54	85	97
	105,573	232	90	78	134	96,711	337	110	196	217
Non-retail										
Agriculture	7,357	30	4	(5)	1	6,696	79	8	3	–
Oil and gas and pipelines	4,325	55	49	3	9	5,052	80	57	40	17
Mining	529	–	–	–	–	756	–	–	–	–
Utilities	5,387	102	93	73	–	4,352	30	20	21	–
Non-real-estate construction(6)	1,541	37	27	11	–	1,079	37	16	19	4
Manufacturing	5,502	40	25	3	2	5,545	32	27	11	10
Wholesale	2,598	29	23	10	3	2,206	36	14	4	–
Retail	2,978	27	18	2	1	2,955	33	18	15	1
Transportation	1,811	8	7	–	–	1,528	9	7	8	1
Communications	1,441	19	8	2	10	1,184	25	18	12	7
Finance and insurance	4,960	3	1	–	–	4,347	6	1	1	–
Real estate services and real estate construction(7)	18,195	36	16	1	2	14,171	38	15	4	3
Professional services	1,872	8	4	–	5	1,490	11	6	2	1
Education and health care	4,073	5	3	5	4	3,800	3	2	15	32
Other services	5,875	26	9	(1)	21	5,296	55	32	20	1
Government	1,159	–	–	–	–	1,160	–	–	–	–
Other	8,047	5	2	1	–	6,715	6	1	1	–
	77,650	430	289	105	58	68,332	480	242	176	77
Stages 1 and 2(8)			879	(155)				1,057	481	
POCI	464	464	(89)	(26)		855	855	(66)	(7)	
	183,687	1,126	1,169	2	192	165,898	1,672	1,343	846	294

(1) Includes customers' liability under acceptances.
(2) Allowances for credit losses on drawn amounts.
(3) Includes residential mortgages on one-to-four-unit dwellings (Basel definition) and home equity lines of credit.
(4) Includes lines of credit and credit card receivables.
(5) Includes consumer loans and other retail loans but excludes SME loans.
(6) Includes civil engineering loans, public-private partnership loans, and project finance loans.
(7) Includes residential mortgages on dwellings of five or more units and SME loans.
(8) Includes other financial assets at amortized cost and off-balance-sheet commitments.

(millions of Canadian dollars)

Note 7 – Loans and Allowances for Credit Losses (cont.)

Main Macroeconomic Factors

The following tables show the main macroeconomic factors used to estimate the allowances for credit losses on loans. For each scenario, namely, the base scenario, upside scenario, and downside scenario, the average values of the macroeconomic factors over the next 12 months (used for Stage 1 credit loss calculations) and over the remaining forecast period (used for Stage 2 credit loss calculations) are presented.

						As at October 31, 2021
		Base scenario		Upside scenario		Downside scenario
	Next 12 months	Remaining forecast period	Next 12 months	Remaining forecast period	Next 12 months	Remaining forecast period
Macroeconomic factors(1)						
GDP growth(2)	4.2 %	1.6 %	4.7 %	1.9 %	(5.5) %	3.7 %
Unemployment rate	6.6 %	6.3 %	6.3 %	5.6 %	9.5 %	7.8 %
Housing price index growth(2)	2.0 %	0.2 %	4.0 %	1.9 %	(11.5) %	1.2 %
BBB spread(3)	1.7 %	1.9 %	1.6 %	1.7 %	3.1 %	2.2 %
S&P/TSX growth(2)(4)	4.8 %	2.1 %	8.6 %	3.1 %	(25.6) %	5.5 %
WTI oil price(5) *(US$ per barrel)*	70	65	77	77	35	34

						As at October 31, 2020
		Base scenario		Upside scenario		Downside scenario
	Next 12 months	Remaining forecast period	Next 12 months	Remaining forecast period	Next 12 months	Remaining forecast period
Macroeconomic factors(1)						
GDP growth(2)	3.0 %	2.6 %	3.7 %	2.8 %	0.4 %	2.7 %
Unemployment rate	8.9 %	8.0 %	8.4 %	7.3 %	10.4 %	9.8 %
Housing price index growth(2)	(5.2) %	2.4 %	(1.5) %	2.9 %	(9.9) %	(0.1) %
BBB spread(3)	2.0 %	1.9 %	1.8 %	1.8 %	2.9 %	2.4 %
S&P/TSX growth(2)(4)	(1.1) %	3.3 %	6.9 %	3.2 %	(15.6) %	5.1 %
WTI oil price(5) *(US$ per barrel)*	41	54	51	64	26	32

(1) All macroeconomic factors are based on the Canadian economy unless otherwise indicated.
(2) Growth rate is annualized.
(3) Yield on corporate BBB bonds less yield on Canadian federal government bonds with 10-year maturity.
(4) Main stock index in Canada.
(5) The West Texas Intermediate (WTI) index is commonly used as a benchmark for the price of oil.

The main macroeconomic factors used for the personal credit portfolio are unemployment rate and growth in the housing price index, based on the economy of Canada or Quebec. The main macroeconomic factors used for the business and government credit portfolio are unemployment rate, spread on corporate BBB bonds, S&P/TSX growth, and WTI oil price.

An increase in unemployment rate or BBB spread will generally correlate with higher allowances for credit losses, whereas an increase in the other macroeconomic factors (GDP, S&P/TSX, housing price index and WTI oil price) will generally correlate with lower allowances for credit losses.

(millions of Canadian dollars)

During the year ended October 31, 2021, the macroeconomic outlook generally improved.

According to the base scenario, the Canadian economy will continue to recover as vaccines allow for a gradual easing of health measures. The labour market will continue to bounce back, and the unemployment rate will stand at 6.4% after 12 months but remain slightly above its pre-recession level (5.7%). The increase in housing prices will slow to 2.0% year over year. The S&P/TSX will stand at 21,370 points after one year, with the price of oil at US$66.

According to the upside scenario, the economy will rebound more strongly as a result of effective vaccination campaigns, particularly against variants, and as a result of improvements in supply chains. Consumer spending will trend upward given the excess savings accumulated since the start of the pandemic. The unemployment rate one year after the scenario will be more favourable than the base scenario (five-tenths lower). Housing prices will climb 4.0%, and the S&P/TSX will stand at 22,160 points after one year, with the price of oil at US$80.

According to the downside scenario, vaccines will prove to be ineffective against certain variants, and the economy will be adversely affected by new lockdown measures. Supply chain bottlenecks will hinder profitability. Governments will continue to support households and businesses, but, due to budgetary constraints, will not be able to match the generosity of the programs adopted at the start of the pandemic. This will cause the economy to tumble and slip back into recession. The unemployment rate will therefore trend upward to 10.3% after 12 months. Housing prices will decrease considerably. The S&P/TSX will stand at 15,170 points after one year, with the price of oil at US$24.

Given uncertainty surrounding key inputs used to measure credit losses, the Bank has applied expert credit judgment to adjust the modelled ECL results.

Sensitivity Analysis of Allowances for Credit Losses on Non-Impaired Loans

Scenarios
The following table shows a comparison of the Bank's allowances for credit losses on non-impaired loans (Stages 1 and 2) as at October 31, 2021 based on the probability weightings of three scenarios with allowances for credit losses resulting from simulations of each scenario weighted at 100%.

	Allowances for credit losses on non-impaired loans
Balance as at October 31, 2021	**851**
Simulations	
100% upside scenario	**583**
100% base scenario	**626**
100% downside scenario	**1,281**

Migration
The following table shows a comparison of the Bank's allowances for credit losses on non-impaired loans (Stages 1 and 2) as at October 31, 2021 with the estimated allowances for credit losses that would result if all these non-impaired loans were in Stage 1.

	Allowances for credit losses on non-impaired loans
Balance as at October 31, 2021	**851**
Simulations	
Non-impaired loans if they were all in Stage 1	**688**

(millions of Canadian dollars)

Note 8 – Financial Assets Transferred But Not Derecognized

In the normal course of its business, the Bank enters into transactions in which it transfers financial assets such as securities or loans directly to third parties, in particular structured entities. According to the terms of some of those transactions, the Bank retains substantially all of the risks and rewards related to those financial assets. The risks include credit risk, interest rate risk, foreign exchange risk, prepayment risk and other price risks, whereas the rewards include income streams associated with the financial assets. As such, those financial assets are not derecognized and the transactions are treated as collateralized or secured borrowings. The nature of those transactions is described below.

Securities Sold Under Repurchase Agreements and Securities Loaned
When securities are sold under repurchase agreements and securities loaned under securities lending agreements, the Bank transfers financial assets to third parties in accordance with the standard terms for such transactions. These third parties may have an unlimited right to resell or repledge the financial assets received. If cash collateral is received, the Bank records the cash along with an obligation to return the cash, which is included in *Obligations related to securities sold under repurchase agreements and securities loaned* on the Consolidated Balance Sheet. Where securities are received as collateral, the Bank does not record the collateral on the Consolidated Balance Sheet.

Financial Assets Transferred to Structured Entities
Under the Canada Mortgage Bond (CMB) program, the Bank sells securities backed by insured residential mortgages and other securities to Canada Housing Trust (CHT), which finances the purchase through the issuance of insured mortgage bonds. Third-party CMB investors have legal recourse only to the transferred assets. The cash received for these transferred assets is treated as a secured borrowing, and a corresponding liability is recorded in *Liabilities related to transferred receivables* on the Consolidated Balance Sheet.

The following table provides additional information about the nature of the transferred financial assets that do not qualify for derecognition and the associated liabilities.

As at October 31	2021	2020
Carrying value of financial assets transferred but not derecognized		
Securities(1)	68,296	61,599
Residential mortgages	22,413	20,731
	90,709	82,330
Carrying value of associated liabilities(2)	40,779	45,781
Fair value of financial assets transferred but not derecognized		
Securities(1)	68,296	61,599
Residential mortgages	22,249	21,252
	90,545	82,851
Fair value of associated liabilities(2)	40,731	46,120

(1) The amount related to the securities loaned is the maximum amount of Bank securities that can be lent. For obligations related to securities sold under repurchase agreements, the amount includes the Bank's own financial assets as well as those of third parties and excludes bearer deposit notes issued by the Bank and covered bonds issued by the Bank.
(2) Associated liabilities include liabilities related to transferred receivables and obligations related to securities sold under repurchase agreements before the offsetting impact of $3,367 million as at October 31, 2021 ($959 million as at October 31, 2020) excluding repurchase agreements guaranteed by bearer deposit notes issued by the Bank and covered bonds issued by the Bank. Liabilities related to securities loaned are not included, as the Bank can lend its own financial assets and those of third parties. The carrying value and fair value of liabilities related to securities loaned stood at $7,993 million before the offsetting impact of $4,333 million as at October 31, 2021 ($6,327 million before a negligible offsetting impact as at October 31, 2020).

The following table specifies the nature of the transactions related to financial assets transferred but not derecognized.

As at October 31	2021	2020
Carrying value of financial assets transferred but not derecognized		
Securities backed by insured residential mortgages and other securities sold to CHT	24,034	21,211
Securities sold under repurchase agreements	17,553	25,442
Securities loaned	49,122	35,677
	90,709	82,330

(millions of Canadian dollars)

Note 9 – Investments in Associates and Joint Ventures

As at October 31		2021	2020
	Business segment	Carrying value	Carrying value
Listed associate			
TMX Group Limited(1)	Other	184	278
Unlisted associates			
AfrAsia Bank Limited(2)	USSF&I	–	74
Other(3)		41	57
		41	131
		225	409

(1) The Bank exercises significant influence over TMX Group Limited (TMX) mainly through its equity interest, debt financing, and presence on TMX's board of directors. As at October 31, 2021, the Bank's ownership interest in TMX was 5.2% (8.2% as at October 31, 2020), and the fair value of this investment based on quoted prices in active markets was $390 million ($596 million as at October 31, 2020).

(2) On October 31, 2021, the Bank concluded that it had lost significant influence over AfrAsia Bank Limited (AfrAsia), an associate entity headquartered in Mauritius, and therefore ceased using the equity method to account for this investment. The Bank designated its investment in AfrAsia as a financial asset measured at fair value through other comprehensive income in an amount of $56 million. Following the fair value measurement, a $30 million loss was recorded in the *Non-interest income – Other* item of the Consolidated Statement of Income and reported in the *Other* heading of segment results. As at October 31, 2021, the Bank's ownership interest in AfrAsia was 20.5% (20.5% as at October 31, 2020).

(3) On September 8, 2021, the Bank finalized the acquisition of Flinks Technology Inc. (Flinks), an associate in which the Bank had been holding an equity interest of 30.2% for an amount of $8 million (32.0% for an amount of $11 million as at October 31, 2020). At the time of acquisition, this interest was remeasured at fair value, resulting in a non-taxable gain on remeasurement of $33 million, which was recorded in the *Non-interest income – Other* item of the Consolidated Statement of Income. For additional information, see Note 31 to these consolidated financial statements.

As at October 31, 2021 and 2020, there were no significant restrictions limiting the ability of associates to transfer funds to the Bank in the form of dividends or to repay any loans or advances. Furthermore, the Bank has not made any specific commitment or contracted any contingent liability with respect to associates.

TMX Group Limited

TMX is a Canadian corporation that directly or indirectly controls a number of entities that operate stock exchanges and clearing houses and provide clearing and settlement services. During the year ended October 31, 2021, TMX paid $12 million in dividends to the Bank ($13 million for the year ended October 31, 2020). The following table provides summarized financial information on TMX.

As at October 31(1)	2021	2020
Balance sheet		
Current assets	36,077	34,496
Non-current assets	5,387	5,248
Current liabilities	35,817	34,415
Non-current liabilities	1,971	1,720
Income statement		
Total revenues	948	848
Net income	322	255
Other comprehensive income	(1)	48
Comprehensive income	321	303

(1) The balance sheet amounts are the balances reported in the unaudited financial statements as at September 30, 2021 and 2020, i.e., the most recent available, and the income statement amounts are based on the cumulative balances for the 12-month periods ended September 30, 2021 and 2020.

AfrAsia Bank Limited

AfrAsia is a financial group headquartered in Port Louis, Mauritius. During the year ended October 31, 2021, AfrAsia paid $2 million in dividends to the Bank ($3 million for the year ended October 31, 2020).

The table below provides summarized financial information related to the Bank's proportionate share in all unlisted associates that are not individually significant.

Year ended October 31(1)	2021	2020
Net income	1	7
Other comprehensive income	–	–
Comprehensive income	1	7

(1) The amounts are based on the cumulative balances for the 12-month periods ended September 30, 2021 and 2020.

(millions of Canadian dollars)

Note 10 – Premises and Equipment

	Owned assets held							Right-of-use assets	Total
	Land	Head office building under construction[1]	Buildings	Computer equipment	Equipment and furniture	Leasehold improvements	Total	Real estate	
Cost									
As at October 31, 2019	70	48	75	323	110	322	948		948
Impact of adopting IFRS 16[2]								648	648
Additions and modifications	1	72	3	55	14	37	182	50	232
Disposals	–	–	(7)	–	–	(5)	(12)		(12)
Impairment losses[3]	–	–	–	(38)	–	–	(38)	–	(38)
Fully amortized assets			–	–	(12)	(24)	(36)	–	(36)
Impact of foreign currency translation	–	–	–	–	–	1	1	–	1
As at October 31, 2020	71	120	71	340	112	331	1,045	698	1,743
Additions and modifications	**–**	**128**	**6**	**44**	**13**	**32**	**223**	**48**	**271**
Disposals	**–**	**–**	**(3)**	**(3)**	**(2)**	**(4)**	**(12)**		**(12)**
Impairment losses	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**(5)**	**(5)**
Fully amortized assets			**(26)**	**(124)**	**(10)**	**(18)**	**(178)**	**(3)**	**(181)**
Impact of foreign currency translation	**–**	**–**	**–**	**(2)**	**(3)**	**(3)**	**(8)**	**(6)**	**(14)**
As at October 31, 2021	**71**	**248**	**48**	**255**	**110**	**338**	**1,070**	**732**	**1,802**
Accumulated amortization									
As at October 31, 2019			58	194	57	149	458		458
Depreciation for the year			3	55	11	28	97	99	196
Disposals			(7)	–	–	(4)	(11)		(11)
Impairment losses[3]			–	(19)	–	–	(19)	–	(19)
Fully amortized assets			–	–	(12)	(24)	(36)	–	(36)
Impact of foreign currency translation			–	–	–	–	–	–	–
As at October 31, 2020			54	230	56	149	489	99	588
Depreciation for the year			**2**	**48**	**12**	**30**	**92**	**103**	**195**
Disposals			**(3)**	**(3)**	**(2)**	**(4)**	**(12)**		**(12)**
Impairment losses			**–**	**–**	**–**	**–**	**–**	**(1)**	**(1)**
Fully amortized assets			**(26)**	**(124)**	**(10)**	**(18)**	**(178)**	**(3)**	**(181)**
Impact of foreign currency translation			**–**	**(1)**	**(1)**	**(1)**	**(3)**	**–**	**(3)**
As at October 31, 2021			**27**	**150**	**55**	**156**	**388**	**198**	**586**
Carrying value as at October 31, 2020	71	120	17	110	56	182	556	599	1,155
Carrying value as at October 31, 2021	**71**	**248**	**21**	**105**	**55**	**182**	**682**	**534**	**1,216**

(1) As at October 31, 2021, contractual commitments related to the head office building under construction stood at $295 million, covering a period up to 2023.
(2) On November 1, 2019, the Bank adopted IFRS 16. It recognized right-of-use assets totalling $648 million ($668 million reduced by provisions for onerous lease contracts of $20 million).
(3) During the year ended October 31, 2020, the Bank decided to stop using certain computer equipment. Consequently, an amount of $19 million in impairment losses related to this equipment was recognized in the *Non-interest expenses – Technology* item of the Consolidated Statement of Income and reported in the *Other* heading of segment results.

Assets Leased Under Operating Leases

The Bank is a lessor under operating lease agreements for certain buildings. These leases have terms varying from one year to five years and do not contain any bargain purchase options or contingent rent.

The following table breaks down the future minimum payments receivable under these operating leases. These amounts include sub-lease revenues of $7 million related to real estate right-of-use assets.

	As at October 31, 2021
1 year or less	2
Over 1 year to 2 years	2
Over 2 years to 3 years	2
Over 3 years to 4 years	1
Over 4 years to 5 years	1
Over 5 years	1
	9

(millions of Canadian dollars)

Leases Recognized in the Consolidated Statement of Income

	As at October 31, 2021
Interest expense	16
Expense relating to leases of low-value assets[1]	5
Expense relating to variable lease payments	97
Income from leasing and sub-leasing[2]	4

(1) The expense relates to payments for leases for which the underlying asset is of low value that are part of the exemptions permitted by the practical expedients of IFRS 16.
(2) These amounts include variable lease payments of $2 million.

For the year ended October 31, 2021, the cash outflows for leases amounted to $214 million (2020: $213 million).

Note 11 – Goodwill and Intangible Assets

Goodwill

The following table presents changes in the carrying amounts of goodwill by cash-generating unit (CGU) and by business segment for the years ended October 31, 2021 and 2020.

	Personal and Commercial[1]			Wealth Management		Financial Markets[1]			USSF&I	Other	Total
		Third-Party Solutions[1]	Securities Brokerage[1]	Managed Solutions[1]	Total		Credigy Ltd.[1]	Advanced Bank of Asia Limited[1]	Total	Flinks Technology Inc.[1]	
Balance as at October 31, 2019	54	256	434	269	959	235	33	131	164		1,412
Impact of foreign currency translation	–	–	–	–	–	–	–	2	2		2
Balance as at October 31, 2020	54	256	434	269	959	235	33	133	166	–	1,414
Acquisition of Flinks[2]										101	101
Impact of foreign currency translation	–	–	–	–	–	–	(2)	(9)	(11)	–	(11)
Balance as at October 31, 2021	**54**	**256**	**434**	**269**	**959**	**235**	**31**	**124**	**155**	**101**	**1,504**

(1) Constitutes a CGU.
(2) On September 8, 2021, the Bank finalized the acquisition of Flinks. For additional information, see Note 31 to these consolidated financial statements.

Goodwill Impairment Testing and Significant Assumptions
For impairment testing purposes, goodwill resulting from a business combination must be allocated, as of the acquisition date, to the CGU or group of CGUs expected to benefit from the synergies of the business combination. Goodwill is tested for impairment annually or more frequently if events or circumstances indicate that the recoverable value of the CGU or group of CGUs may have fallen below its carrying amount.

Goodwill was tested for impairment during the years ended October 31, 2021 and 2020, and no impairment loss was recognized.

The recoverable value of a CGU or group of CGUs is based on the value in use that is calculated based on discounted pre-tax cash flows. Future pre-tax cash flows are estimated based on a five-year period, which is the reference period used for the most recent financial forecasts approved by management. Cash flows beyond that period are extrapolated using a long-term growth rate.

The discount rate used for each CGU or group of CGUs is calculated using the cost of debt financing and the cost related to the Bank's equity. This rate corresponds to the Bank's weighted average cost of capital and reflects the risk specific to the CGU. The long-term growth rate used in calculating discounted cash flow estimates is based on the forecasted growth rate plus a risk premium. The rate is constant over the entire five-year period for which the cash flows were determined. Growth rates are determined, among other factors, based on past growth rates, economic trends, inflation, competition and the impact of the Bank's strategic initiatives. As at October 31, 2021, for each CGU or CGU group, the discount rate used was 13.2% (13.2% as at October 31, 2020), and the long-term growth rate varied between 2% and 5%, depending on the CGU, as at October 31, 2021 and 2020.

(millions of Canadian dollars)

Note 11 – Goodwill and Intangible Assets (cont.)

Estimating a CGU's value in use requires significant judgment regarding the inputs used in applying the discounted cash flow method. The Bank conducts sensitivity analyses by varying the after-tax discount rate upward by 1% and the terminal growth rates downward by 1%. Such sensitivity analyses demonstrate that a reasonable change in assumptions would not result in a CGU's carrying value exceeding its value in use.

Intangible Assets

	Indefinite useful life			Finite useful life				Total
	Management contracts[(1)]	Trademark	Total	Internally-generated software[(2)]	Other software	Other intangible assets	Total	
Cost								
As at October 31, 2019	161	11	172	1,703	156	103	1,962	2,134
Acquisitions	–	–	–	317	15	–	332	332
Impairment losses[(3)]	–	–	–	(95)	–	–	(95)	(95)
Fully amortized intangible assets				(3)	(2)	(34)	(39)	(39)
As at October 31, 2020	161	11	172	1,922	169	69	2,160	2,332
Acquisitions	–	–	–	354	20	–	374	374
Impairment losses[(4)]	(1)	(2)	(3)	(9)	–	–	(9)	(12)
Fully amortized intangible assets				(92)	(69)	(5)	(166)	(166)
As at October 31, 2021	**160**	**9**	**169**	**2,175**	**120**	**64**	**2,359**	**2,528**
Accumulated amortization								
As at October 31, 2019				547	105	76	728	728
Amortization for the year				223	22	7	252	252
Impairment losses[(3)]				(43)	–	–	(43)	(43)
Fully amortized intangible assets				(3)	(2)	(34)	(39)	(39)
As at October 31, 2020				724	125	49	898	898
Amortization for the year				260	19	7	286	286
Impairment losses[(4)]				–	–	–	–	–
Fully amortized intangible assets				(92)	(69)	(5)	(166)	(166)
As at October 31, 2021				**892**	**75**	**51**	**1,018**	**1,018**
Carrying value as at October 31, 2020	161	11	172	1,198	44	20	1,262	1,434
Carrying value as at October 31, 2021	**160**	**9**	**169**	**1,283**	**45**	**13**	**1,341**	**1,510**

(1) For annual impairment testing purposes, management contracts are allocated to the Managed Solutions CGU.
(2) The remaining amortization period for significant internally-generated software is five years.
(3) During the year ended October 31, 2020, the Bank had written off certain technology developments due to obsolescence and decided to discontinue them. The recoverable amount of those technology developments was estimated to be nil. An amount of $52 million in impairment losses was recognized in the *Non-interest expenses – Technology* item of the Consolidated Statement of Income and reported in the *Other* heading of segment results.
(4) During the year ended October 31, 2021, the Bank recorded $3 million in impairment losses resulting from the impairment test carried out on intangible assets with indefinite useful life as well as an amount of $9 million related to software under development that will no longer be brought to completion. The impairment losses were recognized in the *Non-interest expenses – Technology* item of the Consolidated Statement of Income and reported in the *Other* heading of segment results.

Note 12 – Other Assets

As at October 31	2021	2020
Receivables, prepaid expenses and other items	1,228	946
Interest and dividends receivable	696	567
Due from clients, dealers and brokers	988	586
Defined benefit asset (Note 23)	691	126
Deferred tax assets (Note 24)	354	643
Current tax assets	445	360
Reinsurance assets	28	30
Insurance assets	38	8
	4,468	3,266

(millions of Canadian dollars)

Note 13 – Deposits

As at October 31				2021	2020
	On demand[1]	After notice[2]	Fixed term[3]	Total	Total
Personal	6,128	34,845	29,103	70,076	67,499
Business and government	58,863	31,867	77,140	167,870	143,787
Deposit-taking institutions	1,206	483	1,303	2,992	4,592
	66,197	67,195	107,546	240,938	215,878

(1) Demand deposits are deposits for which the Bank does not have the right to require notice of withdrawal and consist essentially of deposits in chequing accounts.
(2) Notice deposits are deposits for which the Bank may legally require a notice of withdrawal and consist mainly of deposits in savings accounts.
(3) Fixed-term deposits are deposits that can be withdrawn by the holder on a specified date and include term deposits, guaranteed investment certificates, savings accounts and plans, covered bonds, and similar instruments.

The *Deposits – Business and government* item includes, among other items, covered bonds, as described below, and an $11.9 billion amount of deposits as at October 31, 2021 ($8.4 billion as at October 31, 2020) that are subject to the bank bail-in conversion regulations issued by the Government of Canada. These regulations provide certain powers to the Canada Deposit Insurance Corporation (CDIC), notably the power to convert certain eligible Bank shares and liabilities into common shares should the Bank become non-viable.

Covered Bonds

NBC Covered Bond Guarantor (Legislative) Limited Partnership

In December 2013, the Bank established the covered bond legislative program under which covered bonds are issued. It therefore created NBC Covered Bond Guarantor (Legislative) Limited Partnership (the Guarantor) to guarantee payment of the principal and interest owed to the bondholders. The Bank sold uninsured residential mortgages to the Guarantor and granted it loans to facilitate the acquisition of these assets. During the year ended October 31, 2021, covered bonds in amounts of US$470 million, 250 million pounds sterling, and 1.0 billion euros came to maturity, and the Bank issued 1.25 billion euros in covered bonds (US$200 million in covered bonds issued during the year ended October 31, 2020). The covered bonds totalled $8.8 billion as at October 31, 2021 ($10.1 billion as at October 31, 2020). For additional information, see Note 27 to these consolidated financial statements.

The Bank has limited access to the assets owned by this structured entity according to the terms of the agreements that apply to this transaction. The assets owned by this entity totalled $16.0 billion as at October 31, 2021 ($17.2 billion as at October 31, 2020), of which $15.7 billion ($16.8 billion as at October 31, 2020) is presented in *Residential mortgage* loans on the Bank's Consolidated Balance Sheet.

Note 14 – Other Liabilities

As at October 31	2021	2020
Accounts payable and accrued expenses	2,469	1,993
Subsidiaries' debts to third parties	437	386
Interest and dividends payable	552	621
Lease liabilities	575	628
Due to clients, dealers and brokers	735	652
Defined benefit liability (Note 23)	143	156
Allowances for credit losses – Off-balance-sheet commitments (Note 7)	162	176
Deferred tax liabilities (Note 24)	10	–
Current tax liabilities	478	121
Insurance liabilities	11	–
Other items[(1)(2)(3)]	729	985
	6,301	5,718

(1) As at October 31, 2021, *Other items* included $12 million in litigation provision ($7 million as at October 31, 2020).
(2) As at October 31, 2021, *Other items* included $33 million in provisions for onerous contracts ($33 million as at October 31, 2020).
(3) As at October 31, 2021, *Other items* included the financial liability resulting from put options written to non-controlling interests of Flinks in an amount of $25 million. For additional information, see Note 31 to these consolidated financial statements.

(millions of Canadian dollars)

Note 15 – Subordinated Debt

The subordinated debt represents direct unsecured obligations, in the form of notes and debentures, to the Bank's debt holders. The rights of the Bank's note and debenture holders are subordinate to the claims of depositors and certain other creditors. Approval from OSFI is required before the Bank can redeem its subordinated notes and debentures in whole or in part.

As at October 31				**2021**	2020
Maturity date		**Interest rate**	**Characteristics**		
February	2028	3.183%(1)	Redeemable(2)	**750**	750
February	2087	Variable(3)	Redeemable at the Bank's option since February 28, 1993	**9**	9
				759	759
Fair value hedge adjustment				**10**	17
Unamortized issuance costs(4)				**(1)**	(1)
Total				**768**	775

(1) Bearing interest at a rate of 3.183%, payable semi-annually until February 1, 2023, and thereafter bearing interest at a floating rate equal to the three-month CDOR rate plus 0.72%, payable quarterly.
(2) With the prior approval of OSFI, the Bank may, at its option, redeem these notes as of February 1, 2023, in whole or in part, at their nominal value plus accrued and unpaid interest. These notes contain non-viability contingent capital (NVCC) provisions and qualify for the purposes of calculating regulatory capital under Basel III. In the case of a trigger event as defined by OSFI, each note will be automatically and immediately converted, on a full and permanent basis, without the consent of the holder, into a specified number of common shares of the Bank as determined using an automatic conversion formula with a multiplier of 1.5 and a conversion price based on the greater of: (i) a floor price of $5.00; (ii) the current market price of common shares, which represents the volume weighted average price of common shares for the ten trading days ending on the trading day preceding the date of the trigger event. If the common shares are not listed on an exchange when this price is being established, the price will be the fair value reasonably determined by the Bank's Board. The number of shares issued is determined by dividing the par value of the note (plus accrued and unpaid interest on such note) by the conversion price and then applying the multiplier.
(3) Debentures denominated in foreign currency totalling US$7 million as at October 31, 2021 (2020: US$7 million) and bearing interest at a rate of 1/8% above six-month LIBOR.
(4) The unamortized costs related to the issuance of the subordinated debt represent the initial cost, net of accumulated amortization, calculated using the effective interest rate method.

Note 16 – Derivative Financial Instruments

Derivative financial instruments are financial contracts whose value is derived from an underlying interest rate, exchange rate, equity price, commodity price, credit spread, or index.

The main types of derivative financial instruments used are presented below.

Forwards and Futures
Forwards and futures are contractual obligations to buy or deliver a specified amount of currency, interest rate, commodity, or financial instrument on a specified future date at a specified price. Forwards are tailor-made agreements transacted in the over-the-counter market. Futures are traded on organized exchanges and are subject to cash margining calculated daily by clearing houses.

Swaps
Swaps are over-the-counter contracts in which two parties agree to exchange cash flows. The Bank uses the following types of swap contracts:

- Cross-currency swaps are transactions in which counterparties exchange fixed-rate interest payments and principal payments in different currencies.
- Interest rate swaps are transactions in which counterparties exchange fixed and floating rate interest payments based on the notional principal value in the same currency.
- Commodity swaps are transactions in which counterparties exchange fixed and floating rate payments based on the notional principal value of a commodity.
- Equity swaps are transactions in which counterparties agree to exchange the return on one equity or group of equities for a payment based on an interest rate benchmark.
- Credit default swaps are transactions in which one of the parties agrees to pay returns to the other party so that the latter can make a payment if a credit event occurs.

Options
Options are agreements between two parties in which the writer of the option grants the buyer the right, but not the obligation, to buy or sell, either at a specified date or dates or at any time prior to a predetermined expiry date, a specific amount of currency, commodity, or financial instrument at an agreed-upon price upon the sale of the option. The writer receives a premium for the sale of this instrument.

(millions of Canadian dollars)

Notional Amounts[1]

As at October 31							2021	2020
	Term to maturity							
	3 months or less	Over 3 months to 12 months	Over 1 year to 5 years	Over 5 years	Total contracts	Contracts held for trading purposes	Contracts designated as hedges	Total contracts
Interest rate contracts								
OTC contracts								
Forward rate agreements								
Not settled by central counterparties	5,091	967	–	–	6,058	6,058	–	5,046
Settled by central counterparties	–	495	–	–	495	495	–	586
Swaps								
Not settled by central counterparties	5,052	12,751	54,379	47,198	119,380	118,388	992	121,513
Settled by central counterparties	118,819	215,394	262,125	93,859	690,197	641,369	48,828	495,440
Options purchased	124	429	3,255	1,025	4,833	4,813	20	7,235
Options written	465	196	4,510	1,300	6,471	5,578	893	5,678
	129,551	230,232	324,269	143,382	827,434	776,701	50,733	635,498
Exchange-traded contracts								
Futures								
Long positions	30,782	9,482	16,629	–	56,893	56,893	–	21,870
Short positions	13,372	30,377	5,882	–	49,631	49,631	–	37,483
Options purchased	5,308	5,095	5,571	–	15,974	15,974	–	15,590
Options written	3,311	–	5,571	–	8,882	8,882	–	15,574
	52,773	44,954	33,653	–	131,380	131,380	–	90,517
Foreign exchange contracts								
OTC contracts								
Forwards	53,132	18,398	5,849	1,022	78,401	78,401	–	57,591
Swaps	242,180	78,108	98,532	28,727	447,547	430,574	16,973	363,538
Options purchased	7,557	7,723	2,015	–	17,295	17,295	–	12,728
Options written	8,348	9,065	1,511	–	18,924	18,924	–	13,617
	311,217	113,294	107,907	29,749	562,167	545,194	16,973	447,474
Exchange-traded contracts								
Futures								
Long positions	54	–	–	–	54	54	–	68
Short positions	83	–	–	–	83	83	–	73
	137	–	–	–	137	137	–	141
Equity, commodity and credit derivative contracts[2]								
OTC contracts								
Forwards	–	27	4,097	164	4,288	4,288	–	2,609
Swaps								
Not settled by central counterparties	27,986	20,266	25,366	6,449	80,067	79,936	131	79,344
Settled by central counterparties	402	280	2,167	864	3,713	3,713	–	10,138
Options purchased	775	298	552	–	1,625	1,625	–	916
Options written	233	340	1,161	232	1,966	1,966	–	1,560
	29,396	21,211	33,343	7,709	91,659	91,528	131	94,567
Exchange-traded contracts								
Futures								
Long positions	5,985	569	560	59	7,173	7,173	–	4,873
Short positions	10,417	2,402	840	–	13,659	13,659	–	11,950
Options purchased	21,126	1,503	481	–	23,110	23,110	–	17,069
Options written	20,857	2,123	1,540	2	24,522	24,522	–	14,894
	58,385	6,597	3,421	61	68,464	68,464	–	48,786
	581,459	416,288	502,593	180,901	1,681,241	1,613,404	67,837	1,316,983

(1) Notional amounts are not presented in assets or liabilities on the Consolidated Balance Sheet. They represent the reference amount of the contract to which a rate or price is applied to determine the amount of cash flows to be exchanged.
(2) Includes precious metal contracts.

(millions of Canadian dollars)

Note 16 – Derivative Financial Instruments (cont.)

Credit Risk
Credit risk on derivative financial instruments is the risk of financial loss that the Bank will have to assume if a counterparty fails to honour its contractual obligations. Credit risk related to derivative financial instruments is subject to the same credit approval, credit limit, and credit monitoring standards as those applied to the Bank's other credit transactions. Consequently, the Bank evaluates the creditworthiness of counterparties and manages the size of the portfolios as well as the diversification and maturity profiles of these financial instruments.

The Bank limits the credit risk of over-the-counter contracts by dealing with creditworthy counterparties and entering into contracts that provide for the exchange of collateral between parties where the fair value of the outstanding transactions exceeds an agreed threshold. The Bank also negotiates master netting agreements that provide for the simultaneous close-out and settling of all transactions with a given counterparty in the event of default, insolvency, or bankruptcy. However, overall exposure to credit risk, reduced through master netting agreements, may change substantially after the balance sheet date because it is affected by all transactions subject to a contract as well as by changes in the market rates of the underlying instruments.

The Bank also uses financial intermediaries to have access to established clearing houses in order to minimize the settlement risk arising from financial derivative transactions. In some cases, the Bank has direct access to clearing houses for settling derivative financial instruments. In addition, certain derivative financial instruments traded over the counter are settled directly or indirectly by central counterparties.

In the case of exchange-traded contracts, exposure to credit risk is limited because these transactions are standardized contracts executed on established exchanges, each of which is associated with a well-capitalized clearing house that assumes the obligations of both counterparties and guarantees their performance obligations. All exchange-traded contracts are subject to initial margins and daily settlement.

Terms Used
Replacement Cost
Replacement cost is the Bank's maximum credit risk associated with derivative financial instruments as at the Consolidated Balance Sheet date. This amount is the positive fair value of all derivative financial instruments, before all master netting agreements and collateral held.

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

Risk-Weighted Amount
The risk-weighted amount is determined by applying the OSFI guidance to the credit risk equivalent.

Credit Risk Exposure of the Derivative Financial Instrument Portfolio

As at October 31			2021			2020
	Replacement cost	Credit risk equivalent(1)	Risk-weighted amount(1)	Replacement cost	Credit risk equivalent(1)	Risk-weighted amount(1)
Interest rate contracts	**1,975**	**3,239**	**814**	3,534	3,839	1,383
Foreign exchange contracts	**6,453**	**4,361**	**1,405**	4,391	4,829	1,542
Equity, commodity and credit derivative contracts	**8,056**	**12,113**	**3,316**	5,497	7,874	1,820
	16,484	**19,713**	**5,535**	13,422	16,542	4,745
Impact of master netting agreements	**(9,398)**			(6,204)		
	7,086	**19,713**	**5,535**	7,218	16,542	4,745

(1) The amounts are presented net of the Impact of master netting agreements.

Credit Risk Exposure of the Derivative Financial Instrument Portfolio by Counterparty

As at October 31		2021		2020
	Replacement cost	Credit risk equivalent	Replacement cost	Credit risk equivalent
OECD(1) member-country governments	**771**	**2,604**	1,265	2,280
Banks of OECD member countries	**714**	**3,492**	837	3,399
Other	**5,601**	**13,617**	5,116	10,863
	7,086	**19,713**	7,218	16,542

(1) Organisation for Economic Co-operation and Development.

(millions of Canadian dollars)

Fair Value of Derivative Financial Instruments

As at October 31			2021			2020
	Positive	**Negative**	**Net**	Positive	Negative	Net
Contracts held for trading purposes						
Interest rate contracts						
Forwards	30	54	(24)	41	20	21
Swaps	909	1,316	(407)	2,622	2,599	23
Options	74	68	6	131	73	58
	1,013	1,438	(425)	2,794	2,692	102
Foreign exchange contracts						
Forwards	2,190	2,365	(175)	1,292	1,318	(26)
Swaps	4,026	3,601	425	2,816	2,477	339
Options	234	250	(16)	221	201	20
	6,450	6,216	234	4,329	3,996	333
Equity, commodity and credit derivative contracts						
Forwards	1,369	886	483	850	278	572
Swaps	2,375	5,198	(2,823)	2,502	3,430	(928)
Options	4,305	4,922	(617)	2,145	1,334	811
	8,049	11,006	(2,957)	5,497	5,042	455
Total – Contracts held for trading purposes	15,512	18,660	(3,148)	12,620	11,730	890
Contracts designated as hedges						
Interest rate contracts						
Swaps	962	268	694	740	765	(25)
Options	–	207	(207)	–	289	(289)
	962	475	487	740	1,054	(314)
Foreign exchange contracts						
Swaps	3	232	(229)	62	136	(74)
Options	–	–	–	–	–	–
	3	232	(229)	62	136	(74)
Equity, commodity and credit derivative contracts						
Swaps	7	–	7	–	3	(3)
Options	–	–	–	–	–	–
	7	–	7	–	3	(3)
Total – Contracts designated as hedges	972	707	265	802	1,193	(391)
Designated as fair value hedges	644	272	372	549	578	(29)
Designated as cash flow hedges	328	435	(107)	253	615	(362)
Designated as a hedge of a net investment in a foreign operation	–	–	–	–	–	–
Total fair value	16,484	19,367	(2,883)	13,422	12,923	499
Impact of master netting agreements	(9,398)	(9,398)	–	(6,204)	(6,204)	–
	7,086	9,969	(2,883)	7,218	6,719	499

(millions of Canadian dollars)

Note 17 – Hedging Activities

The Bank's market risk exposure, risk management objectives, policies and procedures, and risk measurement methods are presented in the Risk Management section of the MD&A for the year ended October 31, 2021.

The Bank has elected, as permitted under IFRS 9, to continue applying the hedge accounting requirements of IAS 39. Some of the tables present information on currencies, specifically, the U.S. dollar (USD), the Australian dollar (AUD), the Canadian dollar (CAD), the Hong Kong dollar (HKD), the euro (EUR), the pound sterling (GBP), and the Brazilian real (BRL).

The table on the following page shows the notional amounts and the weighted average rates by term to maturity of the designated derivative instruments and their fair value by type of hedging relationship.

As at October 31							2021			2020
	Term to maturity					Fair value			Fair value	
	1 year or less	Over 1 year to 2 years	Over 2 years to 5 years	Over 5 years	Total	Assets	Liabilities	Total	Assets	Liabilities
Fair value hedges										
Interest rate risk										
Interest rate swaps						642	63		536	288
Notional amount – LIBOR reform(1)	–	–	517	1,508	2,025			2,335		
Notional amount – Other(2)	1,207	2,212	10,437	2,716	16,572			15,632		
Average fixed interest rate – Pay fixed	0.5 %	1.3 %	1.2 %	1.2 %	1.2 %			1.1 %		
Average fixed interest rate – Receive fixed	0.9 %	2.0 %	1.8 %	2.2 %	2.0 %			1.9 %		
Cross-currency swaps						2	2		13	–
Notional amount – LIBOR reform(1)	–	–	–	22	22			–		
Notional amount – Other(2)	–	110	–	–	110			118		
Average USD-AUD exchange rate	–	–	–	$ 0.7351	$ 0.7351			$ –		
Average CAD-HKD exchange rate	–	$ 0.1621	–	–	$ 0.1621			$ 0.1621		
Options						–	207		–	290
Notional amount – LIBOR reform(1)	–	–	–	372	372			440		
Notional amount – Other(2)	12	48	–	481	541			577		
Average fixed interest rate – Purchased	–	(0.8) %	–	–	(0.8) %			(0.6) %		
Average fixed interest rate – Written	2.0 %	2.9 %	–	2.8 %	2.8 %			2.7 %		
	1,219	2,370	10,954	5,099	19,642	644	272	19,102	549	578
Cash flow hedges										
Interest rate risk										
Interest rate swaps						320	205		204	477
Notional amount – LIBOR reform(1)	–	–	–	–	–			1,199		
Notional amount – Other(2)	5,709	10,262	13,134	2,118	31,223			21,581		
Average fixed interest rate – Pay fixed	1.9 %	1.7 %	1.4 %	1.7 %	1.6 %			1.7 %		
Average fixed interest rate – Receive fixed	0.9 %	0.6 %	0.3 %	0.6 %	0.6 %			0.5 %		
Cross-currency swaps						1	230		49	135
Notional amount – LIBOR reform(1)	–	4,627	7,257	1,440	13,324			13,467		
Notional amount – Other(2)	3,512	–	–	–	3,512			1,461		
Average CAD-USD exchange rate	$ 1.2906	$ 1.3182	$ 1.2899	$ 1.2503	$ 1.2945			$ 1.3074		
Average USD-EUR exchange rate	$ 1.1145	$ 1.1397	$ 1.1841	$ 1.1889	$ 1.1587			$ 1.1510		
Average USD-GBP exchange rate	–	–	–	–	–			$ 1.2921		
Equity price risk										
Equity swaps										
Notional amount	131	–	–	–	131	7	–	89	–	3
Average price	$ 97.54	–	–	–	$ 97.54			$ 65.71		
	9,352	14,889	20,391	3,558	48,190	328	435	37,797	253	615
Hedges of net investments in foreign operations(3)										
Foreign exchange risk										
Cross-currency swaps										
Notional amount	5	–	–	–	5	–	–	10	–	–
Average CAD-USD exchange rate	$ 1.2378	–	–	–	$ 1.2378			$ 1.3177		
Average USD-HKD exchange rate	–	–	–	–	–			$ 0.1290		
	5	–	–	–	5	–	–	10	–	–
	10,576	17,259	31,345	8,657	67,837	972	707	56,909	802	1,193

(1) Includes only contracts that reference USD LIBOR and that will mature after June 30, 2023.
(2) Includes contracts that reference the Canadian Dollar Offered Rate (CDOR), a benchmark rate in Canada, a multi-rate jurisdiction.
(3) As at October 31, 2021, the Bank also designated $1,313 million in foreign currency deposits denominated in U.S. dollars as net investment hedging instruments ($1,279 million as at October 31, 2020).

(millions of Canadian dollars)

Fair Value Hedges

Fair value hedge transactions consist of using derivative financial instruments (interest rate swaps and options) to hedge changes in the fair value of a financial asset or financial liability caused by interest rate fluctuations. Changes in the fair values of the derivative financial instruments used as hedging instruments offset changes in the fair value of the hedged items. The Bank applies this strategy mainly to portfolios of securities measured at fair value through other comprehensive income, fixed-rate mortgage loans, fixed-rate deposits, liabilities related to transferred receivables, and subordinated debt.

In addition, when a fixed-rate asset or liability is denominated in a foreign currency, the Bank sometimes uses cross-currency swaps to hedge the associated foreign exchange risk. The Bank may designate a cross-currency swap to exchange the fixed-rate foreign currency for the functional currency at a floating rate in a single hedging relationship addressing both interest rate risk and foreign exchange risk. In certain cases, given that interest rate risk and foreign exchange risk are hedged in a single hedging relationship, the information below does not distinguish between interest rate risk and the combination of interest rate risk and foreign exchange risk as two separate risk categories. The Bank applies this strategy mainly to foreign currency fixed-rate deposits.

Regression analysis is used to test hedge effectiveness and determine the hedge ratio. For fair value hedges, the main source of potential hedge ineffectiveness is a circumstance where the critical terms of the hedging instrument and the hedged item are not closely aligned.

The following tables show amounts related to hedged items as well as the results of the fair value hedges.

	As at October 31, 2021			Year ended October 31, 2021		
	Carrying value of hedged items	**Cumulative hedge adjustments from active hedges**	**Cumulative adjustments from discontinued hedges**	**Gains (losses) on the hedged items for ineffectiveness measurement(1)**	**Gains (losses) on the hedging instruments for ineffectiveness measurement(1)**	**Hedge ineffectiveness(1)**
Securities at fair value through other comprehensive income	7,471	(183)	27	(309)	310	1
Mortgages	7,609	(192)	(17)	(222)	234	12
Deposits	3,190	42	70	121	(123)	(2)
Liabilities related to transferred receivables	105	–	105	23	(23)	–
Subordinated debt	10	–	10	–	–	–
				(387)	398	11

	As at October 31, 2020			Year ended October 31, 2020		
	Carrying value of hedged items	Cumulative hedge adjustments from active hedges	Cumulative adjustments from discontinued hedges	Gains (losses) on the hedged items for ineffectiveness measurement(1)	Gains (losses) on the hedging instruments for ineffectiveness measurement(1)	Hedge ineffectiveness(1)
Securities at fair value through other comprehensive income	9,883	141	26	229	(229)	–
Mortgages	5,124	10	2	12	(12)	–
Deposits	3,371	172	83	(83)	84	1
Liabilities related to transferred receivables	1,041	13	162	(71)	72	1
Subordinated debt	17	–	17	(7)	7	–
				80	(78)	2

(1) Amounts are presented on a pre-tax basis.

(millions of Canadian dollars)

Note 17 – Hedging Activities (cont.)

Cash Flow Hedges

Cash flow hedge transactions consist of using interest rate swaps to hedge the risk of changes in future cash flows caused by floating-rate assets or liabilities. In addition, the Bank sometimes uses cross-currency swaps to hedge the foreign exchange risk caused by assets or liabilities denominated in foreign currencies. In certain cases, given that interest rate risk and foreign exchange risk are hedged in a single hedging relationship, the information below does not distinguish between interest rate risk and the combination of interest rate risk and foreign exchange risk as two separate risk categories. The Bank applies this strategy mainly to its loan, personal credit line, acceptance, and deposit portfolios as well as liabilities related to transferred receivables.

The Bank also uses total return swaps to hedge the risk of changes in future cash flows related to the Restricted Stock Unit (RSU) Plan. Some of these swaps are designated as part of a cash flow hedge against a portion of the unrecognized obligation of the RSU Plan. In cash flow hedges, the derivative financial instruments used as hedging instruments reduce the variability of the future cash flows related to the hedged items.

Regression analysis is used to assess hedge effectiveness and to determine the hedge ratio. For cash flow hedges, the main source of potential hedge ineffectiveness is a circumstance where the critical terms of the hedging instrument and the hedged item are not closely aligned.

The following tables show the amounts related to hedged items as well as the results of the cash flow hedges.

	As at October 31, 2021		Year ended October 31, 2021				
	Accumulated other comprehensive income from active hedges	*Accumulated other comprehensive income* from discontinued hedges	Gains (losses) on hedged items for ineffectiveness measurement(1)	Gains (losses) on hedging instruments for ineffectiveness measurement(1)	Hedge ineffectiveness(1)	Unrealized gains (losses) included in *Other comprehensive income* as the effective portion of the hedging instrument(1)	Losses (gains) reclassified to *Net interest income*(1)
Interest rate risk							
Loans	(76)	(10)	87	(85)	–	(84)	(2)
Deposits	(15)	(8)	488	(487)	–	163	(5)
Acceptances	161	(113)	(208)	214	6	208	46
Liabilities related to transferred receivables	48	–	(54)	56	2	54	–
	118	(131)	313	(302)	8	341	39
Equity price risk							
Other liabilities	47	–	(35)	35	–	39	(4)
	165	(131)	278	(267)	8	380	35

	As at October 31, 2020		Year ended October 31, 2020				
	Accumulated other comprehensive income from active hedges	*Accumulated other comprehensive income* from discontinued hedges	Gains (losses) on hedged items for ineffectiveness measurement(1)	Gains (losses) on hedging instruments for ineffectiveness measurement(1)	Hedge ineffectiveness(1)	Unrealized gains (losses) included in *Other comprehensive income* as the effective portion of the hedging instrument(1)	Losses (gains) reclassified to *Net interest income*(1)
Interest rate risk							
Loans	2	(1)	(31)	31	–	30	(17)
Deposits	(178)	(2)	23	(21)	–	(208)	(11)
Acceptances	(71)	(136)	193	(199)	(7)	(193)	26
Liabilities related to transferred receivables	(6)	–	7	(6)	–	(6)	–
	(253)	(139)	192	(195)	(7)	(377)	(2)
Equity price risk							
Other liabilities	9	4	(13)	13	–	9	(6)
	(244)	(135)	179	(182)	(7)	(368)	(8)

(1) Amounts are presented on a pre-tax basis.

(millions of Canadian dollars)

Hedges of Net Investments in Foreign Operations

The Bank's structural foreign exchange risk arises from investments in foreign operations denominated in currencies other than the Canadian dollar. The Bank measures this risk by assessing the impact of foreign currency fluctuations and hedges it using derivative and non-derivative financial instruments (cross-currency swaps and deposits). In a hedge of a net investment in a foreign operation (net investment hedge), the financial instruments used offset the foreign exchange gains and losses on the investments. When non-derivative financial instruments are designated as foreign exchange risk hedges, only the changes in fair value that are attributable to foreign exchange risk are taken into account when assessing and calculating the effectiveness of the hedge.

Assessing the effectiveness of net investment hedges consists of comparing changes in the carrying value of the deposits or the fair value of the derivative attributable to exchange rate fluctuations with changes in the net investment in a foreign operation attributable to exchange rate fluctuations. Inasmuch as the notional amount of the hedging instruments and the hedged net investments are aligned, no ineffectiveness is expected.

The following tables present the amounts related to hedged items as well as the results of the net investment hedges.

	As at October 31, 2021		Year ended October 31, 2021				
	Accumulated other comprehensive income from active hedges	*Accumulated other comprehensive income* from discontinued hedges	Gains (losses) on hedged items for ineffectiveness measurement[1]	Gains (losses) on hedging instruments for ineffectiveness measurement[1]	Hedge ineffectiveness[1]	Unrealized gains (losses) included in *Other comprehensive income* as the effective portion of the hedging instrument[1]	Losses (gains) reclassified to the *Non-interest income* item[1]
Net investments in foreign operations denominated in:							
USD	35	(120)	(119)	119	–	119	–
BRL	–	–	–	–	–	–	–
	35	(120)	(119)	119	–	119	–

	As at October 31, 2020		Year ended October 31, 2020				
	Accumulated other comprehensive income from active hedges	*Accumulated other comprehensive income* from discontinued hedges	Gains (losses) on hedged items for ineffectiveness measurement[1]	Gains (losses) on hedging instruments for ineffectiveness measurement[1]	Hedge ineffectiveness[1]	Unrealized gains (losses) included in *Other comprehensive income* as the effective portion of the hedging instrument[1]	Losses (gains) reclassified to the *Non-interest income* item[1]
Net investments in foreign operations denominated in:							
USD	(1)	(202)	18	(18)	–	(18)	–
BRL	–	–	–	–	–	–	(38)
	(1)	(202)	18	(18)	–	(18)	(38)

(1) Amounts are presented on a pre-tax basis.

(millions of Canadian dollars)

Note 17 – Hedging Activities (cont.)

Reconciliation of Equity Components

The following table presents a reconciliation by risk category of *Accumulated other comprehensive income* attributable to hedge accounting.

As at October 31		2021		2020
	Net gains (losses) on cash flow hedges	**Net foreign currency translation adjustments**	Net gains (losses) on cash flow hedges	Net foreign currency translation adjustments
Balance at beginning	**(283)**	**61**	(6)	8
Hedges of net investments in foreign operations[1]				
Gains (losses) included as the effective portion		**119**		(18)
Losses (gains) reclassified to *Non-interest income*		**–**		(38)
Foreign currency translation gains (losses) on investments in foreign operations		**(286)**		92
Cash flow hedges[1]				
Gains (losses) included as the effective portion				
Interest rate risk	**341**		(377)	
Equity price risk	**39**		9	
Losses (gains) reclassified to *Net interest income*				
Interest rate risk	**39**		(2)	
Equity price risk	**(4)**		(6)	
Other comprehensive income attributable to non-controlling interests	**–**	**13**	–	(12)
Income taxes	**(109)**	**(36)**	99	29
Balance at end	**23**	**(129)**	(283)	61

(1) Amounts are presented on a pre-tax basis.

(millions of Canadian dollars)

Note 18 – Share Capital and Other Equity Instruments

Authorized

Common Shares

An unlimited number of shares without par value.

First Preferred Shares

An unlimited number of shares, without par value, issuable for a maximum aggregate consideration of $5 billion.

First Preferred Shares and Other Equity Instruments

As at October 31, 2021

	Redemption and conversion date(1)(2)	Redemption price per share or LRCN ($)(1)	Convertible into preferred shares(2)	Dividend per share ($) or interest rate per LRCN(3)	Reset premium of the dividend rate or interest rate
First preferred shares issued and outstanding					
Series 30(4)	May 15, 2024 (5)(6)	25.00	Series 31	0.25156 (7)	2.40 %
Series 32(4)	February 15, 2025 (5)(6)	25.00	Series 33	0.23994 (7)	2.25 %
Series 38(4)	November 15, 2022 (5)(6)	25.00	Series 39	0.27813 (8)	3.43 %
Series 40(4)	May 15, 2023 (5)(6)	25.00	Series 41	0.28750 (8)	2.58 %
Series 42(4)	November 15, 2023 (5)(6)	25.00	Series 43	0.30938 (8)	2.77 %
First preferred shares issued and held in a limited recourse trust					
Series 44(9)	October 15, 2025 (5)	1,000.00	n.a.	Floating rate (9)	3.943 %
Series 45(9)	July 15, 2026 (5)	1,000.00	n.a.	Floating rate (9)	3.045 %
Other equity instruments issued and outstanding					
Limited Recourse Capital Notes (LRCN)					
Series 1 (LRCN – Series 1)(9)(10)	October 15, 2025 (5)	1,000.00	Series 44 (10)	4.30 %(11)	3.943 %
Series 2 (LRCN – Series 2)(9)(10)	July 15, 2026 (5)	1,000.00	Series 45 (10)	4.05 %(11)	3.045 %
First preferred shares authorized but not issued					
Series 31(4)	May 15, 2024 (5)	25.00 (12)	n.a.	Floating rate (13)	2.40 %
Series 33(4)	February 15, 2025 (5)	25.00 (12)	n.a.	Floating rate (13)	2.25 %
Series 39(4)	November 15, 2022 (5)	25.50 (14)	n.a.	Floating rate (13)	3.43 %
Series 41(4)	May 15, 2023 (5)	25.50 (14)	n.a.	Floating rate (13)	2.58 %
Series 43(4)	November 15, 2023 (5)	25.50 (14)	n.a.	Floating rate (13)	2.77 %

n.a. Not applicable

(1) Redeemable in cash at the Bank's option, in whole or in part, subject to the provisions of the *Bank Act* (Canada) and to OSFI approval. For the preferred shares, the redemption prices are increased by all the declared and unpaid dividends on the preferred shares to the date fixed for redemption. In the case of LRCN, the redemption price is increased by interest accrued and unpaid up to the redemption date.

(2) Convertible at the option of the holders of first preferred shares issued and outstanding, subject to certain conditions.

(3) The dividends are non-cumulative and payable quarterly, except for Series 44 and 45, for which the dividends, when payable, are paid semi-annually. Interest on the LRCN is payable semi-annually.

(4) Upon the occurrence of a trigger event, as defined by OSFI, each outstanding preferred share will be automatically and immediately converted, on a full and permanent basis, without the consent of the holder, into a number of Bank common shares determined pursuant to an automatic conversion formula. This conversion will be calculated by dividing the value of the preferred shares, i.e., $25.00 per share, plus all declared and unpaid dividends as at the date of the trigger event, by the value of the common shares. The value of the common shares will be the greater of a $5.00 floor price or the current market price of the common shares. Current market price means the volume weighted average trading price of common shares for the ten consecutive trading days ending on the trading day preceding the date of the trigger event. If the common shares are not listed on an exchange when this price is being established, the price will be the fair value reasonably determined by the Bank's Board.

(5) For the preferred shares, redeemable at the date fixed for redemption and on the same date every five years thereafter. In the case of LRCN, the redemption occurs automatically upon the redemption of the Series 44 and the Series 45 preferred shares held in the limited recourse trust. The Series 44 and the Series 45 preferred shares are redeemable at the date fixed for redemption and on the same date every five years thereafter.

(6) Convertible on the date fixed for conversion and on the same date every five years thereafter, subject to certain conditions.

(7) The dividend amount is set for the five-year period commencing on May 16, 2019 for Series 30 as well as February 16, 2020 for Series 32 and ending on the redemption date. Thereafter, these shares carry a non-cumulative quarterly fixed dividend in an amount per share determined by multiplying the rate of interest equal to the sum of the five-year Government of Canada bond yield on the applicable fixed-rate calculation date by $25.00, plus the reset premium.

(8) The dividend amount is set for the initial period ending on the date fixed for redemption. Thereafter, these shares carry a non-cumulative quarterly fixed dividend in an amount per share determined by multiplying the rate of interest equal to the sum of the five-year Government of Canada bond yield on the applicable fixed-rate calculation date by $25.00, plus the reset premium.

(millions of Canadian dollars)

Note 18 – Share Capital and Other Equity Instruments (cont.)

(9) Series 44 and Series 45 preferred shares are held by a consolidated limited recourse trust on the Bank's balance sheet and are therefore eliminated for financial reporting purposes. Dividends are payable semi-annually and the dividend rate is the Government of Canada bond yield on the calculation date plus the reset premium; however, no dividend will be payable before the date on which all Series 44 and Series 45 preferred shares are issued to the holders of LRCN – Series 1 and LRCN – Series 2. Upon the occurrence of a trigger event, as defined by OSFI; (i) each LRCN will be automatically redeemed and the redemption price will be covered by delivery of the trust's assets that consist of Series 44 and Series 45 preferred shares; (ii) each outstanding preferred share will be automatically and immediately converted on a full and permanent basis, without the consent of the holder, into a number of Bank common shares determined pursuant to an automatic conversion formula. This conversion will be calculated by dividing the value of the preferred shares, i.e., $1,000 per share, plus all accrued and unpaid interest as at the date of the trigger event, by the value of the common shares. The value of the common shares will be the greater of a $5.00 floor price or the current market price of the common shares. Current market price means the volume weighted average trading price of common shares for the ten consecutive trading days ending on the trading day preceding the date of the trigger event. If the common shares are not listed on an exchange when this price is being established, the price will be the fair value reasonably determined by the Bank's Board.

(10) The LRCN – Series 1 and LRCN – Series 2 are notes for which recourse is limited to the assets held by an independent trustee in a consolidated limited recourse trust. The trust assets consist of Series 44 and Series 45 preferred shares issued by the Bank in conjunction with the LRCN – Series 1 and LRCN – Series 2. In the event of (i) non-payment of interest on any of the interest payment dates, (ii) non-payment of the redemption amount upon redemption of the LRCN, (iii) non-payment of the principal amount upon maturity of the LRCN, or (iv) an event of default in respect of the LRCN, the noteholders will have recourse only to the assets of the trust, and each noteholder will be entitled to its pro rata share of the assets of the trust. In such circumstances, delivery of the assets of the trust will eliminate all of the Bank's obligations with respect to the LRCN. The LRCN – Series 1 and LRCN – Series 2 are redeemable at maturity or earlier to the extent that the Bank redeems the Series 44 and Series 45 preferred shares on certain redemption dates specified in the terms and conditions of the preferred shares, and subject to OSFI's consent and approval.

(11) The interest rate is set for the initial period ending on the date fixed for redemption. Every five years thereafter until November 15, 2075 for the LRCN – Series 1 and until August 15, 2076 for the LRCN – Series 2, the interest rate on the notes will be adjusted and will be an annual interest rate equal to the five-year Government of Canada bond yield on the applicable interest rate calculation date, plus the interest rate reset premium.

(12) As of the date fixed for redemption, and every five years thereafter, the redemption price will be $25.00 per share.

(13) The dividend period begins as of the date fixed for redemption. The amount of the floating quarterly non-cumulative dividend is determined by multiplying by $25.00 the rate of interest equal to the sum of the 90-day Government of Canada treasury bill yield on the floating rate calculation date, plus the reset premium.

(14) As of the date fixed for redemption, the redemption price will be $25.50 per share. Thereafter, on the same date every five years, the redemption price will be $25.00 per share.

Second Preferred Shares

15 million shares without par value, issuable for a total maximum consideration of $300 million. As at October 31, 2021, no shares had been issued or traded.

Shares and Other Equity Instruments Outstanding

As at October 31	2021		2020	
	Number of shares or LRCN	Shares or LRCN $	Number of shares or LRCN	Shares or LRCN $
First Preferred Shares				
Series 30	14,000,000	350	14,000,000	350
Series 32	12,000,000	300	12,000,000	300
Series 34	–	–	16,000,000	400
Series 36	–	–	16,000,000	400
Series 38	16,000,000	400	16,000,000	400
Series 40	12,000,000	300	12,000,000	300
Series 42	12,000,000	300	12,000,000	300
	66,000,000	1,650	98,000,000	2,450
Other equity instruments				
LRCN – Series 1	500,000	500	500,000	500
LRCN – Series 2	500,000	500	–	–
	1,000,000	1,000	500,000	500
Preferred shares and other equity instruments	67,000,000	2,650	98,500,000	2,950
Common shares at beginning of year	335,997,660	3,057	334,172,411	2,949
Issued pursuant to the Stock Option Plan	1,930,033	104	2,318,926	111
Repurchase of common shares for cancellation	–	–	(525,000)	(5)
Impact of shares purchased or sold for trading[1]	(14,432)	(1)	31,323	2
Other	(978)	–	–	–
Common shares at end of year	337,912,283	3,160	335,997,660	3,057

(1) As at October 31, 2021, a total of 13,045 shares were sold short for trading, representing $1 million (27,477 shares were sold short for trading representing $2 million as at October 31, 2020).

(millions of Canadian dollars)

Dividends Declared and Distributions on Other Equity Instruments

Year ended October 31	2021		2020	
	Dividends or interest $	Dividends per share	Dividends or interest $	Dividends per share
First Preferred Shares				
Series 30	14	1.0063	14	1.0063
Series 32	12	0.9598	12	0.9636
Series 34	11	0.7000	22	1.4000
Series 36	16	1.0125	22	1.3500
Series 38	18	1.1125	18	1.1125
Series 40	14	1.1500	14	1.1500
Series 42	14	1.2375	14	1.2375
	99		116	
Other equity instruments				
LRCN – Series 1[(1)]	21		3	
LRCN – Series 2[(2)]	11		–	
	32		3	
Preferred shares and other equity instruments	131		119	
Common shares	958	2.8400	953	2.8400
	1,089		1,072	

(1) The LRCN – Series 1 bear interest at a fixed rate of 4.30% per annum.
(2) The LRCN – Series 2 bear interest at a fixed rate of 4.05% per annum.

Issuances of Other Equity Instruments

On April 21, 2021, the Bank issued $500 million of LRCN – Series 2 for which recourse of the noteholders is limited to the assets held by an independent trustee in a consolidated limited recourse trust. The trust's assets consist of $500 million of Series 45 first preferred shares issued by the Bank in conjunction with the LRCN – Series 2. The LRCN – Series 2 sell for $1,000 each and bear interest at a fixed rate of 4.05% per annum until August 15, 2026 exclusively and, thereafter, at an annual rate equal to the five-year Government of Canada bond yield plus 3.045% until August 15, 2076. The LRCN – Series 2 will mature on August 15, 2081.

On September 9, 2020, the Bank had issued $500 million of LRCN – Series 1 for which recourse of the noteholders is limited to the assets held by an independent trustee in a consolidated limited recourse trust. The trust's assets consist of $500 million of Series 44 first preferred shares issued by the Bank in conjunction with the LRCN – Series 1. The LRCN – Series 1 sell for $1,000 each and bear interest at a fixed rate of 4.30% per annum until November 15, 2025 exclusively and, thereafter, at an annual rate equal to the five-year Government of Canada bond yield plus 3.943% until November 15, 2075. The LRCN – Series 1 will mature on November 15, 2080.

In the event of (i) non-payment of interest on any of the interest payment dates, (ii) non-payment of the redemption amount upon redemption of the LRCN, (iii) non-payment of the principal amount upon maturity of the LRCN, or (iv) an event of default in respect of the notes, the noteholders will have recourse only to the assets of the trust, and each noteholder will be entitled to its pro rata share of the assets of the trust. In such circumstances, delivery of the assets of the trust will eliminate all of the Bank's obligations with respect to the LRCN. The LRCN – Series 1 and LRCN – Series 2 are redeemable at maturity or earlier to the extent that the Bank redeems the Series 44 and Series 45 preferred shares on certain redemption dates specified in the terms and conditions of said preferred shares, and subject to OSFI's consent and approval.

Given that the LRCN – Series 1 and LRCN – Series 2 satisfy the non-viability contingent capital requirements, they qualify for the purposes of calculating regulatory capital under Basel III.

Redemptions of Preferred Shares

On August 16, 2021, i.e., the first business day after the August 15, 2021 redemption date, the Bank redeemed all the issued and outstanding Non-Cumulative 5-Year Rate-Reset Series 36 First Preferred Shares. Pursuant to the share conditions, the redemption price was $25.00 per share plus the periodic dividend declared and unpaid. The Bank redeemed 16,000,000 Series 36 preferred shares for a total amount of $400 million, which reduced *Preferred share* capital.

On May 17, 2021, i.e., the first business day after the May 15, 2021 redemption date, the Bank redeemed all the issued and outstanding Non-Cumulative 5-Year Rate-Reset Series 34 First Preferred Shares. Pursuant to the share conditions, the redemption price was $25.00 per share plus the periodic dividend declared and unpaid. The Bank redeemed 16,000,000 Series 34 preferred shares for a total amount of $400 million, which reduced *Preferred share* capital.

(millions of Canadian dollars)

Note 18 – Share Capital and Other Equity Instruments (cont.)

Repurchases of Common Shares
During the year ended October 31, 2020, the Bank had repurchased 525,000 common shares for $30 million, which had reduced *Common share* capital by $5 million and *Retained earnings* by $25 million. These repurchases had been carried out before March 13, 2020, which was the date on which OSFI had lowered the domestic stability buffer and had indicated that it was expecting all banks to cease any dividend increases or share buybacks.

Reserved Common Shares
As at October 31, 2021 and 2020, there were 15,507,568 common shares reserved under the Dividend Reinvestment and Share Purchase Plan. As at October 31, 2021, there were 22,935,672 common shares (17,365,705 as at October 31, 2020) reserved under the Stock Option Plan.

Common Shares Held in Escrow
As part of the acquisition of Wellington West Holdings Inc. in 2011, the Bank had issued common shares held in escrow. During the year ended October 31, 2021, a total of 20,532 shares were released, and 978 shares were cancelled. As at October 31, 2021, the number of common shares held in escrow was nil (21,510 as at October 31, 2020), ending the Bank's settlement of the remaining shares in escrow.

Restriction on the Payment of Dividends
The Bank is prohibited from declaring dividends on its common or preferred shares if there are reasonable grounds for believing that the Bank would, by so doing, be in contravention of the regulations of the *Bank Act* (Canada) or OSFI's capital adequacy and liquidity guidelines. In addition, the ability to pay common share dividends is restricted by the terms of the outstanding preferred shares pursuant to which the Bank may not pay dividends on its common shares without the approval of the holders of the outstanding preferred shares, unless all preferred share dividends have been declared and paid or set aside for payment.

Dividend Reinvestment and Share Purchase Plan
National Bank has a Dividend Reinvestment and Share Purchase Plan for holders of its common and preferred shares under which they can acquire common shares of the Bank without paying commissions or administration fees. Participants acquire common shares through the reinvestment of cash dividends paid on the shares they hold or through optional cash payments of at least $1 per payment, up to a maximum of $5,000 per quarter. Common shares subscribed by participants are purchased on their behalf in the secondary market through the Bank's transfer agent, Computershare Trust Company of Canada, at a price equal to the average purchase price of the common shares during the three business days immediately following the dividend payment date.

Note 19 – Non-Controlling Interests

As at October 31	**2021**	2020
Flinks Technology Inc.(1)	**3**	–
Credigy Ltd.(2)	**–**	3
	3	3

(1) As at October 31, 2021, the non-controlling interest in Flinks stood at 14.1%. For additional information, see Note 31 to these consolidated financial statements.
(2) During the year ended October 31, 2021, the Bank acquired the entire remaining non-controlling interest in the Credigy Ltd. subsidiary. For additional information, see Note 31 to these consolidated financial statements.

Note 20 – Capital Disclosure

Capital Management Objectives, Policies and Procedures

Capital management has a dual role of ensuring a competitive return to the Bank's shareholders while maintaining a solid capital foundation that covers the risks inherent to the Bank's business, supports its business segments, and protects its clients.

The Bank's capital management policy defines the guiding principles as well as the roles and responsibilities regarding its internal capital adequacy assessment process. This process is a key tool in establishing the Bank's capital strategy and is subject to quarterly reviews and periodic amendments.

Capital Management

Capital ratios are obtained by dividing capital (as defined by OSFI's *Capital Adequacy Requirements* guideline) by risk-weighted assets and are expressed as percentages. Risk-weighted assets are calculated in accordance with the rules established by OSFI for on- and off-balance-sheet risks. Credit, market, and operational risks are factored into the risk-weighted assets calculation for regulatory purposes. The definition adopted by the Basel Committee on Banking Supervision (BCBS) distinguishes between three types of capital. Common Equity Tier 1 (CET1) capital consists of common shareholders' equity less goodwill, intangible assets, and other CET1 capital deductions. Additional Tier 1 (AT1) capital consists of eligible non-cumulative preferred shares, limited recourse capital notes, and other AT1 capital adjustments. The sum of CET1 and AT1 capital forms what is known as Tier 1 capital. Tier 2 capital consists of the eligible portion of subordinated debt and certain allowances for credit losses. Total regulatory capital is the sum of Tier 1 and Tier 2 capital.

The Bank and all other major Canadian banks have to maintain minimum capital ratios established by OSFI: a CET1 capital ratio of at least 10.5%, a Tier 1 capital ratio of at least 12.0%, and a Total capital ratio of at least 14.0%. All of these ratios are to include a capital conservation buffer of 2.5% established by the BCBS and OSFI, a 1.0% surcharge applicable solely to D-SIBs, and a 2.5% domestic stability buffer. On June 17, 2021, OSFI raised the domestic stability buffer from 1.0% to 2.5% effective on October 31, 2021. The domestic stability buffer, which varies from 0% to 2.5% of risk-weighted assets, consists exclusively of CET1 capital. A D-SIB that fails to meet this buffer requirement is not subject to automatic constraints to reduce capital distributions but must provide a remediation plan to OSFI. The banks also have to meet the capital floor that sets the regulatory capital level according to the Basel II Standardized approach. If the capital requirement under Basel III is less than 70% of the capital requirement as calculated under Basel II, the difference is added to risk-weighted assets. Lastly, OSFI is requiring Canadian banks to meet a Basel III leverage ratio of at least 3.0%. The leverage ratio is a measure independent of risk that is calculated by dividing the amount of Tier 1 capital by total exposure. Total exposure is defined as the sum of on-balance-sheet assets (including derivative exposures and securities financing transaction exposures) and off-balance-sheet items. The assets deducted from Tier 1 capital are also deducted from total exposure.

During the years ended October 31, 2021 and 2020, the Bank was in compliance with all of OSFI's regulatory capital requirements.

(millions of Canadian dollars)

Note 20 – Capital Disclosure (cont.)

Regulatory Capital and Ratios Under Basel III[1]

As at October 31	2021		2020	
	Adjusted[2]		Adjusted[2]	
Capital				
CET1	12,866	12,973	10,924	11,167
Tier 1	15,515	15,622	13,869	14,112
Total	16,643	16,643	15,167	15,167
Risk-weighted assets	104,358	104,358	94,808	94,808
Total exposure	351,160	351,160	321,038	321,038
Capital ratios				
CET1	12.3 %	12.4 %	11.5 %	11.8 %
Tier 1	14.9 %	15.0 %	14.6 %	14.9 %
Total	15.9 %	15.9 %	16.0 %	16.0 %
Leverage ratio	4.4 %	4.4 %	4.3 %	4.4 %

(1) Regulatory capital and ratios are calculated in accordance with the Basel III rules, as set out in OSFI's *Capital Adequacy Requirements* guideline.
(2) Adjusted regulatory capital and ratios are calculated in accordance with the Basel III rules, as set out in OSFI's *Capital Adequacy Requirements* guideline, and exclude the transitional measure for provisioning expected credit losses. For additional information, see the section entitled COVID-19 Pandemic – Key Measures Introduced by the Regulatory Authorities on page 17 of the MD&A.

Note 21 – Trading Activity Revenues

Trading activity revenues consist of the net interest income and the non-interest income related to trading activities.

Net interest income comprises dividends related to financial assets and liabilities associated with trading activities, net of interest expenses and interest income related to the financing of these financial assets and liabilities.

Non-interest income consists of realized and unrealized gains and losses as well as interest income on securities measured at fair value through profit or loss, income from held-for-trading derivative financial instruments, changes in the fair value of loans at fair value through profit or loss, changes in the fair value of financial instruments designated at fair value through profit or loss, certain commission income as well as other income related to trading activities, and any applicable transaction costs.

Year ended October 31	2021	2020[1]
Net interest income	777	522
Non-interest income	282	625
	1,059	1,147

(1) For the year ended October 31, 2020, certain amounts have been reclassified, notably to better reflect the nature of the revenues reported in the Wealth Management segment.

(millions of Canadian dollars)

Note 22 – Share-Based Payments

The compensation expense information provided below excludes the impact of hedging.

Stock Option Plan

The Bank's Stock Option Plan is for officers and other designated persons of the Bank and its subsidiaries. Under this plan, options are awarded annually and provide participants with the right to purchase common shares at an exercise price equal to the closing price of the Bank's common share on the Toronto Stock Exchange on the day preceding the award. The options vest evenly over a four-year period and expire ten years from the award date or, in certain circumstances set out in the plan, within specified time limits. The Stock Option Plan contains provisions for retiring employees that allow the participant's rights to continue vesting in accordance with the stated terms of the grant agreement. The maximum number of common shares that may be issued under the Stock Option Plan was 22,935,672 as at October 31, 2021 (17,365,705 as at October 31, 2020). The number of common shares reserved for a participant may not exceed 5% of the total number of Bank shares issued and outstanding.

As at October 31		2021		2020
	Number of options	**Weighted average exercise price**	Number of options	Weighted average exercise price
Stock Option Plan				
Outstanding at beginning	**11,425,403**	**$ 53.96**	12,103,626	$ 49.15
Awarded	**2,043,196**	**$ 71.55**	1,789,280	$ 71.86
Exercised	**(1,930,033)**	**$ 47.96**	(2,318,926)	$ 42.18
Cancelled[1]	**(189,886)**	**$ 67.02**	(148,577)	$ 60.99
Outstanding at end	**11,348,680**	**$ 57.93**	11,425,403	$ 53.96
Exercisable at end	**6,737,850**	**$ 50.81**	6,908,779	$ 47.05

(1) Includes 35,342 expired options during the year ended October 31, 2021 (1,800 expired options during the year ended October 31, 2020).

Exercise price	Options outstanding	Options exercisable	Expiry date
$34.09	469,944	469,944	December 2021
$38.36	579,123	579,123	December 2022
$44.96	805,068	805,068	December 2023
$47.93	1,036,567	1,036,567	December 2024
$42.17	832,244	832,244	December 2025
$54.69	969,582	969,582	December 2026
$64.14	1,313,992	910,503	December 2027
$58.79	1,709,075	749,457	December 2028
$71.86	1,646,805	385,362	December 2029
$71.55	1,986,280	–	December 2030
	11,348,680	6,737,850	

During the year ended October 31, 2021, the Bank awarded 2,043,196 stock options (1,789,280 stock options during the year ended October 31, 2020) with an average fair value of $8.24 per option ($5.11 for the year ended October 31, 2020).

The average fair value of options awarded was estimated on the award date using the Black-Scholes model as well as the following assumptions.

Year ended October 31	**2021**	2020
Risk-free interest rate	**1.02%**	1.94%
Expected life of options	**7 years**	7 years
Expected volatility	**22.59%**	14.97%
Expected dividend yield	**4.24%**	4.29%

(millions of Canadian dollars)

Note 22 – Share-Based Payments (cont.)

The expected life of the options is based on historical data and is not necessarily representative of how options will be exercised in the future. Expected volatility is extrapolated from the implied volatility of the Bank's share price and observable market inputs, which are not necessarily representative of actual results. The expected dividend yield represents the annualized dividend divided by the Bank's share price at the award date. The risk-free interest rate is based on the Canadian dollar swap curve at the award date. The exercise price is equal to the Bank's share price at the award date. No other market parameter has been included in the fair value measurement of the options.

An $11 million compensation expense was recognized in the Consolidated Statement of Income for the year ended October 31, 2021 with respect to this plan ($9 million for the year ended October 31, 2020).

Stock Appreciation Rights (SAR) Plan

The SAR Plan is for officers and other designated persons of the Bank and its subsidiaries. Under this plan, participants receive, upon exercising the right, a cash amount equal to the difference between the closing price of the Bank's common share on the Toronto Stock Exchange on the day preceding the exercise date and the closing price on the day preceding the award date. SARs vest evenly over a four-year period and expire 10 years after the award date or, in certain circumstances set out in the plan, within specified time limits. The SAR Plan contains provisions for retiring employees that allow the participant's rights to continue vesting in accordance with the stated terms of the grant agreement. A $7 million compensation expense was recognized in the Consolidated Statement of Income for the year ended October 31, 2021 with respect to this plan (a negligible amount for the year ended October 31, 2020).

As at October 31		2021		2020
	Number of SARs	**Weighted average exercise price**	Number of SARs	Weighted average exercise price
SAR Plan[1]				
Outstanding at beginning	**292,896**	**$ 53.66**	334,997	$ 49.61
Awarded	**30,504**	**$ 71.55**	42,876	$ 71.86
Exercised	**(57,325)**	**$ 44.88**	(84,977)	$ 46.88
Outstanding at end	**266,075**	**$ 57.61**	292,896	$ 53.66
Exercisable at end	**164,225**	**$ 51.43**	167,545	$ 45.87

(1) No SARs cancelled or expired during the years ended October 31, 2021 and 2020.

Exercise price	SARs outstanding	SARs exercisable	Expiry date
$34.09	4,150	4,150	December 2021
$38.36	14,904	14,904	December 2022
$44.96	21,136	21,136	December 2023
$47.93	31,572	31,572	December 2024
$42.17	19,748	19,748	December 2025
$54.69	28,079	28,079	December 2026
$64.14	41,320	25,615	December 2027
$58.79	31,786	8,302	December 2028
$71.86	42,876	10,719	December 2029
$71.55	30,504	–	December 2030
	266,075	164,225	

Deferred Stock Unit (DSU) Plans

The DSU Plans are for officers and other designated persons of the Bank and its subsidiaries as well as directors. These plans allow the Bank to tie a portion of the value of the compensation of participants to the future value of the Bank's common shares. A DSU is a right that has a value equal to the closing price of a common share of the Bank on the Toronto Stock Exchange on the day preceding the award. DSUs generally vest evenly over four years. Additional DSUs are credited to the accounts of participants in an amount equal to the dividends declared on Bank common shares and vest evenly over the same period as the reference DSUs. DSUs may be cashed only when participants retire or leave the Bank or, for directors, when their term ends. The DSU Plans contain provisions for retiring employees whereby participants may continue vesting units in accordance with the stated terms of the award agreement.

During the year ended October 31, 2021, the Bank awarded 55,545 DSUs at a weighted average price of $75.55 (44,292 DSUs at a weighted average price of $67.35 for the year ended October 31, 2020). A total of 514,841 DSUs were outstanding as at October 31, 2021 (483,009 DSUs as at October 31, 2020). A $23 million compensation expense was recognized in the Consolidated Statement of Income for the year ended October 31, 2021 with respect to these plans ($3 million for the year ended October 31, 2020).

Restricted Stock Unit (RSU) Plan

The RSU Plan is for certain officers and other designated persons of the Bank and its subsidiaries. The objective of this plan is to ensure that the compensation of certain officers and other designated persons is competitive and to foster retention. An RSU represents a right that has a value equal to the average closing price of the Bank's common share, as published by the Toronto Stock Exchange, over the ten trading days preceding the sixth business day in December. RSUs generally vest evenly over three years, although some RSUs vest on the sixth business day of December of the third year following the date of the award, the date on which all RSUs expire. Additional RSUs are credited to the accounts of participants in an amount equal to the dividends declared on the Bank common shares and vest over the same period as the reference RSUs. The RSU Plan contains provisions for retiring employees whereby participants may continue vesting units in accordance with the stated terms of the award agreement.

During the year ended October 31, 2021, the Bank awarded 1,960,326 RSUs at a weighted average price of $72.76 (1,868,580 RSUs at a weighted average price of $71.36 for the year ended October 31, 2020). As at October 31, 2021, a total of 4,398,019 RSUs were outstanding (4,606,456 RSUs as at October 31, 2020). A $256 million compensation expense was recognized in the Consolidated Statement of Income for the year ended October 31, 2021 with respect to this plan ($135 million for the year ended October 31, 2020).

Performance Stock Unit (PSU) Plan

The PSU Plan is for officers and other designated persons of the Bank. The objective of this plan is to tie a portion of the value of the compensation of these officers and other designated persons to the future value of the Bank's common shares. A PSU represents a right that has a value equal to the average closing price of the Bank's common share, as published by the Toronto Stock Exchange, over the ten trading days preceding the sixth business day in December, adjusted upward or downward according to performance criteria, which is based on the Bank's total shareholder return (TSR) growth index over three years compared to the average TSR growth index of the comparator group composed of Canadian banks over three years. PSUs vest on the sixth business day of December of the third year following the date of the award, the date on which all PSUs expire. Additional PSUs are credited to the accounts of participants in an amount equal to the dividends declared on the Bank's common shares and vest over the same period as the reference PSUs. The PSU Plan contains provisions for retiring employees whereby participants may continue vesting units in accordance with the stated terms of the award agreement.

During the year ended October 31, 2021, the Bank awarded 235,949 PSUs at a weighted average price of $72.76 (235,987 PSUs at a weighted average price of $71.36 for the year ended October 31, 2020). As at October 31, 2021, a total of 794,440 PSUs were outstanding (796,340 PSUs as at October 31, 2020). A $42 million compensation expense was recognized in the Consolidated Statement of Income for the year ended October 31, 2021 with respect to this plan ($25 million for the year ended October 31, 2020).

Deferred Compensation Plan

This plan is exclusively for key employees of the Wealth Management segment. The purpose of this plan is to foster the retention of key employees and promote the growth in income and the continuous improvement in profitability at the Wealth Management segment. Under this plan, participants can defer a portion of their annual compensation, and the Bank may pay a contribution to key employees when certain financial objectives are met. Amounts awarded by the Bank and the compensation deferred by participants are invested in, among other items, Bank common share units. These share units represent a right, the value of which corresponds to the closing price of the Bank's common share on the Toronto Stock Exchange on the award date. Additional units are paid to the accounts of participants in an amount equal to the dividends declared on the Bank's common shares. Share units representing the amounts awarded by the Bank vest evenly over four years. When a participant retires, or in certain cases when the participant's employment ceases, the participant receives a cash amount representing the value of the vested share units.

During the year ended October 31, 2021, the Bank awarded 124,981 share units at a weighted average price of $80.23 (137,465 share units at a weighted average price of $69.80 for the year ended October 31, 2020). As at October 31, 2021, a total of 2,038,003 share units were outstanding (1,904,866 share units as at October 31, 2020). During the year ended October 31, 2021, an $83 million compensation expense was recognized in the Consolidated Statement of Income for this plan ($2 million for the year ended October 31, 2020).

Employee Share Ownership Plan

Under the Bank's Employee Share Ownership Plan, employees who meet the eligibility criteria can contribute up to 8% of their annual gross salary by way of payroll deductions. The Bank matches 25% of the employee contribution up to a maximum of $1,500 per annum. Bank contributions vest to the employee after one year of uninterrupted participation in the plan. Subsequent contributions vest immediately. The Bank's contributions, amounting to $14 million for the year ended October 31, 2021 ($13 million for the year ended October 31, 2020), were recognized when paid in the *Compensation and employee benefits* item of the Consolidated Statement of Income. As at October 31, 2021, a total of 6,149,769 common shares were held for this plan (6,167,265 common shares as at October 31, 2020).

Plan shares are purchased on the open market and are considered to be outstanding for earnings per share calculations. Dividends paid on the Bank's common shares held for the Employee Share Ownership Plan are used to purchase other common shares on the open market.

Plan Liabilities and Intrinsic Value

Total liabilities arising from the Bank's share-based compensation plans amounted to $816 million as at October 31, 2021 ($507 million as at October 31, 2020). The intrinsic value of these liabilities that had vested as at October 31, 2021 was $364 million ($213 million as at October 31, 2020).

(millions of Canadian dollars)

Note 23 – Employee Benefits – Pension Plans and Other Post-Employment Benefits

The Bank offers defined benefit pension plans and other post-employment benefit plans to eligible employees. The pension plans provide benefits based on years of plan participation and average earnings at retirement. Other post-employment benefit plans include post-employment medical, dental, and life insurance coverage. While pension plans are funded, the other plans are not. The fair value of plan assets and the present value of defined benefit obligations are measured as at October 31.

The Bank's most significant pension plan is the *Employee Pension Plan of the National Bank of Canada*; it is registered with OSFI and the Canada Revenue Agency and subject to the *Pension Benefits Standards Act, 1985* and the *Income Tax Act*.

The defined benefit plans expose the Bank to specific risks such as investment performance, changes to the discount rate used to calculate the obligation, the longevity of plan members and future inflation. While management believes that the assumptions used in the actuarial valuation process are reasonable, there remains a degree of risk and uncertainty that may cause future results to differ significantly from these assumptions, which could give rise to gains or losses.

According to the Bank's governance rules, the policies and risk management related to the defined benefit plans are overseen at different levels by the pension committees, the Bank's management, and the Board's Human Resources Committee. The defined benefit plans are examined on an ongoing basis in order to monitor the funding and investment policies, the financial status of the plans, and the Bank's funding requirements.

The Bank's funding policy for the defined benefit pension plans is to make at least the minimum annual contributions required by pension regulators.

For funded plans, the Bank determines whether an economic benefit exists in the form of potential reductions in future contributions and in the form of refunds from the plan surplus, where permitted by applicable regulations and plan provisions.

Defined Benefit Obligation, Plan Assets and Funded Status

As at October 31

		Pension plans	Other post-employment benefit plans	
	2021	2020	**2021**	2020
Defined benefit obligation				
Balance at beginning	**5,027**	4,703	**156**	157
Current service cost	**146**	126	**1**	2
Interest cost	**149**	148	**4**	5
Remeasurements				
Actuarial (gains) losses arising from changes in demographic assumptions	**9**	5	**1**	1
Actuarial (gains) losses arising from changes in financial assumptions	**(538)**	195	**(14)**	1
Actuarial (gains) losses arising from experience adjustments	**107**	–	**4**	(1)
Employee contributions	**58**	54		
Benefits paid	**(213)**	(204)	**(9)**	(9)
Balance at end	**4,745**	5,027	**143**	156
Plan assets				
Fair value at beginning	**5,153**	4,569		
Interest income	**148**	140		
Administration cost	**(4)**	(3)		
Remeasurements				
Return on plan assets (excluding interest income)	**214**	525		
Bank contributions(1)	**80**	72		
Employee contributions	**58**	54		
Benefits paid	**(213)**	(204)		
Fair value at end	**5,436**	5,153		
Defined benefit asset (liability) at end	**691**	126	**(143)**	(156)

(1) For fiscal 2022, the Bank expects to pay an employer contribution of $86 million to the defined benefit pension plans.

(millions of Canadian dollars)

Defined Benefit Asset (Liability)

As at October 31

	Pension plans		Other post-employment benefit plans	
	2021	2020	**2021**	2020
Defined benefit asset included in *Other assets*	**691**	126		
Defined benefit liability included in *Other liabilities*	**–**	–	**(143)**	(156)
	691	126	**(143)**	(156)

Cost for Pension Plans and Other Post-Employment Benefits

Year ended October 31

	Pension plans		Other post-employment benefit plans	
	2021	2020	**2021**	2020
Current service cost	**146**	126	**1**	2
Interest expense (income), net	**1**	8	**4**	5
Administration costs	**4**	3		
Expense recognized in *Net income*	**151**	137	**5**	7
Remeasurements(1)				
Actuarial (gains) losses on defined benefit obligation	**(422)**	200	**(9)**	1
Return on plan assets(2)	**(214)**	(525)		
Remeasurements recognized in *Other comprehensive income*	**(636)**	(325)	**(9)**	1
	(485)	(188)	**(4)**	8

(1) Changes related to the discount rate and to the return on plan assets are reviewed and updated on a quarterly basis. All other assumptions are updated annually.
(2) Excludes interest income.

Allocation of the Fair Value of Pension Plan Assets

As at October 31			**2021**			2020
	Quoted in an active market(1)	**Not quoted in an active market**	**Total**	Quoted in an active market(1)	Not quoted in an active market	Total
Asset classes						
Cash and cash equivalents	**–**	**171**	**171**	–	135	135
Equity securities	**1,290**	**935**	**2,225**	1,432	613	2,045
Debt securities						
Canadian government	**175**	**–**	**175**	48	–	48
Canadian provincial and municipal governments	**–**	**1,593**	**1,593**	–	1,656	1,656
Other issuers	**–**	**1,248**	**1,248**	–	1,125	1,125
Other	**–**	**24**	**24**	–	144	144
	1,465	**3,971**	**5,436**	1,480	3,673	5,153

(1) Unadjusted quoted prices in active markets for identical assets that the Bank can access at the measurement date.

The Bank's investment strategy for plan assets considers several factors, including the time horizon of pension plan obligations and investment risk. For each plan, an allocation range per asset class is defined using a mix of equity and debt securities to optimize the risk-return profile of plan assets and minimize asset/liability mismatching.

The pension plan assets may include investment securities issued by the Bank. As at October 31, 2021 and 2020, the pension plan assets do not include any securities issued by the Bank.

For fiscal 2021, the Bank and its related entities received $15 million ($11 million in fiscal 2020) in fees from the pension plans for related management, administration and custodial services.

(millions of Canadian dollars)

Note 23 – Employee Benefits – Pension Plans and Other Post-Employment Benefits (cont.)

Allocation of the Defined Benefit Obligation by the Status of Defined Benefit Plan Participants

As at October 31

	Pension plans		Other post-employment benefit plans	
	2021	2020	**2021**	2020
Active employees	**42 %**	42 %	**13 %**	14 %
Retirees	**51 %**	51 %	**87 %**	86 %
Participants with deferred vested benefits	**7 %**	7 %		
	100 %	100 %	**100 %**	100 %
Weighted average duration of the defined benefit obligation *(in years)*	**16**	17	**12**	13

Significant Actuarial Assumptions (Weighted Average)

Discount Rate

The discount rate assumption is based on an interest rate curve that represents the yields on corporate AA bonds. Short-term maturities are obtained using a curve based on observed data from corporate AA bonds. Long-term maturities are obtained using a curve based on observed data and extrapolated data.

To measure the pension plan and other post-employment plan obligation, the vested benefits that the Bank expects to pay in each future period are discounted to the measurement date using the spot rate associated with each of the respective periods based on the yield curve derived using the above methodology. The sum of discounted benefit amounts represents the defined benefit obligation. An average discount rate that replicates this obligation is then computed.

To better reflect current service cost, a separate discount rate was determined to account for the timing of future benefit payments associated with the additional year of service to be earned by the plan's active participants. Since these benefits are, on average, being paid at a later date than the benefits already earned by participants as a whole (i.e., longer duration), this method results in the use of a generally higher discount rate for calculating current service cost than that used to measure obligations where the yield curve is positively sloped. The methodology used to determine this discount rate is the same as the one used to establish the discount rate for measuring the obligation.

Other Assumptions

For measurement purposes, the estimated annual growth rate for health care costs was 4.52% as at October 31, 2021 (4.64% as at October 31, 2020). Based on the assumption retained, this rate is expected to decrease gradually to 3.28% in 2041 and remain steady thereafter.

Mortality assumptions are a determining factor when measuring the defined benefit obligation. Determining the expected benefit payout period is based on best estimate assumptions regarding mortality. Mortality tables are reviewed at least once a year, and the assumptions made are in accordance with accepted actuarial practice. New results regarding the plans are reviewed and used in calculating best estimates of future mortality.

As at October 31

	Pension plans		Other post-employment benefit plans	
	2021	2020	**2021**	2020
Defined benefit obligation				
Discount rate	**3.55 %**	2.90 %	**3.55 %**	2.90 %
Rate of compensation increase	**3.00 %**	3.00 %	**3.00 %**	3.00 %
Health care cost trend rate			**4.52 %**	4.64 %
Life expectancy *(in years)* at 65 for a participant currently at				
Age 65				
Men	**21.4**	21.3	**21.4**	21.3
Women	**23.7**	23.7	**23.7**	23.7
Age 45				
Men	**22.4**	22.4	**22.4**	22.4
Women	**24.7**	24.6	**24.7**	24.6

(millions of Canadian dollars)

Year ended October 31

	Pension plans		Other post-employment benefit plans	
	2021	2020	**2021**	2020
Pension plan expense				
Discount rate – Current service	**3.10 %**	3.20 %	**3.10 %**	3.20 %
Discount rate – Interest expense (income), net	**2.90 %**	3.10 %	**2.90 %**	3.10 %
Rate of compensation increase	**3.00 %**	3.00 %	**3.00 %**	3.00 %
Health care cost trend rate			**4.64 %**	5.17 %
Life expectancy *(in years)* at 65 for a participant currently at				
Age 65				
Men	**21.3**	21.2	**21.3**	21.2
Women	**23.7**	23.6	**23.7**	23.6
Age 45				
Men	**22.4**	22.3	**22.4**	22.3
Women	**24.6**	24.5	**24.6**	24.5

Sensitivity of Significant Assumptions for 2021

The following table shows the potential impacts of changes to key assumptions on the defined benefit obligation of the pension plans and other post-employment benefit plans as at October 31, 2021. These impacts are hypothetical and should be interpreted with caution, as changes in each significant assumption may not be linear.

As at October 31, 2021

	Pension plans	Other post-employment benefit plans
	Change in the obligation	Change in the obligation
Impact of a 0.25% increase in the discount rate	(185)	(4)
Impact of a 0.25% decrease in the discount rate	198	4
Impact of a 0.25% increase in the rate of compensation increase	35	
Impact of a 0.25% decrease in the rate of compensation increase	(34)	
Impact of a 1.00% increase in the health care cost trend rate		6
Impact of a 1.00% decrease in the health care cost trend rate		(5)
Impact of an increase in the age of participants by one year	(121)	(2)
Impact of a decrease in the age of participants by one year	118	2

Projected Benefit Payments

Year ended October 31

	Pension plans	Other post-employment benefit plans
2022	221	10
2023	228	9
2024	235	9
2025	242	9
2026	249	8
2027 to 2031	1,362	37

(millions of Canadian dollars)

Note 24 – Income Taxes

The Bank's income tax expense reported in the consolidated financial statements is as follows.

Year ended October 31	2021	2020
Consolidated Statement of Income		
Current taxes		
Current year	779	638
Prior period adjustments	(3)	(27)
	776	611
Deferred taxes		
Origination and reversal of temporary differences	109	(193)
Prior period adjustments	10	35
	119	(158)
	895	453
Consolidated Statement of Changes in Equity		
Share issuance expenses, other equity instruments and other	(10)	(2)
Consolidated Statement of Comprehensive Income		
Remeasurements of pension plans and other post-employment benefit plans	170	86
Net change in cash flow hedges	109	(99)
Other	45	(13)
	324	(26)
Income taxes	1,209	425

The breakdown of the income tax expense is as follows.

Year ended October 31	2021	2020
Current taxes	916	511
Deferred taxes	293	(86)
	1,209	425

The temporary differences and tax loss carryforwards resulting in deferred tax assets and liabilities are as follows.

	As at October 31 Consolidated Balance Sheet		Year ended October 31 Consolidated Statement of Income		Year ended October 31 Consolidated Statement of Comprehensive Income	
	2021	2020	2021	2020	2021	2020
Deferred tax assets						
Allowances for credit losses	225	326	(101)	176	–	–
Deferred charges	354	265	89	1	–	–
Defined benefit liability – Pension plans	–	–	–	–	–	(78)
Defined benefit liability – Other post-employment benefit plans	47	52	(3)	1	(2)	1
Investments in associates	57	98	(41)	15	–	1
Leases liabilities	132	145	(13)	145	–	–
Deferred revenue	51	47	4	6	–	–
Tax loss carryforwards	33	40	(7)	(55)	–	–
Other items(1)	29	59	(31)	(13)	–	–
	928	1,032	(103)	276	(2)	(76)
Deferred tax liabilities						
Premises and equipment and intangible assets	(361)	(326)	(29)	(138)	–	–
Defined benefit asset – Pension plans	(178)	(26)	16	16	(168)	(9)
Investments in associates	–	(4)	4	12	–	–
Other items(2)	(45)	(33)	(7)	(8)	(5)	12
	(584)	(389)	(16)	(118)	(173)	3
Net deferred tax assets (liabilities)	344	643	(119)	158	(175)	(73)

(1) As at October 31, 2021, the Consolidated Balance Sheet included $1 million in deferred tax assets related to share issuance costs ($1 million as at October 31, 2020) reported in *Retained earnings* on the Consolidated Statement of Changes in Equity.
(2) As at October 31, 2021, the amount on the Consolidated Balance Sheet included $6 million in deferred tax liabilities related to intangible assets acquired during the Flinks acquisition that had no impact on the Consolidated Statement of Comprehensive Income. For additional information, see Note 31 to these consolidated financial statements.

(millions of Canadian dollars)

Net deferred tax assets are included in *Other assets* and net deferred tax liabilities are included in *Other liabilities*.

As at October 31	2021	2020
Deferred tax assets	354	643
Deferred tax liabilities	(10)	–
	344	643

According to forecasts, which are based on information available on October 31, 2021, the Bank believes that it is probable that the results of future operations will generate sufficient taxable income to utilize all the deferred tax assets before they expire.

As at October 31, 2021, the total amount of temporary differences, unused tax loss carryforwards, and unused tax credits for which no deferred tax asset has been recognized was $424 million ($498 million as at October 31, 2020).

As at October 31, 2021, the total amount of temporary differences related to investments in subsidiaries, associates, and joint ventures for which no deferred tax liability has been recognized was $4,383 million ($4,139 million as at October 31, 2020).

The following table provides a reconciliation of the Bank's income tax rate.

Year ended October 31	2021		2020	
	$	%	$	%
Income before income taxes	4,072	100.0	2,536	100.0
Income taxes at Canadian statutory income tax rate	1,079	26.5	672	26.5
Reduction in income tax rate due to				
Tax-exempt income from securities	(151)	(3.7)	(190)	(7.5)
Tax rates of subsidiaries, foreign entities and associates	(51)	(1.3)	(58)	(2.3)
Other items	18	0.5	29	1.2
	(184)	(4.5)	(219)	(8.6)
Income taxes reported in the Consolidated Statement of Income and effective income tax rate	895	22.0	453	17.9

Notice of Assessment

In June 2021, the Bank was reassessed by the Canada Revenue Agency (CRA) for additional income tax and interest of approximately $115 million (including estimated provincial tax and interest) in respect of certain Canadian dividends received by the Bank during 2016.

In prior fiscal years, the Bank had been reassessed for additional income tax and interest of approximately $610 million (including provincial tax and interest) in respect of certain Canadian dividends received by the Bank during the 2015, 2014, 2013 and 2012 taxation years.

In the reassessments, the CRA alleges that the dividends were received as part of a "dividend rental arrangement".

The CRA may issue reassessments to the Bank for taxation years subsequent to 2016 in regard to activities similar to those that were the subject of the above-mentioned reassessments. The Bank remains confident that its tax position was appropriate and intends to vigorously defend its position. As a result, no amount has been recognized in the consolidated financial statements as at October 31, 2021.

Note 25 – Earnings Per Share

Diluted earnings per share is calculated by dividing net income attributable to common shareholders by the weighted average number of common shares outstanding after taking into account the dilution effect of stock options using the treasury stock method and any gain (loss) on the redemption of preferred shares.

Year ended October 31	2021	2020
Basic earnings per share		
Net income attributable to the Bank's shareholders and holders of other equity instruments	3,177	2,041
Dividends on preferred shares and distributions on LRCNs	123	118
Net income attributable to common shareholders	3,054	1,923
Weighted average basic number of common shares outstanding *(thousands)*	337,212	335,508
Basic earnings per share *(dollars)*	9.06	5.73
Diluted earnings per share		
Net income attributable to common shareholders	3,054	1,923
Weighted average basic number of common shares outstanding *(thousands)*	337,212	335,508
Adjustment to average number of common shares *(thousands)*		
Stock options(1)	3,649	2,072
Weighted average diluted number of common shares outstanding *(thousands)*	340,861	337,580
Diluted earnings per share *(dollars)*	8.96	5.70

(1) For the year ended October 31, 2021, as the exercise price of the options was lower than the average price of the Bank's common shares, no options were excluded from the diluted earnings per share calculation. For the year ended October 31, 2020, the calculation of diluted earnings per share had excluded an average number of 1,585,629 options outstanding with a weighted average exercise price of $71.86, as the exercise price of these options was greater than the average price of the Bank's common shares.

Note 26 – Guarantees, Commitments and Contingent Liabilities

Guarantees

The maximum potential amount of future payments represents the maximum risk of loss if there were a total default by the guaranteed parties, without consideration of recoveries under recourse provisions, insurance policies or from collateral held or pledged. The maximum potential amount of future payments for significant guarantees issued by the Bank is presented in the following table.

As at October 31	2021	2020
Letters of guarantee(1)	6,083	5,802
Backstop liquidity, credit enhancement facilities and other(1)	7,264	7,658
Securities lending	–	92

(1) For additional information on allowances for credit losses related to off-balance-sheet commitments, see Note 7 to these consolidated financial statements.

Letters of Guarantee

In the normal course of business, the Bank issues letters of guarantee. These letters of guarantee represent irrevocable commitments that the Bank will make payments in the event that a client cannot meet its obligations to third parties. The Bank's policy for requiring collateral security with respect to letters of guarantee is similar to that for loans. Generally, the term of these letters of guarantee is less than two years.

Backstop Liquidity and Credit Enhancement Facilities

Facilities to Multi-Seller Conduits

The Bank administers multi-seller conduits that purchase financial assets from clients and finance those purchases by issuing asset-backed commercial paper. The Bank provides backstop liquidity facilities to these multi-seller conduits. As at October 31, 2021, the notional amount of the global-style backstop liquidity facilities totalled $2.8 billion ($3.2 billion as at October 31, 2020), representing the total amount of commercial paper outstanding.

These backstop liquidity facilities can be drawn if the conduits are unable to access the commercial paper market, even if there is no general market disruption. These facilities have terms of less than one year and can be periodically renewed. The terms and conditions of these backstop liquidity facilities do not require the Bank to advance money to the conduits if the conduits are insolvent or involved in bankruptcy proceedings or to fund non-performing assets beyond the amount of the available credit enhancements. The backstop liquidity facilities provided by the Bank have not been drawn to date.

(millions of Canadian dollars)

The Bank also provides credit enhancement facilities to these multi-seller conduits. These facilities have terms of less than one year and are automatically renewable unless the Bank sends a non-renewal notice. As at October 31, 2021 and 2020, the committed notional value for these facilities was $30 million. To date, the credit enhancement facilities provided by the Bank have not been drawn.

The maximum risk of loss for the Bank cannot exceed the total amount of commercial paper outstanding, i.e., $2.8 billion as at October 31, 2021 ($3.2 billion as at October 31, 2020). As at October 31, 2021, the Bank held $22 million ($123 million as at October 31, 2020) of this commercial paper and, consequently, the maximum potential amount of future payments was $2.7 billion ($3.1 billion as at October 31, 2020).

CDCC Overnight Liquidity Facility
Canadian Derivatives Clearing Corporation (CDCC) acts as a central clearing counterparty for multiple financial instrument transactions in Canada. Certain fixed-income clearing members of CDCC have provided an equally shared committed and uncommitted global overnight liquidity facility for the purpose of supporting CDCC in its clearing activities of securities purchased under reverse repurchase agreements or sold under repurchase agreements. The objective of this facility is to maintain sufficient liquidity in the event of a clearing member's default. As a fixed-income clearing member providing support to CDCC, the Bank provides a liquidity facility. As at October 31, 2021, the notional amount of the overnight uncommitted liquidity facility amounted to $4.5 billion ($4.5 billion as at October 31, 2020). As at October 31, 2021 and 2020, no amount had been drawn.

Securities Lending
Under securities lending agreements the Bank has entered into with certain clients who have entrusted it with the safekeeping of their securities, the Bank lends the securities to third parties and indemnifies its clients in the event of loss. In order to protect itself against any contingent loss, the Bank obtains, as security from the borrower, a cash amount or extremely liquid marketable securities with a fair value greater than that of the securities loaned. No amount has been recognized on the Consolidated Balance Sheet with respect to potential indemnities resulting from securities lending agreements.

Other Indemnification Agreements
In the normal course of business, including securitization transactions and discontinuances of businesses and operations, the Bank enters into numerous contractual agreements under which it undertakes to compensate the counterparty for costs incurred as a result of litigation, changes in laws and regulations (including tax legislation), claims with respect to past performance, incorrect representations or the non-performance of certain restrictive covenants. The Bank also undertakes to indemnify any person acting as a director or officer or performing a similar function within the Bank or one of its subsidiaries or another entity, at the request of the Bank, for all expenses incurred by that person in proceedings or investigations to which he or she is party in that capacity. Moreover, as a member of a securities transfer network and pursuant to the membership agreement and the regulations governing the operation of the network, the Bank granted collateral in favour of the Bank of Canada to guarantee any obligation of the Bank towards the Bank of Canada that could result from the Bank's participation in the securities transfer network. The durations of the indemnification agreements vary according to circumstance; as at October 31, 2021 and 2020, given the nature of the agreements, the Bank is unable to make a reasonable estimate of the maximum potential liability it could be required to pay to counterparties. No amount has been recognized on the Consolidated Balance Sheet with respect to these agreements.

Commitments

Credit Instruments
In the normal course of business, the Bank enters into various off-balance-sheet commitments. The credit instruments used to meet the financing needs of its clients represent the maximum amount of additional credit the Bank could be obligated to extend if the commitments were fully drawn.

As at October 31	2021	2020
Letters of guarantee(1)	6,083	5,802
Documentary letters of credit(2)	160	171
Credit card receivables(3)	9,081	7,999
Commitments to extend credit(3)	77,983	70,329

(1) See the *Letters of Guarantee* item on page 214.
(2) Documentary letters of credit are documents issued by the Bank and used in international trade to enable a third party to draw drafts on the Bank up to an amount established under specific terms and conditions; these instruments are collateralized by the delivery of the goods to which they are related.
(3) Credit card receivables and commitments to extend credit represent the undrawn portions of credit authorizations granted in the form of loans, acceptances, letters of guarantee, and documentary letters of credit. The Bank is required at all times to make the undrawn portion of the credit authorization available, subject to certain conditions.

Financial Assets Received as Collateral
As at October 31, 2021, the fair value of financial assets received as collateral that the Bank was authorized to sell or repledge was $74.8 billion ($60.6 billion as at October 31, 2020). These financial assets received as collateral consist of securities related to securities financing and derivative transactions as well as securities purchased under reverse repurchase agreements and securities borrowed.

(millions of Canadian dollars)

Note 26 – Guarantees, Commitments and Contingent Liabilities (cont.)

Other Commitments

The Bank acts as an investor in investment banking activities where it enters into agreements to finance external private equity funds and investments in equity and debt securities at market value at the time the agreements are signed. In connection with these activities, the Bank has commitments to invest up to $124 million as at October 31, 2021 ($78 million as at October 31, 2020). In addition, through one of its subsidiaries, the Bank purchases retail loans originated by other financial institutions at market value at the time of purchase. As at October 31, 2021, the Bank had commitments to purchase loans of up to $77 million (no commitments to purchase loans as at October 31, 2020). As at October 31, 2021, the Bank had no financing commitments related to securitization transactions ($200 million as at October 31, 2020).

Pledged Assets

In the normal course of business, the Bank pledges securities and other assets as collateral. A breakdown of encumbered assets pledged as collateral is provided in the following table. These transactions are concluded in accordance with standard terms and conditions for such transactions.

As at October 31	2021	2020
Assets pledged to		
Bank of Canada	502	502
Direct clearing organizations(1)	4,158	4,039
Assets pledged in relation to		
Derivative financial instrument transactions	6,339	4,380
Borrowing, securities lending and securities sold under reverse repurchase agreements	72,038	57,257
Securitization transactions	25,173	22,859
Covered bonds(2)	9,542	14,337
Other	4	4
Total	117,756	103,378

(1) Includes assets pledged as collateral for activities in the systemically important payment system (designated as Lynx) as at October 31, 2021 (Large Value Transfer System (LVTS) as at October 31, 2020).
(2) The Bank has a covered bond program. For additional information, see Notes 13 and 27 to these consolidated financial statements.

Contingent Liabilities

Litigation

In the normal course of business, the Bank and its subsidiaries are involved in various claims relating, among other matters, to loan portfolios, investment portfolios, and supplier agreements, including court proceedings, investigations or claims of a regulatory nature, class actions or other legal remedies of varied natures.

More specifically, the Bank is involved as a defendant in class actions instituted by consumers contesting, *inter alia*, certain transaction fees or who wish to avail themselves of certain legislative provisions relating to consumer protection. The recent developments in the main legal proceedings involving the Bank are as follows:

Watson

In 2011, a class action was filed in the Supreme Court of British Columbia against Visa Corporation Canada (Visa) and Mastercard International Incorporated (Mastercard) (the Networks) as well as National Bank and a number of other Canadian financial institutions. A similar action was also initiated in Quebec, Ontario, Alberta and Saskatchewan. In each of the actions, the Networks and financial institutions are alleged to have been involved in a price-fixing system to maintain and increase the fees paid by merchants on transactions executed using the credit cards of the Networks. In so doing, they would notably be in breach of the *Competition Act*. An unspecified amount of compensatory and punitive damages is being claimed. In 2017, a settlement was reached with the plaintiffs; in 2018 it was approved by the trial courts in each of the five jurisdictions where the action was initiated. The rulings approving the settlement were the subject of appeal proceedings in all jurisdictions. These appeal proceedings were all rejected during the year ended October 31, 2021, thereby confirming approval of the settlement reached in 2017 and ending the Bank's involvement in the class action.

Defrance

On January 21, 2019, the Quebec Superior Court authorized a class action against the National Bank and several other Canadian financial institutions. The originating application was served to the Bank on April 23, 2019. The class action was initiated on behalf of consumers residing in Quebec. The plaintiffs allege that non-sufficient funds charges, billed by all of the defendants when a payment order is refused due to non-sufficient funds, are illegal and prohibited by the *Consumer Protection Act*. The plaintiffs are claiming, in the form of damages, the repayment of these charges as well as punitive damages.

It is impossible to determine the outcome of the claims instituted or which may be instituted against the Bank and its subsidiaries. The Bank estimates, based on the information at its disposal, that while the amount of contingent liabilities pertaining to these claims, taken individually or in the aggregate, could have a material impact on the Bank's consolidated results of operations for a particular period, it would not have a material adverse impact on the Bank's consolidated financial position.

Note 27 – Structured Entities

A structured entity is an entity created to accomplish a narrow and well-defined objective and is designed so that voting or similar rights are not the dominant factor in deciding who controls the entity, such as when any voting rights relate solely to administrative tasks and the relevant activities are directed by means of contractual arrangements. Structured entities are assessed for consolidation in accordance with the accounting treatment described in Note 1 to these consolidated financial statements. The Bank's maximum exposure to loss resulting from its interests in these structured entities consists primarily of the investments in these entities, the fair value of derivative financial instrument contracts entered into with them, and the backstop liquidity and credit enhancement facilities granted to certain structured entities.

In the normal course of business, the Bank may enter into financing transactions with third-party structured entities, including commercial loans, reverse repurchase agreements, prime brokerage margin lending, and similar collateralized lending transactions. While such transactions expose the Bank to the counterparty credit risk of the structured entities, this exposure is mitigated by the collateral related to these transactions. The Bank typically has neither power nor significant variable returns resulting from financing transactions with structured entities and does not consolidate such entities. Financing transactions with third-party-sponsored structured entities are included in the Bank's consolidated financial statements and are not included in the table accompanying this note on page 218.

Non-Consolidated Structured Entities

Multi-Seller Conduits

The Bank administers multi-seller conduits that purchase financial assets from clients and finance those purchases by issuing commercial paper backed by the assets acquired. Clients use these multi-seller conduits to diversify their funding sources and reduce borrowing costs, while continuing to manage the financial assets and providing some amount of first-loss protection. Notes issued by the conduits and held by third parties provide additional credit loss protection. The Bank acts as a financial agent and provides these conduits with administrative and transaction structuring services as well as backstop liquidity and credit enhancement facilities under the commercial paper program. These facilities are presented and described in Note 26. The Bank has concluded derivative financial instrument contracts with these conduits, the fair value of which is presented on the Bank's Consolidated Balance Sheet. Although the Bank has the ability to direct the relevant activities of these conduits, it cannot use its power to affect the amount of the returns it obtains, as it acts as an agent. Consequently, the Bank does not control these conduits and does not consolidate them.

Investment Funds

The Bank enters into derivative or other financial instrument contracts with third parties to provide them with the desired exposure to certain investment funds. The Bank economically hedges the risks related to these derivatives by investing in those investment funds. The Bank can also hold economic interests in certain investment funds as part of its investing activities. In addition, the Bank is sponsor and investment manager of mutual funds in which it has insignificant or no interest. The Bank does not control the funds where its holdings are not significant given that, in these circumstances, the Bank either acts only as an agent or does not have any power over the relevant activities. In both cases, it does not have significant exposure to the variable returns of the funds. Therefore, the Bank does not consolidate these funds.

Private Investments

As part of its investment banking operations, the Bank invests in several limited liability partnerships and other incorporated entities. These investment companies in turn invest in operating companies with a view to reselling these investments at a profit over the medium or long term. The Bank does not intervene in the operations of these entities; its only role is that of an investor. Consequently, it does not control these companies and does not consolidate them.

Third-Party Structured Entities

The Bank has invested in third-party structured entities, some of which are asset-backed. The underlying assets consist of residential mortgages, consumer loans, equipment loans, leases, and securities. The Bank does not have the ability to direct the relevant activities of these structured entities and has no exposure to their variable returns, other than the right to receive interest income and dividend income from its investments. Consequently, the Bank does not control these structured entities and does not consolidate them.

(millions of Canadian dollars)

Note 27 – Structured Entities (cont.)

The following table presents the carrying amounts of the assets and liabilities relating to the Bank's interests in non-consolidated structured entities, the Bank's maximum exposure to loss from these interests, as well as the total assets of these structured entities. The structured entity Canada Housing Trust is not presented. For additional information, see Note 8 to these consolidated financial statements.

				As at October 31, 2021
	Multi-seller conduits(1)	Investment funds(2)	Private investments(3)	Third-party structured entities(4)
Assets on the Consolidated Balance Sheet				
Securities at fair value through profit or loss	22	197	54	–
Securities at amortized cost	–	–	–	2,942
	22	197	54	2,942
As at October 31, 2020	140	255	68	2,287
Liabilities on the Consolidated Balance Sheet				
Derivative financial instruments	(12)	–	–	(8)
	(12)	–	–	(8)
As at October 31, 2020	–	–	–	–
Maximum exposure to loss				
Securities	22	197	54	2,934
Liquidity, credit enhancement facilities and commitments	2,732	–	–	962
	2,754	197	54	3,896
As at October 31, 2020	3,366	255	68	2,712
Total assets of the structured entities	2,782	1,791	400	16,883
As at October 31, 2020	3,304	1,900	431	8,139

(1) The main underlying assets, located in Canada, are residential mortgages, automobile loans, automobile inventory financings, and other receivables. As at October 31, 2021, the notional committed amount of the global-style liquidity facilities totalled $2.8 billion ($3.2 billion as at October 31, 2020), representing the total amount of commercial paper outstanding. The Bank also provides series-wide credit enhancement facilities for a notional committed amount of $30 million ($30 million as at October 31, 2020). The maximum exposure to loss cannot exceed the amount of commercial paper outstanding. As at October 31, 2021, the Bank held $22 million in commercial paper ($123 million as at October 31, 2020) and, consequently, the maximum potential amount of future payments as at October 31, 2021 was limited to $2.7 billion ($3.1 billion as at October 31, 2020), which represents the undrawn liquidity and credit enhancement facilities.
(2) The underlying assets are various financial instruments and are presented on a net asset basis. Certain investment funds are in a trading portfolio.
(3) The underlying assets are private investments. The amount of total assets of the structured entities corresponds to the amount for the most recent available period.
(4) The underlying assets are residential mortgages, consumer loans, equipment loans, leases, and securities.

Consolidated Structured Entities

Securitization Entity for the Bank's Credit Card Receivables

In April 2015, the Bank set up Canadian Credit Card Trust II (CCCT II) to continue its credit card securitization program on a revolving basis and to use the entity for capital management and funding purposes.

The Bank provides first-loss protection against the losses, since it retains the excess spread from the portfolio of sold receivables. The excess spread represents the residual net interest income after all the expenses related to this structure have been paid. The Bank also provides second-loss protection as it holds subordinated notes issued by CCCT II. In addition, the Bank acts as an administrative agent and servicer and as such is responsible for the daily administration and management of CCCT II's credit card receivables. The Bank therefore has the ability to direct the relevant activities of CCCT II and can exercise its power to affect the amount of returns it obtains. Consequently, the Bank controls CCCT II and consolidates it.

Multi-Seller Conduit

The Bank administers a multi-seller conduit that purchases various financial assets from clients and finances those purchases by issuing debt securities (including commercial paper) backed by the assets acquired. The clients use this multi-seller conduit to diversify their funding sources and reduce borrowing costs, while continuing to manage the financial assets and providing some amount of first-loss protection. The Bank holds the sole note issued by the conduit and has concluded a derivative financial instrument contract with the conduit. The Bank controls the relevant activities of this conduit through its involvement as a financial agent, agent for administrative and transaction structuring services as well as investor in the conduit's sole note. The Bank's functions and investment in the conduit confer to it decision-making power over the composition of assets acquired by the conduit and the selection of the seller as well as some exposure to the conduit's variable returns. Therefore, the Bank consolidates this conduit.

(millions of Canadian dollars)

Investment Funds

The Bank enters into derivative or other financial instrument contracts with third parties to provide them with the desired exposure to certain investment funds. The Bank economically hedges the risks related to these derivatives by investing in those investment funds. The Bank can also hold economic interests in certain investment funds as part of its investing activities. The Bank controls the relevant activities of certain funds through its involvement as an investor and its significant exposure to their variable returns. Therefore, the Bank consolidates these funds.

Covered Bonds

NBC Covered Bond Guarantor (Legislative) Limited Partnership

In December 2013, the Bank established the covered bond legislative program under which covered bonds are issued. It therefore created NBC Covered Bond Guarantor (Legislative) Limited Partnership (the Guarantor) to guarantee payment of the principal and interest owed to the bondholders. The Bank sold uninsured residential mortgages to the Guarantor and granted it loans to facilitate the acquisition of these assets. The Bank acts as manager of the partnership and has decision-making authority over its relevant activities in accordance with the contractual terms governing the covered bond legislative program. In addition, the Bank is able, in accordance with the contractual terms governing the covered bond legislative program, to affect the variable returns of the partnership, which are directly related to the return on the mortgage loan portfolio and the interest on the loans from the Bank. Consequently, the Bank controls the partnership and consolidates it.

Third-Party Structured Entities

In 2018, the Bank, through one of its subsidiaries, provided financing to a third-party structured entity in exchange for a 100% interest in a loan portfolio, the sole asset held by that entity. The Bank controls and therefore consolidates the structured entity, as it has the ability to direct the entity's relevant activities through its involvement in the decision-making process. The Bank is also exposed to the entity's variable returns.

The following table presents the Bank's investments and other assets in the consolidated structured entities as well as the total assets of these entities.

As at October 31		2021		2020
	Investments and other assets	**Total assets(1)**	Investments and other assets	Total assets(1)
Consolidated structured entities				
Securitization entity for the Bank's credit card receivables(2)(3)	**2,410**	**2,544**	1,417	1,478
Multiseller conduit(4)	**256**	**256**	172	172
Investment funds(5)	**121**	**121**	174	174
Covered bonds(6)	**15,663**	**16,048**	16,771	17,197
Third-party structured entities(7)	**169**	**169**	191	191
	18,619	**19,138**	18,725	19,212

(1) There are restrictions that stem mainly from regulatory requirements, corporate or securities laws, and contractual arrangements that limit the ability of certain consolidated structured entities to transfer funds to the Bank.
(2) The underlying assets are credit card receivables.
(3) The Bank's investment is presented net of third-party holdings.
(4) The underlying assets, located in Canada, are residential mortgages.
(5) The underlying assets are various financial instruments and are presented on a net asset basis. Certain investment funds are in a trading portfolio.
(6) The underlying assets are uninsured residential mortgage loans of the Bank. The average maturity of these underlying assets is two years. As at October 31, 2021, the total amount of transferred mortgage loans was $15.7 billion ($16.8 billion as at October 31, 2020), and the total amount of covered bonds of $8.8 billion was recognized in *Deposits* on the Consolidated Balance Sheet ($10.1 billion as at October 31, 2020). For additional information, see Note 13 to these consolidated financial statements.
(7) The underlying assets consist of a loan portfolio.

(millions of Canadian dollars)

Note 28 – Related Party Disclosures

In the normal course of business, the Bank provides various banking services to related parties and enters into contractual agreements and other operations with related parties. The Bank considers the following to be related parties:

- its key officers and directors and members of their immediate family, i.e., spouses and children under 18 living in the same household;
- entities over which its key officers and directors and their immediate family have control or significant influence through their significant voting power;
- the Bank's associates and joint ventures;
- the Bank's pension plans (for additional information, see Note 23 to these consolidated financial statements).

According to the established definition, the Bank's key officers are those persons having authority and responsibility for planning, directing and controlling the Bank's activities, directly or indirectly.

Related Party Transactions

As at October 31

	Key officers and directors(1)		Related entities	
	2021	2020	**2021**	2020
Assets				
Mortgage loans and other loans	**21**	33	**143** (2)	347 (2)
Liabilities				
Deposits	**115**	59	**113** (3)	517 (3)
Other	**–**	–	**38**	1

(1) As at October 31, 2021, key officers, directors and their immediate family members were holding $95 million of the Bank's common and preferred shares ($66 million as at October 31, 2020).
(2) As at October 31, 2021, mortgage loans and other loans consisted of: (i) $1 million in loans to the Bank's associates ($1 million as at October 31, 2020) and (ii) $142 million in loans to entities over which the Bank's key officers, directors or their immediate family members exercise control or significant influence through significant voting power ($346 million as at October 31, 2020).
(3) As at October 31, 2021, deposits consisted of: (i) $1 million in deposits from the Bank's associates ($210 million as at October 31, 2020) and (ii) $112 million in deposits from entities over which the Bank's key officers, directors or their immediate family members exercise control or significant influence through significant voting power ($307 million as at October 31, 2020).

The contractual agreements and other transactions with related entities as well as with directors and key officers are entered into under conditions similar to those offered to non-related third parties. These agreements did not have a significant impact on the Bank's results. The Bank also offers a deferred stock unit plan to directors who are not Bank employees. For additional information, see Notes 9, 22 and 27 to these consolidated financial statements.

Compensation of Key Officers and Directors

Year ended October 31	**2021**	2020
Compensation and other short-term and long-term benefits	**23**	21
Share-based payments	**22**	21

(millions of Canadian dollars)

Principal Subsidiaries of the Bank(1)

			As at October 31, 2021	
Name	Business activity	Principal office address	Voting shares(2)	Investment at cost
Canada and United States				
National Bank Acquisition Holding Inc.	Holding company	Montreal, Canada	100%	1,785
National Bank Financial Inc.	Investment dealer	Montreal, Canada	100%	
NBF International Holdings Inc.	Holding company	Montreal, Canada	100%	
National Bank of Canada Financial Group Inc.	Holding company	New York, NY, United States	100%	
Credigy Ltd.	Holding company	Atlanta, GA, United States	100%	
National Bank of Canada Financial Inc.	Investment dealer	New York, NY, United States	100%	
National Bank Investments Inc.	Mutual funds dealer	Montreal, Canada	100%	441
National Bank Life Insurance Company	Insurance	Montreal, Canada	100%	
Natcan Trust Company	Trustee	Montreal, Canada	100%	238
National Bank Trust Inc.	Trustee	Montreal, Canada	100%	195
National Bank Realty Inc.	Real estate	Montreal, Canada	100%	80
NatBC Holding Corporation	Holding company	Hollywood, FL, United States	100%	31
Natbank, National Association	Commercial bank	Hollywood, FL, United States	100%	
Flinks Technology Inc.	Information technology	Montreal, Canada	86%	144
Other countries				
Natcan Global Holdings Ltd.	Holding company	Sliema, Malta	100%	22
NBC Global Finance Limited	Investment services	Dublin, Ireland	100%	
NBC Financial Markets Asia Limited	Investment dealer	Hong Kong, China	100%	5
Advanced Bank of Asia Limited	Commercial bank	Phnom Penh, Cambodia	100%	621
ATA IT Ltd.	Information technology	Bangkok, Thailand	100%	3

(1) Excludes consolidated structured entities. For additional information, see Note 27 to these consolidated financial statements.
(2) The Bank's percentage of voting rights in these subsidiaries.

Note 29 – Management of the Risks Associated With Financial Instruments

The Bank is exposed to credit risk, market risk, and liquidity and funding risk. The Bank's objectives, policies, and procedures for managing risk and the risk measurement methods are presented in the Risk Management section of the MD&A for the year ended October 31, 2021. Text in grey shading and tables identified with an asterisk (*) in the Risk Management section of the MD&A for the year ended October 31, 2021 are an integral part of these consolidated financial statements.

Residual Contractual Maturities of Balance Sheet Items and Off-Balance-Sheet Commitments

The following tables present balance sheet items and off-balance-sheet commitments by residual contractual maturity as at October 31, 2021 and 2020. The information gathered from this maturity analysis is a component of liquidity and funding management. However, this maturity profile does not represent how the Bank manages its interest rate risk nor its liquidity risk and funding needs. The Bank considers factors other than contractual maturity when assessing liquid assets or determining expected future cash flows.

In the normal course of business, the Bank enters into various off-balance-sheet commitments. The credit instruments used to meet the funding needs of its clients represent the maximum amount of additional credit the Bank could be obligated to extend if the commitments were fully drawn.

The Bank also has future minimum commitments under leases for premises as well as under other contracts, mainly commitments to purchase loans and contracts for outsourced information technology services. Most of the lease commitments are related to operating leases.

(millions of Canadian dollars)

Note 29 – Management of the Risks Associated With Financial Instruments (cont.)

									As at October 31, 2021	
	1 month or less	Over 1 month to 3 months	Over 3 months to 6 months	Over 6 months to 9 months	Over 9 months to 12 months	Over 1 year to 2 years	Over 2 years to 5 years	Over 5 years	No specified maturity	Total
Assets										
Cash and deposits with financial institutions	7,510	334	374	146	368	–	–	–	25,147	33,879
Securities										
At fair value through profit or loss	1,946	1,929	1,061	702	792	3,037	6,454	9,410	59,480	84,811
At fair value through other comprehensive income	1	–	1	624	63	227	4,867	3,183	617	9,583
At amortized cost	1	181	213	425	804	3,589	5,865	832	–	11,910
	1,948	2,110	1,275	1,751	1,659	6,853	17,186	13,425	60,097	106,304
Securities purchased under reverse repurchase agreements and securities borrowed	1,113	1,199	59	–	371	619	–	–	4,155	7,516
Loans(1)										
Residential mortgage	702	965	1,581	2,587	2,320	8,850	48,455	6,504	578	72,542
Personal	214	315	512	877	843	3,527	16,056	4,308	14,401	41,053
Credit card									2,150	2,150
Business and government	16,842	3,986	2,614	3,508	3,253	6,290	10,180	3,605	10,828	61,106
Customers' liability under acceptances	6,200	618	18	–	–	–	–	–	–	6,836
Allowances for credit losses									(998)	(998)
	23,958	5,884	4,725	6,972	6,416	18,667	74,691	14,417	26,959	182,689
Other										
Derivative financial instruments	1,868	3,678	1,019	2,190	823	1,865	2,491	2,550	–	16,484
Investments in associates and joint ventures									225	225
Premises and equipment									1,216	1,216
Goodwill									1,504	1,504
Intangible assets									1,510	1,510
Other assets(1)	1,829	137	148	129	56	727	88	17	1,337	4,468
	3,697	3,815	1,167	2,319	879	2,592	2,579	2,567	5,792	25,407
	38,226	13,342	7,600	11,188	9,693	28,731	94,456	30,409	122,150	355,795

(1) Amounts collectible on demand are considered to have no specified maturity.

(millions of Canadian dollars)

									As at October 31, 2021	
	1 month or less	Over 1 month to 3 months	Over 3 months to 6 months	Over 6 months to 9 months	Over 9 months to 12 months	Over 1 year to 2 years	Over 2 years to 5 years	Over 5 years	No specified maturity	Total
Liabilities and equity										
Deposits[1][2]										
Personal	1,396	3,433	4,596	2,194	1,945	4,157	6,468	4,914	40,973	70,076
Business and government	24,814	12,796	10,782	5,785	2,691	5,453	10,054	4,765	90,730	167,870
Deposit-taking institutions	1,011	128	38	66	23	1	–	36	1,689	2,992
	27,221	16,357	15,416	8,045	4,659	9,611	16,522	9,715	133,392	240,938
Other										
Acceptances	6,200	618	18	–	–	–	–	–	–	6,836
Obligations related to securities sold short[3]	186	123	182	175	22	3,099	3,743	4,797	7,939	20,266
Obligations related to securities sold under repurchase agreements and securities loaned	7,330	2,668	3,633	246	–	–	–	–	3,416	17,293
Derivative financial instruments	3,048	3,061	1,171	1,921	880	1,485	3,273	4,528	–	19,367
Liabilities related to transferred receivables[4]	–	1,688	1,523	1,054	411	5,501	10,771	4,222	–	25,170
Securitization – Credit card[5]	36	–	–	–	–	28	48	–	–	112
Lease liabilities[5]	7	15	21	22	22	88	214	186	–	575
Other liabilities – Other items[1][5]	640	477	117	125	100	41	25	75	4,014	5,614
	17,447	8,650	6,665	3,543	1,435	10,242	18,074	13,808	15,369	95,233
Subordinated debt	–	–	–	–	–	–	–	768	–	768
Equity									18,856	18,856
	44,668	25,007	22,081	11,588	6,094	19,853	34,596	24,291	167,617	355,795
Off-balance-sheet commitments										
Letters of guarantee and documentary letters of credit	320	1,561	828	2,092	793	575	74	–	–	6,243
Credit card receivables[6]									9,081	9,081
Backstop liquidity and credit enhancement facilities[7]	15	–	4,502	15	–	–	–	–	2,732	7,264
Commitments to extend credit[8]	2,848	9,139	6,195	6,737	3,872	3,105	3,667	48	42,372	77,983
Obligations related to:										
Lease commitments[9]	1	1	1	1	1	1	3	3	–	12
Other contracts[10]	54	58	50	48	46	152	19	–	124	551

(1) Amounts payable upon demand or notice are considered to have no specified maturity.
(2) The *Deposits* item is presented in greater detail than it is on the Consolidated Balance Sheet.
(3) Amounts are disclosed according to the residual contractual maturity of the underlying security.
(4) These amounts mainly include liabilities related to the securitization of mortgage loans.
(5) The *Other liabilities* item is presented in greater detail than it is on the Consolidated Balance Sheet.
(6) These amounts are unconditionally revocable at the Bank's discretion at any time.
(7) In the event of payment on one of the backstop liquidity facilities, the Bank will receive as collateral government bonds in an amount up to $4.5 billion.
(8) These amounts include $40.8 billion that is unconditionally revocable at the Bank's discretion at any time.
(9) These amounts include leases for which the underlying asset is of low value and leases other than for real estate of less than one year.
(10) These amounts include $0.3 billion in contractual commitments related to the head office building under construction.

(millions of Canadian dollars)

Note 29 – Management of the Risks Associated With Financial Instruments (cont.)

As at October 31, 2020

	1 month or less	Over 1 month to 3 months	Over 3 months to 6 months	Over 6 months to 9 months	Over 9 months to 12 months	Over 1 year to 2 years	Over 2 years to 5 years	Over 5 years	No specified maturity	Total
Assets										
Cash and deposits with financial institutions	6,126	345	372	264	488	–	–	–	21,547	29,142
Securities										
At fair value through profit or loss	4,084	2,352	2,778	603	1,832	2,383	6,080	9,413	48,801	78,326
At fair value through other comprehensive income	1	–	858	1,060	400	984	5,322	3,482	619	12,726
At amortized cost	20	256	306	367	1,678	2,218	5,450	784	–	11,079
	4,105	2,608	3,942	2,030	3,910	5,585	16,852	13,679	49,420	102,131
Securities purchased under reverse repurchase agreements and securities borrowed	7,984	1,658	133	–	–	666	–	–	4,071	14,512
Loans(1)										
Residential mortgage	1,352	1,230	2,043	3,170	3,152	9,320	38,719	5,343	630	64,959
Personal	278	447	660	796	890	3,221	13,435	3,475	14,411	37,613
Credit card									2,038	2,038
Business and government	8,815	2,548	3,608	3,971	4,208	5,679	13,563	3,622	8,408	54,422
Customers' liability under acceptances	6,049	765	52	–	–	–	–	–	–	6,866
Allowances for credit losses									(1,158)	(1,158)
	16,494	4,990	6,363	7,937	8,250	18,220	65,717	12,440	24,329	164,740
Other										
Derivative financial instruments	1,816	2,586	1,139	706	318	968	2,298	3,591	–	13,422
Investments in associates and joint ventures									409	409
Premises and equipment									1,155	1,155
Goodwill									1,414	1,414
Intangible assets									1,434	1,434
Other assets(1)	1,193	351	147	149	134	344	64	12	872	3,266
	3,009	2,937	1,286	855	452	1,312	2,362	3,603	5,284	21,100
	37,718	12,538	12,096	11,086	13,100	25,783	84,931	29,722	104,651	331,625

(1) Amounts collectible on demand are considered to have no specified maturity.

(millions of Canadian dollars)

As at October 31, 2020

	1 month or less	Over 1 month to 3 months	Over 3 months to 6 months	Over 6 months to 9 months	Over 9 months to 12 months	Over 1 year to 2 years	Over 2 years to 5 years	Over 5 years	No specified maturity	Total
Liabilities and equity										
Deposits(1)(2)										
Personal	1,845	2,728	3,462	1,647	2,084	6,909	6,958	2,962	38,904	67,499
Business and government	21,801	7,168	9,916	2,185	2,462	6,860	10,341	3,602	79,452	143,787
Deposit-taking institutions	1,435	111	14	80	17	5	1	42	2,887	4,592
	25,081	10,007	13,392	3,912	4,563	13,774	17,300	6,606	121,243	215,878
Other										
Acceptances	6,049	765	52	–	–	–	–	–	–	6,866
Obligations related to securities sold short(3)	618	620	952	69	92	1,516	2,361	4,321	5,819	16,368
Obligations related to securities sold under repurchase agreements and securities loaned	14,084	3,335	8,803	136	–	1,487	–	–	6,014	33,859
Derivative financial instruments	1,738	2,070	877	603	266	875	3,116	3,378	–	12,923
Liabilities related to transferred receivables(4)	–	2,138	311	1,850	397	3,430	11,059	3,670	–	22,855
Securitization – Credit card(5)	–	–	–	–	–	36	28	–	–	64
Lease liabilities(5)	8	14	21	22	21	85	224	233	–	628
Other liabilities – Other items(1)(5)	1,087	192	200	87	76	85	37	281	2,981	5,026
	23,584	9,134	11,216	2,767	852	7,514	16,825	11,883	14,814	98,589
Subordinated debt	–	–	–	–	–	–	–	775	–	775
Equity									16,383	16,383
	48,665	19,141	24,608	6,679	5,415	21,288	34,125	19,264	152,440	331,625
Off-balance-sheet commitments										
Letters of guarantee and documentary letters of credit	200	1,579	603	948	1,187	1,322	134	–	–	5,973
Credit card receivables(6)									7,999	7,999
Backstop liquidity and credit enhancement facilities(7)	–	15	4,502	15	–	–	–	–	3,126	7,658
Commitments to extend credit(8)	2,846	4,143	4,504	6,429	5,688	5,651	10,690	1,165	29,213	70,329
Obligations related to:										
Lease commitments(9)	1	1	2	2	1	4	2	1	–	14
Other contracts(10)	15	28	41	41	39	145	114	–	278	701

(1) Amounts payable upon demand or notice are considered to have no specified maturity.
(2) The *Deposits* item is presented in greater detail than it is on the Consolidated Balance Sheet.
(3) Amounts have been disclosed according to the residual contractual maturity of the underlying security.
(4) These amounts mainly include liabilities related to the securitization of mortgage loans.
(5) The *Other liabilities* item is presented in greater detail than it is on the Consolidated Balance Sheet.
(6) These amounts are unconditionally revocable at the Bank's discretion at any time.
(7) In the event of payment on one of the backstop liquidity facilities, the Bank will receive as collateral government bonds in an amount up to $4.5 billion.
(8) These amounts include $39.4 billion that is unconditionally revocable at the Bank's discretion at any time.
(9) These amounts include leases for which the underlying asset is of low value and leases other than for real estate of less than one year.
(10) These amounts include $0.3 billion in contractual commitments related to the head office building under construction.

(millions of Canadian dollars)

Note 30 – Segment Disclosures

The Bank carries out its activities in four business segments, which are defined below. For presentation purposes, other activities are grouped in the *Other* heading. Each reportable segment is distinguished by services offered, type of clientele, and marketing strategy.

Personal and Commercial
The Personal and Commercial segment encompasses the banking, financing, and investing services offered to individuals, advisors and businesses as well as insurance operations.

Wealth Management
The Wealth Management segment comprises investment solutions, trust services, banking services, lending services and other wealth management solutions offered through internal and third-party distribution networks.

Financial Markets
The Financial Markets segment encompasses corporate banking and investment banking and financial solutions for large and mid-size corporations, public sector organizations, and institutional investors.

U.S. Specialty Finance and International (USSF&I)
The USSF&I segment encompasses the specialty finance expertise provided by the Credigy subsidiary; the activities of the ABA Bank subsidiary, which offers financial products and services to individuals and businesses in Cambodia; and the activities of targeted investments in certain emerging markets.

Other
This heading encompasses treasury activities; liquidity management; Bank funding; asset/liability management activities; the activities of the Flinks subsidiary, which offers fintech services; certain specified items; and the unallocated portion of corporate units.

The segment disclosures have been prepared in accordance with the accounting policies described in Note 1 to these consolidated financial statements, except for the net interest income, non-interest income, and income taxes (recovery) of the operating segments, which are presented on a taxable equivalent basis. Taxable equivalent basis is a calculation method that consists in grossing up certain tax-exempt income by the amount of income tax that would have otherwise been payable. The effect of these adjustments is reversed under the *Other* heading. Operations support charges are allocated to each operating segment presented in the business segment results. The Bank assesses performance based on the net income attributable to the Bank's shareholders and holders of other equity instruments. Intersegment revenues are recognized at the exchange amount. Segment assets correspond to average assets used in segment operations.

Results by Business Segment

Year ended October 31[(1)]

	Personal and Commercial		Wealth Management		Financial Markets		USSF&I		Other		Total	
	2021	2020	**2021**	2020	**2021**	2020	**2021**	2020	**2021**	2020	**2021**	2020
Net interest income[(2)]	**2,583**	2,445	**448**	442	**1,226**	946	**907**	807	**(381)**	(385)	**4,783**	4,255
Non-interest income[(2)(3)]	**1,103**	1,012	**1,721**	1,417	**920**	1,108	**94**	13	**306**	122	**4,144**	3,672
Total revenues	**3,686**	3,457	**2,169**	1,859	**2,146**	2,054	**1,001**	820	**(75)**	(263)	**8,927**	7,927
Non-interest expenses[(4)]	**1,958**	1,892	**1,277**	1,125	**880**	812	**315**	319	**423**	397	**4,853**	4,545
Income before provisions for credit losses and income taxes	**1,728**	1,565	**892**	734	**1,266**	1,242	**686**	501	**(498)**	(660)	**4,074**	3,382
Provisions for credit losses	**6**	517	**1**	7	**10**	239	**(15)**	80	**–**	3	**2**	846
Income before income taxes (recovery)	**1,722**	1,048	**891**	727	**1,256**	1,003	**701**	421	**(498)**	(663)	**4,072**	2,536
Income taxes (recovery)[(2)]	**456**	278	**236**	192	**333**	265	**146**	69	**(276)**	(351)	**895**	453
Net income	**1,266**	770	**655**	535	**923**	738	**555**	352	**(222)**	(312)	**3,177**	2,083
Non-controlling interests	**–**	–	**–**	–	**–**	–	**–**	34	**–**	8	**–**	42
Net income attributable to the Bank's shareholders and holders of other equity instruments	**1,266**	770	**655**	535	**923**	738	**555**	318	**(222)**	(320)	**3,177**	2,041
Average assets	**127,716**	117,338	**7,146**	5,917	**150,147**	123,943	**16,150**	14,336	**62,503**	56,665	**363,662**	318,199

(1) For the year ended October 31, 2020, certain amounts have been reclassified.
(2) For the year ended October 31, 2021, *Net interest income* was grossed up by $181 million ($208 million in 2020), *Non-interest income* was grossed up by $8 million ($57 million in 2020), and an equivalent amount was recognized in *Income taxes (recovery)*. The effect of these adjustments is reversed under the *Other* heading.
(3) For the *Other* heading of segment results, for the year ended October 31, 2021, the *Non-interest income* item included a $33 million gain following a remeasurement of the previously held equity interest in Flinks and a $30 million loss related to the fair value measurement of the Bank's equity interest in AfrAsia. For the *Other* heading of segment results, for the year ended October 31, 2020, the *Non-interest income* item had included a foreign currency translation loss of $24 million following a disposal, through the Credigy Ltd. subsidiary, of two subsidiaries in Brazil.
(4) For the year ended October 31, 2021, for the *Other* heading of segment results, the *Non-interest expenses* item included impairment losses on intangible assets of $9 million related to technology developments. For the year ended October 31, 2020, for the *Other* heading of segment results, the *Non-interest expenses* item had included impairment losses on premises and equipment and on intangible assets of $71 million, related to computer equipment and technology developments, a $13 million charge related to Maple, and $48 million in severance pay.

(millions of Canadian dollars)

Results by Geographic Segment

Year ended October 31

	Canada		United States		Other		Total	
	2021	2020	**2021**	2020	**2021**	2020	**2021**	2020
Net interest income	**3,592**	3,239	**623**	642	**568**	374	**4,783**	4,255
Non-interest income[(1)]	**3,992**	3,574	**106**	5	**46**	93	**4,144**	3,672
Total revenues	**7,584**	6,813	**729**	647	**614**	467	**8,927**	7,927
Non-interest expenses[(2)]	**4,428**	4,124	**203**	209	**222**	212	**4,853**	4,545
Income before provisions for credit losses and income taxes	**3,156**	2,689	**526**	438	**392**	255	**4,074**	3,382
Provisions for credit losses	**17**	766	**(41)**	59	**26**	21	**2**	846
Income before income taxes	**3,139**	1,923	**567**	379	**366**	234	**4,072**	2,536
Income taxes	**687**	343	**133**	68	**75**	42	**895**	453
Net income	**2,452**	1,580	**434**	311	**291**	192	**3,177**	2,083
Non-controlling interests	**–**	18	**–**	24	**–**	–	**–**	42
Net income attributable to the Bank's shareholders and holders of other equity instruments	**2,452**	1,562	**434**	287	**291**	192	**3,177**	2,041
Average assets	**301,120**	258,594	**27,301**	22,654	**35,241**	36,951	**363,662**	318,199

(1) For the year ended October 31, 2021, the *Non-interest income* item recorded in Canada included a $33 million gain following a remeasurement of the previously held equity interest in Flinks and a $30 million loss related to the fair value measurement of the Bank's equity interest in AfrAsia. For the year ended October 31, 2020, for the United States results, the *Non-interest income* item had included a foreign currency translation loss of $24 million following the disposal, through the Credigy Ltd. subsidiary, of two subsidiaries in Brazil.

(2) For the year ended October 31, 2021, for the Canada results, the *Non-interest expenses* item included $9 million in impairment losses on intangible assets related to technology developments. For the year ended October 31, 2020, for the Canada results, the *Non-interest expenses* item had included $71 million in impairment losses on premises and equipment and on intangible assets related to computer equipment and technology developments, a $13 million charge related to Maple, and $48 million in severance pay.

Note 31 – Acquisitions

Acquisition of Flinks Technology Inc.

On September 8, 2021, the Bank finalized the acquisition of Flinks Technology Inc. (Flinks), a leading fintech company specialized in financial data aggregation and distribution, in which the Bank had already been holding a 30.2% equity interest. Flinks provides services to a wide North American fintech ecosystem and offers attractive data technology solutions. The acquisition strategically positions the Bank in a high-growth market to continue to enhance customer experiences and benefit from future technology-driven innovations. At the time of acquisition, the amount of which was $73 million in cash for voting preferred shares, the Bank was holding an 82.9% equity interest in Flinks, thereby giving it control thereover. Immediately after the acquisition, the Bank made an additional $30 million investment in voting preferred shares, giving the Bank an 85.9% equity interest in Flinks. The amount of the $73 million purchase price, of the fair value of the previously held equity interest, and of the estimated value of the non-controlling interest established on the acquisition date, exceeded the fair value of the net assets acquired by $101 million. This excess amount has been recorded on the Consolidated Balance Sheet as goodwill and mainly represents the expected future profits of Flinks given its favourable position in this growth market. The goodwill is not deductible for tax purposes. The previously held equity interest, accounted for as an associate, was remeasured at fair value, generating a $33 million non-taxable remeasurement gain that was reported in the *Non-interest income – Other* item of the Consolidated Statement of Income.

For the year ended October 31, 2021, the acquisition-related costs included in the *Non-interest expenses* item of the Consolidated Statement of Income were negligible. With respect to the presentation of financial results according to business segment, the gain on remeasurement of the previously held equity interest as well as the financial results of Flinks are being reported in the *Other* heading of segment results. The financial results of Flinks have been consolidated into the Bank's financial statements since September 8, 2021. During the year ended October 31, 2021, Flinks contributed approximately $1 million to the Bank's total revenues and a net loss of approximately $3 million to the Bank's total net income. If the Bank had finalized the acquisition on November 1, 2020, the Bank would have reported total revenues of approximately $8,936 million and net income of approximately $3,170 million for the year ended October 31, 2021.

(millions of Canadian dollars)

Note 31 – Acquisitions (cont.)

As at October 31, 2021, the purchase price allocation process had not been finalized as certain closing adjustments were ongoing. The estimated fair values of the assets acquired and liabilities assumed may be retrospectively adjusted to reflect new information obtained about facts and circumstances that existed as of the acquisition date during the measurement period expected to end in fiscal 2022. The table below summarizes the estimated fair values of the assets acquired and liabilities assumed as of the acquisition date.

Goodwill	**101**
Premises and equipment	**1**
Intangible assets	**24**
Other assets	**2**
	128
Other liabilities	**11**
	11
Purchase price	**73**
Previously held interest	**41**
Non-controlling interest	**3**
	117

Acquisition of the Entire Remaining Non-Controlling Interest in the Credigy Ltd. Subsidiary
On December 15, 2020, the Bank acquired the entire remaining non-controlling interest in the Credigy Ltd. subsidiary following a decision by the non-controlling shareholders to exercise their put options for an amount of $300 million according to an agreement reached in 2013. Following this transaction, Credigy Ltd. became a wholly owned subsidiary of the Bank.

Note 32 – Event After the Consolidated Balance Sheet Date

Repurchase of Common Shares
On November 30, 2021, the Bank's Board of Directors approved a normal course issuer bid, beginning December 10, 2021, to repurchase for cancellation up to 7,000,000 common shares (representing approximately 2% of its outstanding common shares) over the 12-month period ending December 9, 2022. Any repurchase through the Toronto Stock Exchange will be done at market prices. The common shares may also be repurchased through other means authorized by the Toronto Stock Exchange and applicable regulations, including private agreements or share repurchase programs under issuer bid exemption orders issued by the securities regulators. A private purchase made under an exemption order issued by a securities regulator will be done at a discount to the prevailing market price. The amounts that are paid above the average book value of the common shares are charged to *Retained earnings.* This normal course issuer bid is subject to the approval of OSFI and the Toronto Stock Exchange (TSX).

Supplementary Information

Statistical Review

As at October 31[1] (millions of Canadian dollars)	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
Consolidated Balance Sheet data										
Cash and deposits with financial institutions	**33,879**	29,142	13,698	12,756	8,802	8,183	7,567	8,086	3,596	3,249
Securities	**106,304**	102,131	82,226	69,783	65,343	64,541	56,040	52,953	53,744	54,898
Securities purchased under reverse repurchase agreements and securities borrowed	**7,516**	14,512	17,723	18,159	20,789	13,948	17,702	24,525	21,449	15,529
Loans and acceptances	**182,689**	164,740	153,251	146,082	136,457	128,036	116,676	106,959	97,338	90,922
Other assets	**25,407**	21,100	14,560	15,691	14,436	17,498	18,105	12,906	12,092	13,305
Total assets	**355,795**	331,625	281,458	262,471	245,827	232,206	216,090	205,429	188,219	177,903
Deposits	**240,938**	215,878	189,566	170,830	156,671	142,066	130,458	119,883	102,111	93,474
Other liabilities	**95,233**	98,589	75,983	76,539	75,589	77,026	72,755	73,163	74,729	73,948
Subordinated debt	**768**	775	773	747	9	1,012	1,522	1,881	2,426	2,470
Share capital and other equity instruments										
Preferred shares and other equity instruments	**2,650**	2,950	2,450	2,450	2,050	1,650	1,023	1,223	677	762
Common shares	**3,160**	3,057	2,949	2,822	2,768	2,645	2,614	2,293	2,160	2,054
Contributed surplus	**47**	47	51	57	58	73	67	52	58	58
Retained earnings	**13,028**	10,444	9,312	8,472	7,706	6,706	6,705	5,850	5,055	4,091
Accumulated other comprehensive income	**(32)**	(118)	16	175	168	218	145	289	214	255
Non-controlling interests	**3**	3	358	379	808	810	801	795	789	791
Total liabilities and equity	**355,795**	331,625	281,458	262,471	245,827	232,206	216,090	205,429	188,219	177,903
Average assets	**363,662**	318,199	286,162	265,940	248,351	235,913	222,929	206,680	193,509	181,344
Net impaired loans[2][3] under IFRS 9	**283**	465	450	404						
Net impaired loans[3] under IAS 39					206	281	254	248	183	179
Consolidated Statement of Income data										
Net interest income	**4,783**	4,255	3,596	3,382	3,436	3,205	2,929	2,761	2,478	2,365
Non-interest income	**4,144**	3,672	3,836	3,784	3,173	2,635	2,817	2,703	2,673	2,936
Total revenues	**8,927**	7,927	7,432	7,166	6,609	5,840	5,746	5,464	5,151	5,301
Non-interest expenses	**4,853**	4,545	4,301	4,063	3,857	3,875	3,665	3,423	3,206	3,207
Income before provisions for credit losses and income taxes	**4,074**	3,382	3,131	3,103	2,752	1,965	2,081	2,041	1,945	2,094
Provisions for credit losses	**2**	846	347	327	244	484	228	208	181	180
Income taxes	**895**	453	462	544	484	225	234	295	252	317
Net income	**3,177**	2,083	2,322	2,232	2,024	1,256	1,619	1,538	1,512	1,597
Non-controlling interests	**–**	42	66	87	84	75	70	69	63	61
Net income attributable to the Bank's shareholders and holders of other equity instruments	**3,177**	2,041	2,256	2,145	1,940	1,181	1,549	1,469	1,449	1,536

(1) Certain amounts from fiscal years 2013 and 2012 have been adjusted to reflect changes to accounting standards in 2014.
(2) Given the adoption of IFRS 9, all loans classified in Stage 3 of the expected credit loss model are impaired loans. Under IAS 39, loans were considered impaired according to different criteria. Net impaired loans are presented net of allowances for credit losses on Stage 3 loan amounts drawn and, in this table, the net impaired loans presented exclude POCI loans.
(3) Includes customers' liability under acceptances.

As at October 31[1]	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
Number of common shares[2] *(thousands)*	**337,912**	335,998	334,172	335,071	339,592	338,053	337,236	329,297	325,983	322,617
Number of common shareholders on record	**20,375**	20,674	20,894	21,325	21,542	21,966	22,152	22,394	22,737	23,180
Basic earnings per share[2]	**$ 9.06**	$ 5.73	$ 6.39	$ 6.01	$ 5.44	$ 3.31	$ 4.56	$ 4.36	$ 4.34	$ 4.63
Diluted earnings per share[2]	**$ 8.96**	$ 5.70	$ 6.34	$ 5.94	$ 5.38	$ 3.29	$ 4.51	$ 4.32	$ 4.31	$ 4.58
Dividend per share[2]	**$ 2.84**	$ 2.84	$ 2.66	$ 2.44	$ 2.28	$ 2.18	$ 2.04	$ 1.88	$ 1.70	$ 1.54
Share price[2]										
High	**$ 104.32**	$ 74.79	$ 68.02	$ 65.63	$ 62.74	$ 47.88	$ 55.06	$ 53.88	$ 45.24	$ 40.64
Low	**$ 65.54**	$ 38.73	$ 54.97	$ 58.69	$ 46.83	$ 35.83	$ 40.75	$ 41.60	$ 36.18	$ 31.64
Close	**$ 102.46**	$ 63.94	$ 68.02	$ 59.76	$ 62.61	$ 47.88	$ 43.31	$ 52.68	$ 45.24	$ 38.59
Book value[2]	**$ 47.95**	$ 39.97	$ 36.89	$ 34.40	$ 31.51	$ 28.52	$ 28.26	$ 25.76	$ 22.97	$ 20.02
Dividends on preferred shares										
Series 15	**–**	–	–	–	–	–	–	–	$ 0.2444	$ 1.4625
Series 16	**–**	–	–	–	–	–	–	$ 1.2125	$ 1.2125	$ 1.2125
Series 20	**–**	–	–	–	–	–	$ 1.5000	$ 1.5000	$ 1.5000	$ 1.5000
Series 21	**–**	–	–	–	–	–	–	–	$ 1.0078	$ 1.3438
Series 24	**–**	–	–	–	–	–	–	$ 0.4125	$ 1.6500	$ 1.6500
Series 26	**–**	–	–	–	–	–	–	$ 0.4125	$ 1.6500	$ 1.6500
Series 28	**–**	–	–	–	$ 0.9500	$ 0.9500	$ 0.9500	$ 0.9500	$ 0.9728	–
Series 30	**$ 1.0063**	$ 1.0063	$ 1.0156	$ 1.0250	$ 1.0250	$ 1.0250	$ 1.0250	$ 0.7849	–	–
Series 32	**$ 0.9598**	$ 0.9636	$ 0.9750	$ 0.9750	$ 0.9750	$ 0.9750	$ 1.0760	–	–	–
Series 34	**$ 0.7000**	$ 1.4000	$ 1.4000	$ 1.4000	$ 1.4000	$ 1.1373	–	–	–	–
Series 36	**$ 1.0125**	$ 1.3500	$ 1.3500	$ 1.3500	$ 1.3500	$ 0.5733	–	–	–	–
Series 38	**$ 1.1125**	$ 1.1125	$ 1.1125	$ 1.1125	$ 0.4724	–	–	–	–	–
Series 40	**$ 1.1500**	$ 1.1500	$ 1.1500	$ 0.9310	–	–	–	–	–	–
Series 42	**$ 1.2375**	$ 1.2375	$ 1.2375	$ 0.5323	–	–	–	–	–	–
Financial ratios										
Return on common shareholders' equity[3]	**20.7 %**	14.9 %	18.0 %	18.4 %	18.1 %	11.7 %	16.9 %	17.9 %	20.1 %	24.1 %
Return on average assets[3]	**0.87 %**	0.65 %	0.81 %	0.84 %	0.81 %	0.53 %	0.73 %	0.74 %	0.78 %	0.88 %
Regulatory ratios under Basel III[4]										
Capital ratios[5]										
CET1[6]	**12.4 %**	11.8 %	11.7 %	11.7 %	11.2 %	10.1 %	9.9 %	9.2 %	8.7 %	7.3 %
Tier 1[6]	**15.0 %**	14.9 %	15.0 %	15.5 %	14.9 %[7]	13.5 %	12.5 %[8]	12.3 %[9]	11.4 %	10.1 %
Total[6]	**15.9 %**	16.0 %	16.1 %	16.8 %	15.1 %[7]	15.3 %	14.0 %[10]	15.1 %[9]	15.0 %	14.1 %
Leverage ratio[6]	**4.4 %**	4.4 %	4.0 %	4.0 %	4.0 %	3.7 %	4.0 %			
Other information										
Number of employees[11][12]	**25,966**	25,604	24,557	22,426	20,584	20,600	19,026	18,725	16,675	16,636
Branches in Canada	**384**	403	422	428	429	450	452	452	453	451
Banking machines in Canada	**927**	940	939	937	931	938	930	935	937	923

(1) Certain amounts from fiscal years 2013 and 2012 have been adjusted to reflect changes to accounting standards in 2014.
(2) The figures for 2014 and prior years have been adjusted to reflect the stock dividend paid in 2014.
(3) For additional information on supplementary financial measures composition, see the Glossary section on pages 123 to 126 of the MD&A.
(4) Ratios as at October 31, 2021 and 2020 are calculated in accordance with the Basel III rules, as set out in OSFI's *Capital Adequacy Requirements* guideline, and reflect the transitional measures granted by OSFI. For additional information, see the section entitled COVID-19 Pandemic – Key Measures Introduced by the Regulatory Authorities on page17 of the MD&A.
(5) The October 31, 2013 and 2012 ratios have not been adjusted to reflect changes in accounting standards.
(6) Since October 31, 2013, the capital ratios were calculated using the "all-in" methodology and the October 31, 2012 ratios are presented on a pro forma basis.
(7) Taking into account the redemption of the Series 28 preferred shares on November 15, 2017.
(8) Taking into account the redemption of the Series 20 preferred shares on November 15, 2015.
(9) Taking into account the redemption of the Series 16 preferred shares on November 15, 2014.
(10) Taking into account the redemption of the Series 20 preferred shares on November 15, 2015 and the $500 million redemption of notes on November 2, 2015.
(11) Full-time equivalent.
(12) Includes employees from Credigy Ltd. and Advanced Bank of Asia Limited for fiscal years 2014 to 2021.

Information for Shareholders

Description of Share Capital

The authorized share capital of the Bank consists of an unlimited number of common shares, without par value, an unlimited number of first preferred shares, without par value, issuable for a maximum aggregate consideration of $5 billion, and 15 million second preferred shares, without par value, issuable for a maximum aggregate consideration of $300 million. As at October 31, 2021, the Bank had a total of 337,912,283 common shares and 66,000,000 first preferred shares issued and outstanding.

Stock Exchange Listings

The Bank's common shares and Series 30, 32, 38, 40 and 42 First Preferred Shares are listed on the Toronto Stock Exchange in Canada.

Issue or class	Ticker symbol
Common shares	NA
First Preferred Shares	
Series 30	NA.PR.S
Series 32	NA.PR.W
Series 38	NA.PR.C
Series 40	NA.PR.E
Series 42	NA.PR.G

Number of Registered Shareholders

As at October 31, 2021, there were 20,375 common shareholders recorded in the Bank's common share register.

Dividends

Dividend Dates in Fiscal 2022
(subject to approval by the Board of Directors of the Bank)

Record date	Payment date
Common shares	
December 27, 2021	February 1, 2022
March 28, 2022	May 1, 2022
June 27, 2022	August 1, 2022
September 26, 2022	November 1, 2022
Preferred shares, Series 30, 32, 38, 40 and 42	
January 6, 2022	February 15, 2022
April 5, 2022	May 15, 2022
July 6, 2022	August 15, 2022
October 6, 2022	November 15, 2022

Dividends Declared on Common Shares During Fiscal 2021

Record date	Payment date	Dividend per share ($)
December 28, 2020	February 1, 2021	0.71
March 29, 2021	May 1, 2021	0.71
June 28, 2021	August 1, 2021	0.71
September 27, 2021	November 1, 2021	0.71

Dividends Declared on Preferred Shares During Fiscal 2021

		Dividend per share ($)						
Record date	Payment date	Series 30	Series 32	Series 34	Series 36	Series 38	Series 40	Series 42
Jan. 6, 2021	Feb. 15, 2021	0.2516	0.2399	0.3500	0.3375	0.2781	0.2875	0.3094
Apr. 5, 2021	May 15, 2021	0.2515	0.2400	0.3500	0.3375	0.2782	0.2875	0.3094
Jul. 6, 2021	Aug. 15, 2021	0.2516	0.2399	–	0.3375	0.2781	0.2875	0.3093
Oct. 6, 2021	Nov. 15, 2021	0.2516	0.2400	–	–	0.2781	0.2875	0.3094

Dividends paid are "eligible dividends" in accordance with the *Income Tax Act* (Canada).

Dividend Reinvestment and Share Purchase Plan

National Bank has a Dividend Reinvestment and Share Purchase Plan for holders of its common and preferred shares under which they can acquire common shares of the Bank without paying commissions or administration fees. Participants acquire common shares through the reinvestment of cash dividends paid on the shares they hold or through optional cash payments of at least $1 per payment, up to a maximum of $5,000 per quarter.

For additional information, shareholders may contact National Bank's registrar and transfer agent, Computershare Trust Company of Canada, at 1-888-838-1407. To participate in the plan, National Bank's beneficial or non-registered common shareholders must contact their financial institution or broker.

Direct Deposit
Shareholders may elect to have their dividend payments deposited directly via electronic funds transfer to their bank account at any financial institution that is a member of the Canadian Payments Association. To do so, they must send a written request to the transfer agent, Computershare Trust Company of Canada.

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Website: nbc.ca

Annual Meeting
The Annual Meeting of Holders of Common Shares of the Bank will be held on April 22, 2022.

Corporate Social Responsibility Statement
The information will be available in March 2022 on the Bank's website at nbc.ca.

Communication with Shareholders
For information about stock transfers, address changes, dividends, lost certificates, tax forms and estate transfers, shareholders of record may contact the transfer agent at the following address:

Computershare Trust Company of Canada
Share Ownership Management
100 University Avenue, 8th Floor
Toronto, Ontario M5J 2Y1 Canada

Telephone: 1-888-838-1407
Fax: 1-888-453-0330
E-mail: *service@computershare.com*
Website: computershare.com

Shareholders whose shares are held by a market intermediary are asked to contact the market intermediary concerned.

Other shareholder inquiries can be addressed to:
Investor Relations
National Bank of Canada
National Bank Tower
600 De La Gauchetière Street West, 7th Floor
Montreal, Quebec H3B 4L2 Canada

Telephone: 1-866-517-5455
E-mail: investorrelations@nbc.ca
Website: nbc.ca/investorrelations

Caution Regarding Forward-Looking Statements
From time to time, National Bank of Canada makes written and oral forward-looking statements, including in this Annual Report, in other filings with Canadian regulators, in reports to shareholders, in press releases and in other communications. All such statements are made pursuant to the Canadian and American securities legislation and the provisions of the United States *Private Securities Litigation Reform Act of 1995*.

Additional information about these statements can be found on page 15 of this Annual Report.

Trademarks
The trademarks belonging to National Bank of Canada and used in this report include National Bank of Canada, National Bank, NBC, National Bank Financial, National Bank Financial Wealth Management, Private Banking 1859, National Bank Direct Brokerage, National Bank Investments, National Bank Independent Network, National Bank Trust, NBC Asset Trust, National Bank Life Insurance, Natcan Trust Company, National Bank Realty, Natbank and their respective logos. Certain trademarks owned by third parties are also mentioned in this report.

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Legal Deposit
ISBN 978-2-921835-71-8
Legal deposit – Bibliothèque et Archives nationales du Québec, 2021
Legal deposit – Library and Archives Canada, 2021

Printing
L'Empreinte

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